

# Stopping Big Tech from Becoming Big AI

A Roadmap for Using  
Competition Policy to Keep  
Artificial Intelligence Open for All

MAX VON THUN AND DANIEL A. HANLEY

SUPPORTED BY THE MOZILLA FOUNDATION



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# Introduction and Summary

With artificial intelligence set to play an increasingly important role in our lives, society stands at a crossroads. One path leads towards a future where AI is shaped and controlled by a tiny number of extremely powerful corporations, with other businesses, workers, consumers, and ultimately democracy itself losing out. The other leads to a world where AI is developed by a diverse array of market participants, where public, non-profit, and private actors are able to compete fairly, and where the technology furthers the public interest, not just the profit margins of existing tech giants.

We remain at this pivotal crossroads because, although a few tech giants are clearly leading the AI race, they have yet to fully entrench their power over the technology in the way they have done in countless other markets. This means governments – and competition authorities in particular – still have the ability to change the direction of travel, but they must act quickly.

The rate of adoption for nearly all technologies has only increased in recent decades, from the personal computer, to the internet, to smartphones. Alongside the immense benefits of these technologies, there have also been material harms to consumers and society at large. Traditional means of protecting citizens from concentration of power among those wielding such technology, including antitrust enforcement, have been too slow and often ineffective. With respect to AI, there is a unique opportunity to act before it is too late – an ever-narrowing window to learn from the mistakes of the past. In this report, we seek to aid policymakers in responding to this challenge by identifying specific threats to fair competition in AI and laying out practical ways to neutralize them.

These threats – many of them already evident – include an ever-growing number of exclusive or preferential “partnerships” between dominant tech firms and potential competitors, self-preferencing, tying and other practices designed to leverage market power in the vertical technology stack, exploitation and abuse of business customers and consumers, and restricting access to highly concentrated inputs. While most of these practices are targeted at competitors rather than end users, by reducing competition in AI, they risk undermining innovation and leaving consumers with fewer options – including fewer options that put their privacy and safety first.

When it comes to responding to these threats, our recommendations focus primarily on competition policy. Each of our proposals is tailored to a specific threat posed by the current market structure of the AI industry – from using strengthened merger control regimes to

investigate anticompetitive partnerships, to wielding antitrust laws and ex-ante digital competition powers to crack down on unfair practices by dominant firms.

There is already an existing framework of legislation, particularly in the European Union, to deal with many challenges posed by AI. These tools need to be activated to address rising market concentration in AI and the technology sector more broadly. Whether through restrictions on vertical integration, structural separation, or ensuring fair access, these legislative tools have been successfully applied in sectors like telecommunications and digital markets. By extending such principles to AI regulation, regulators can ensure that each stage of the supply chain is scrutinized and optimized, fostering a transparent and competitive market from development to deployment.

A set of high-level principles for regulatory intervention serve as the foundation for the report's recommendations. These principles include preserving market diversity, fostering fair competition, emphasizing structure, adopting a proactive (rather than reactive) strategy, regulating where necessary, and ensuring regulators have the tools they need to do their jobs.

In particular, our report calls on governments and regulators to:

- Ensure that new ex-ante digital competition regimes are ready to respond to emerging anti-competitive threats in AI;
- Block mergers and nullify existing exclusive partnerships that unfairly limit competition;
- Break up existing concentrations of power across the AI technology stack and target existing unfair market practices more generally;
- Guarantee access to essential inputs such as computing power by imposing non-discrimination obligations on dominant firms and applying structural separation where necessary;
- Empower businesses and consumers to switch providers by imposing data portability and interoperability requirements on cloud and AI services.

Above all, it is clear that protecting and promoting competition in AI – and in digital markets more generally – will require a cross-governmental approach, in two senses of the term. *First*, the different constituent parts of government – competition agencies, consumer protection authorities, data privacy regulators – must work collectively to regulate AI and counter the concentrated economic power of a few gatekeepers. *Second*, governments around the world need to work together in taking on this ambitious task, given the transnational nature of the threat.



**I.**

# Concentration and Competition in AI

# I.

## Concentration and Competition in AI

As numerous experts and commentators have pointed out, the development of AI, and especially generative AI, is taking place in the context of a technology stack and wider digital ecosystem that are already highly concentrated.<sup>1</sup> While there may be plenty of “downstream” competition when it comes to the practical deployment of AI through various applications and services, this diversity is built on a consolidated set of “upstream” inputs including foundation models, cloud computing, semiconductors, and data.

In other words, today’s AI boom is being powered by consolidated resources largely controlled by a small number of entrenched tech giants. These firms are both developing AI technologies themselves and – in exchange for privileged access to technology – providing select smaller players with the resources they need to do so, further entrenching their power while neutralizing potential competitive threats. These consolidated resources span a number of markets, technologies, and asset types but can broadly be broken down into five overlapping categories: **computing power, data, capital, ecosystems, and technical expertise.**

### A. Computing Power

A small number of cloud computing and semiconductor giants dominate the computing infrastructure required to train and host advanced AI models and applications. Amazon, Microsoft, and Google together control roughly two-thirds of the cloud computing

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<sup>1</sup> See e.g., Open Markets Institute, “AI in the Public Interest: Confronting the Monopoly Threat” (2023); AI Now Institute, “2023 Landscape: Confronting Tech Power” (2023); Brookings, “Market concentration implications of foundation models: The Invisible Hand of ChatGPT” (2023); Competition and Markets Authority, “AI Foundation Models: Initial Review” (2023),



market, with Google coming in a distant third place.<sup>2</sup> The market for the most advanced semiconductors is even more concentrated, with U.S. firm Nvidia and Taiwanese company TSMC estimated to control roughly 80-95% of the market in relation to the design<sup>3</sup> and manufacturing<sup>4</sup> of such chips respectively.

Skyrocketing demand for advanced semiconductors, combined with bottlenecks in production,<sup>5</sup> have resulted in shortages and high prices, although these have recently started to ease.<sup>6</sup> This leaves small businesses and potential new entrants at a disadvantage compared to the tech giants, which can outbid smaller challengers for chips. It also puts dominant chipmakers in a position to determine – with little transparency – who gets access to their technology.<sup>7</sup> Many of these chips end up powering the tech giants' cloud computing infrastructure, further magnifying their centrality in the AI technology stack.

Where there are attempts to lessen this excessive reliance on Nvidia and TSMC technology, these typically take the form of semiconductors developed by the Big Tech companies themselves, which is of little help to other market participants. Another significant barrier to challenging Nvidia's dominance in chip design is its popular CUDA software, which allows AI developers to adapt Nvidia's chips for various purposes. CUDA's popularity further increases demand for and dependence on Nvidia's chips. Here again, competitors are attempting to provide alternatives, but so far with limited success.<sup>8</sup>

The sheer cost of training and hosting large-scale AI models on servers makes it nearly impossible for independent AI startups to survive without some kind of external sponsor. Thus, having a viable business model requires either securing a large capital buffer and/or striking a bespoke deal with a large cloud provider, often provided by the same firm. The role of these deals in weakening competition in AI is explored further in the next section.

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2 Felix Richter, "Amazon Maintains Cloud Lead as Microsoft Edges Closer," *Statista*, May 2, 2024, <https://www.statista.com/chart/18819/worldwide-market-share-of-leading-cloud-infrastructure-service-providers/>

3 Trevor Jennewine, "Nvidia Sells Graphics and AI Chips, but 15% of Sales Come From Other Multi-Hundred-Billion Dollar Markets," *The Motley Fool*, Jan 22, 2024, <https://www.fool.com/investing/2024/01/22/nvidia-sells-ai-chips-15-sales-from-other-markets/>

4 "Taiwan's dominance of the chip industry makes it more important," *The Economist*, March 6, 2023, <https://www.economist.com/special-report/2023/03/06/taiwans-dominance-of-the-chip-industry-makes-it-more-important>

5 See generally Saif M. Khan et al., "The Semiconductor Supply Chain: Assessing National Competitiveness," Center for Security & Emerging Tech, January 2021, describing the concentration within the semiconductor industry, <https://cset.georgetown.edu/wp-content/uploads/The-Semiconductor-Supply-Chain-Issue-Brief.pdf>.

6 Anton Shilov, "TSMC: Shortage of Nvidia's AI GPUs to Persist for 1.5 Years," *Tom's Hardware*, September 7, 2023, <https://www.tomshardware.com/news/tsmc-shortage-of-nvidias-ai-gpus-to-persist-for-15-years>

7 Cade Metz, Karen Weise and Mike Isaac, "Nvidia's Big Tech Rivals Put Their Own A.I. Chips on the Table," *The New York Times*, January 29, 2024, <https://www.nytimes.com/2024/01/29/technology/ai-chips-nvidia-amazon-google-micro-soft-meta.html>

8 Jai Vipra and Sarah Myers West, "Computational Power and AI," AI Now Institute, September 27, 2023, <https://ainowinstitute.org/publication/policy/compute-and-ai>

In short, concentration in computing infrastructure acts as a gravitational field that accelerates the centralization of AI research and commercialization around dominant firms.

## B. Data

Large-scale AI models, including large language models (LLMs) and large multimodal models (LMMs), are trained on massive amounts of data from which their outputs – text, images, or video – are ultimately derived. While much of the core training material for today’s large models consists of publicly available data, this data still needs to be collected, organized, cleaned, labeled, and prepared for ingestion by the AI model. This process often involves sophisticated computational tasks that include removing redundant data as well as standardizing and manipulating data to enhance the model’s learning efficiency and robustness. Legitimate questions have also been raised about whether such data is truly “public,” given indications that copyright<sup>9</sup> and privacy<sup>10</sup> laws have in many cases been violated.

Dominant tech firms have a clear advantage when it comes to this kind of complex, costly and time-consuming “data labor,” thanks not only to economies of scale, but also their deeper pockets and greater access to technical expertise. This labor is carried out not just by well-paid software engineers in high-income countries, but also by poorly-paid – and often outsourced – workers in low-income countries.<sup>11</sup> In addition, the tech giants are also better positioned than smaller rivals to negotiate licensing agreements with copyright owners, or where this fails, to resolve, evade, or absorb the legal and financial consequences of inappropriately exploiting copyright-protected material to train AI models. For example, under a new “Copyright Commitment”, Microsoft has promised to assume responsibility for customers challenged on copyright grounds.<sup>12</sup> Few companies other than the tech giants are willing and financially capable of taking on so much legal risk.

Proprietary data also plays an important role in the development of AI products, a role that is set to grow as firms complete their scraping of all publicly available data. Dominant firms with access to large amounts of proprietary and highly personalized data (such as speech patterns or musical preferences collected on social media) and data-gathering systems

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9 Michael M. Grynbaum and Ryan Mac, “The Times Sues OpenAI and Microsoft Over A.I. Use of Copyrighted Work,” *The New York Times*, December 27, 2023, <https://www.nytimes.com/2023/12/27/business/media/new-york-times-open-ai-microsoft-lawsuit.html>

10 Natasha Lomas, “ChatGPT is violating Europe’s privacy laws, Italian DPA tells OpenAI,” *TechCrunch*, January 29, 2024, <https://techcrunch.com/2024/01/29/chatgpt-italy-gdpr-notification/>

11 Josh Dzieza, “AI Is a Lot of Work,” *The Verge*, June 20, 2023, <https://www.theverge.com/features/23764584/ai-artificial-intelligence-data-notation-labor-scale-surge-remotasks-openai-chatbots>;

12 Brad Smith, “Microsoft announces new Copilot Copyright Commitment for customers,” *Microsoft (blog)*, September 7, 2023. <https://blogs.microsoft.com/on-the-issues/2023/09/07/copilot-copyright-commitment-ai-legal-concerns/>

therefore enjoy a decisive competitive advantage over those only able to access public data. This includes data collected through other services, such as social media, search engines and cloud computing, as well as specialized data (such as financial data) acquired from brokers or through deals and acquisitions.<sup>13</sup> Such data can be used to fine-tune models, a process that involves retraining the model on domain-specific data to improve performance in targeted applications or results generated by general-purpose AI systems. Indeed, there are already indications that large tech firms are using such proprietary data to give their AI services a profound market advantage.<sup>14</sup>

This data advantage is exacerbated after AI models and services are deployed on the market. Firms with the most popular AI services – likely those trained on the largest amount of computing power and data and/or benefitting from unfair practices including self-preferencing and tying – subsequently gain access to a new stream of highly valuable information on how people interact with their systems.<sup>15</sup> This user data can in turn be used to refine these systems, leveraging techniques such as reinforcement learning from human feedback (RLHF) to iteratively improve model performance, further attracting yet more users and user data in what is known as a “data feedback loop.” This self-reinforcing dynamic will make it exceptionally difficult for new entrants to challenge dominant incumbents. Beyond the impact on market competition, the incentive this creates for large firms to collect as much personal data as possible will also amplify the invasive surveillance that is already a core feature of today’s Internet.

## C. Capital

Largely due to a lack of sector-specific regulation and their many years of unchallenged dominance across a wide range of digital markets,<sup>16</sup> today’s tech monopolies – some of the most valuable and profitable corporations the world has ever seen – have amassed huge financial resources, which they are able to deploy to both defend their existing positions

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13 Incumbent firms also have extraordinary data gathering capabilities that are nearly impossible to replicate at a similar scale. See Daniel A. Hanley, “Let’s Make Google Share Some Secrets,” *Washington Monthly*, July 20, 2021, <https://washingtonmonthly.com/2021/07/20/lets-make-google-share-some-secrets/> (describing Google’s website scraping infrastructure and that due to “bandwidth limitations and website owner preferences,” there are limitations on how many web crawlers can scrape data on any given website page. Such a circumstance heightens the barriers to entry for firms to enter the search engine industry).

14 Lauren Leffer, “Your Personal Information Is Probably Being Used to Train Generative AI Models,” *Scientific American*, October 19, 2023, <https://www.scientificamerican.com/article/your-personal-information-is-probably-being-used-to-train-generative-ai-models/>

15 See OpenAI article, “How your data is used to improve model performance”, <https://help.openai.com/en/articles/5722486-how-your-data-is-used-to-improve-model-performance>

16 U.S. antitrust enforcers explicitly chose to avoid litigation against the Big Tech companies in the early 2010s. See Leah Nylen, “How Washington Fumbled the Future,” *Politico*, March 16, 2021, <https://www.politico.com/news/2021/03/16/google-files-ftc-antitrust-investigation-475573>

and capture new markets.<sup>17</sup> Microsoft, for example, is currently valued at over \$3 trillion, with approximately \$75 billion of cash on hand. The comparable cash on hand figures for Google, Amazon, Meta, and Apple are \$100 billion, \$89 billion, \$58 billion, and \$92 billion respectively.<sup>18</sup>

This unparalleled financial might allows these corporations to invest in new technologies at a scale and speed that new entrants – generally dependent on funds from external investors – cannot match. This includes cross-subsidization from other more lucrative parts of their businesses<sup>19</sup> and the ability to sustain huge losses in order to make speculative bets on new products, such as the over \$40 billion of losses sustained by Meta’s “Reality Labs” virtual reality division.<sup>20</sup> In fact, when it comes to AI, the tech giants are increasingly supplanting the role traditionally played by venture capitalists and other funders, but (as explained below) with far more strings attached.<sup>21</sup>

This means that dominant tech firms are able to spend much more money on training and commercializing AI models and services than new entrants, including sustaining considerable losses for a considerable period of time where necessary.<sup>22</sup> This extreme financial imbalance explains the growing reliance of AI startups on the tech giants for funding, including the \$13 billion invested by Microsoft into OpenAI<sup>23</sup> and the \$6 billion Google and Amazon have invested into Anthropic.<sup>24</sup> This dependence further undermines effective competition, as we discuss in the next section.

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- 17 Jeran Wittenstein, “Big Tech Still Rules Profit Growth Even as S&P Leadership Widens,” *Bloomberg*, 21 January, 2024, <https://www.bloomberg.com/news/articles/2024-01-21/big-tech-still-rules-profit-growth-even-as-s-p-leadership-widens?sref=ZvMMMOkz>
- 18 See cash on hand data collected by companiesmarketcap.com for [Microsoft](#), [Google](#), [Amazon](#), [Meta](#) and [Apple](#).
- 19 Stacy Mitchell, “Amazon’s Monopoly Tollbooth,” Institute for Local Self-Reliance, September 21, 2023, <https://ilsr.org/articles/amazonmonopolytollbooth-2023/>
- 20 Jonathan Vanian, “Meta’s Reality Labs loses record \$4.65 billion ahead of Apple’s Vision Pro launch,” *CNBC*, February 1, 2024, <https://www.cnbc.com/2024/02/01/metas-reality-labs-loses-4point65-billion-in-q4-ahead-of-vision-pro.html>
- 21 George Hammond, “Big Tech outspends venture capital firms in AI investment frenzy,” *Financial Times*, December 29, 2023, <https://www.ft.com/content/c6b47d24-b435-4f41-b197-2d826cce9532>
- 22 Such a practice is not uncommon, particularly in the technology industry. Lina M. Khan, “Amazon’s Antitrust Paradox,” 126 *Yale L.J.* 710, 768-72 (2017); Sandeep Vaheesan, “Reconsidering Brooke Group: Predatory Pricing in Light of the Empirical Learning,” 12 *Berkeley Bus. L.J.* 81 (2015).
- 23 Jordan Novet, “Microsoft’s \$13 billion bet on OpenAI carries huge potential along with plenty of uncertainty,” *CNBC*, April 8, 2023, <https://www.cnbc.com/2023/04/08/microsofts-complex-bet-on-openai-brings-potential-and-uncertainty.html>
- 24 Jackie Davalos and Brad Stone, “OpenAI Rival Anthropic Defends Partnerships With Amazon, Google,” *Bloomberg*, May 9, 2024, <https://www.bloomberg.com/news/articles/2024-05-09/openai-rival-anthropic-defends-partnerships-with-amazon-google?sref=ZvMMMOkz>

## D. Ecosystems

AI models and services do not exist in a vacuum but are typically designed to be integrated into a wide range of existing digital services and devices. These include search engines, smartphones, operating systems, browsers, social media platforms, cloud computing, smart speakers, and more. This integration often leverages advanced application programming interfaces (APIs) and software developer kits (SDKs) to ensure interoperability, enabling AI functionalities to be embedded directly into user interfaces and back-end systems. This means that access to these wider ecosystems, which extend beyond the vertical technology stack, is a key determinant of an individual firm's ability to successfully commercialize its AI services.

Today's tech giants tightly control these ecosystems, which are the primary source of their enduring power. As well as being a leader in AI in its own right, Microsoft also has a dominant position in cloud computing, office software, and PC operating systems, in addition to being active in other markets such as search and gaming.<sup>25</sup> For its part, Google is dominant in digital advertising, search, mobile operating systems, and browsers, and competes in cloud computing and office software.<sup>26</sup> Through a combination of network effects, economies of scale, data feedback loops, and a high degree of integration, these ecosystems of overlapping services work in parallel to reinforce their owners' overall dominance by locking users in and digging significant moats for businesses on the outside.<sup>27</sup>

The UK Competition and Markets Authority (CMA) recently published a diagram highlighting the presence of Amazon, Apple, Google, Meta and Microsoft across the foundation model value chain.<sup>28</sup> While stark, we note that it was not intended to be exhaustive (for example, it omits Microsoft's LinkedIn and does not include semiconductors) and it will quickly require updating given the speed of developments.

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25 Daniel A. Hanley, "A Topology of Multisided Digital Platforms," 19 Conn. Pub. Int. L.J. 271, 346 (2020) (detailing the multiple markets Big Tech companies like Google, Microsoft, and Amazon occupy). [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3651606](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3651606)

26 Ibid.

27 Ibid.

28 Competition and Markets Authority, AI Foundation Models Inquiry: Technical Update Report, Figure 6, April 2024. [https://assets.publishing.service.gov.uk/media/661e5a4c7469198185bd3d62/AI\\_Foundation\\_Models\\_technical\\_update\\_report.pdf](https://assets.publishing.service.gov.uk/media/661e5a4c7469198185bd3d62/AI_Foundation_Models_technical_update_report.pdf)

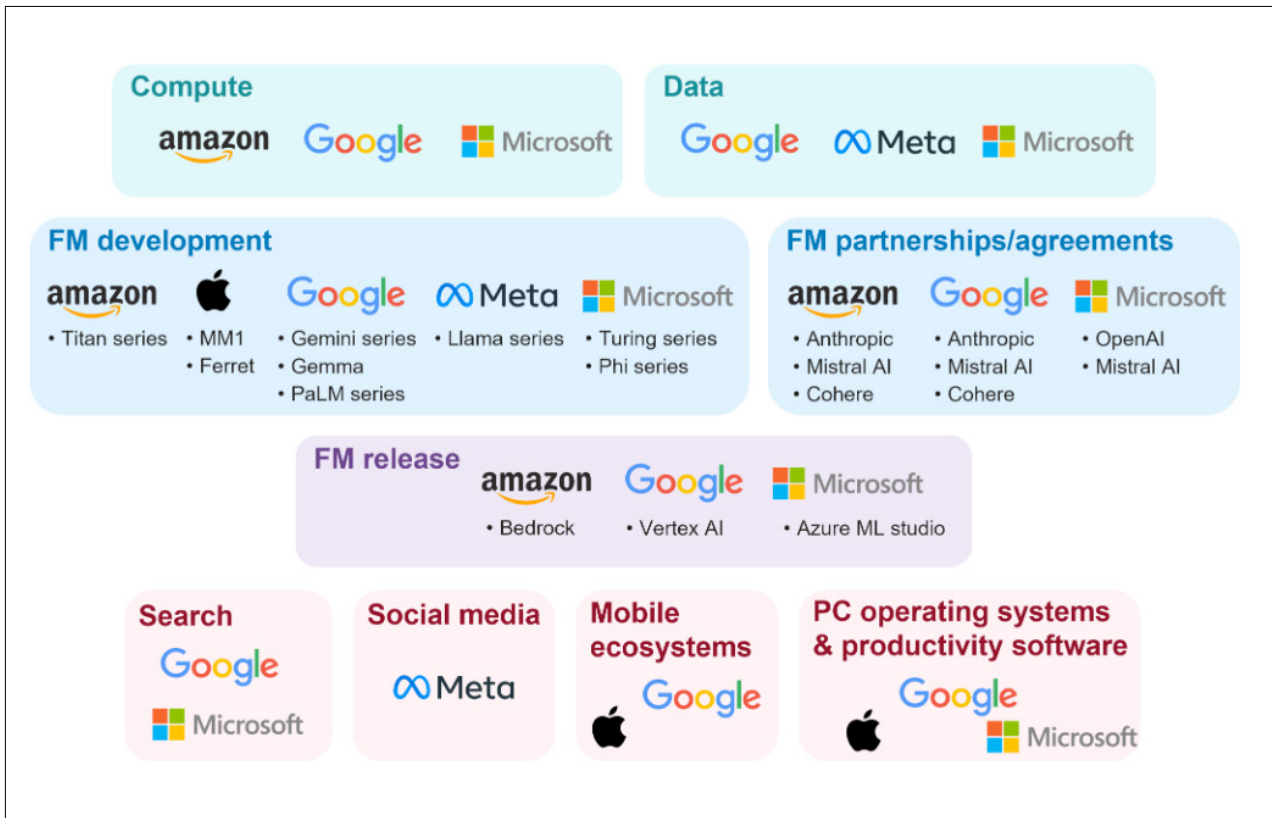


Figure 1: Big Tech's presence throughout the AI value chain (Source: Competition and Markets Authority)

These expansive ecosystems – which comprise millions and, in some cases, billions of users – give their owners a considerable advantage over others in the AI race, by providing them with automatic pathways to commercialization. Examples include Google's integration of its Gemini chatbot (formerly known as Bard) with its search engine,<sup>29</sup> Microsoft's integration of AI (known as Copilot) into its Office software suite,<sup>30</sup> Apple's integration of ChatGPT – and potentially other foundation models – into Siri and Writing Tools (known as Apple Intelligence),<sup>31</sup> and Meta's introduction of AI-powered chatbots to WhatsApp, Facebook, and Instagram.<sup>32</sup> Meanwhile, the tech giants' dominance in the cloud not only gives them privileged access to vast computing power necessary for developing their own AI products – it also enables them to fundamentally steer the trajectory of the technology, primarily by acting as the gateway for access to both proprietary and third-party AI models and services.

29 Google, "Introducing Gemini: our largest and most capable AI model", blog, December 6, 2023, <https://blog.google/technology/ai/google-gemini-ai/>

30 Microsoft, "Introducing Microsoft 365 Copilot – your copilot for work", blog, March 16, 2023, <https://blogs.microsoft.com/blog/2023/03/16/introducing-microsoft-365-copilot-your-copilot-for-work/>

31 Apple, "Introducing Apple Intelligence", press release, June 10, 2024, <https://www.apple.com/newsroom/2024/06/introducing-apple-intelligence-for-iphone-ipad-and-mac/>

32 Meta, "Introducing New AI Experiences Across Our Family of Apps and Devices", press release, September 27, 2023, <https://about.fb.com/news/2023/09/introducing-ai-powered-assistants-characters-and-creative-tools/>

FIRM	SERVICE BEING INTEGRATED WITH GENERATIVE AI
<b>AMAZON</b>	<a href="#">Advertising</a>
	<a href="#">Alexa</a>
	<a href="#">Amazon One</a>
	<a href="#">Amazon Web Services</a>
	<a href="#">Marketplace</a>
<b>APPLE</b>	<a href="#">iOS</a>
	<a href="#">iPadOS</a>
	<a href="#">MacOS</a>
<b>GOOGLE</b>	<a href="#">Advertising</a>
	<a href="#">Android</a>
	<a href="#">Chrome</a>
	<a href="#">Search</a>
	<a href="#">Google Workspace</a>
	<a href="#">Google Cloud</a>
<b>META</b>	<a href="#">Advertising</a>
	<a href="#">WhatsApp</a>
	<a href="#">Facebook</a>
	<a href="#">Instagram</a>
<b>MICROSOFT</b>	<a href="#">Bing</a>
	<a href="#">Edge</a>
	<a href="#">Office/Microsoft 365</a>
	<a href="#">Windows</a>
	<a href="#">Xbox</a>

Figure 2: How dominant tech firms are leveraging existing services to thrive in AI

One result of this will be the strengthening of existing ecosystems. But AI may also facilitate the emergence of new ecosystems built around novel technologies, such as foundation models. For example, OpenAI has launched a “GPT Store” which gives customers access to customized versions of ChatGPT, leveraging the ability to reuse and modify pre-trained AI models to create customized applications, which are built by the firm’s partners and wider user base.<sup>33</sup> Later in this paper, we explore to what extent these services may present a competitive challenge to existing gatekeepers, such as dominant app stores, as opposed to creating new forms of dependency among consumers and businesses.

## E. Technical Expertise

The technical expertise a company needs to succeed at the frontier of AI is highly specialized, scarce, and costly. In-demand roles include data scientists, machine learning experts, software engineers, and AI safety specialists, often requiring an advanced degree, such as a doctorate in fields like computer science, mathematics, or statistics. These roles demand extensive knowledge in areas such as neural networks, deep learning, natural language processing, reinforcement learning, and algorithmic bias mitigation. According to a number of industry studies, it is challenging for most organizations to fill AI-specific technical roles because demand is greater than supply.<sup>34</sup>

One recent UK survey of IT managers found that 72% faced challenges in recruiting the talent they need to develop AI applications and services.<sup>35</sup> Many of the individuals who possess such expertise already work for incumbent firms at very high levels of remuneration, making it difficult for others to lure them away. Where they do not, those same firms are best placed to hire them thanks to their deeper pockets.<sup>36</sup> According to an April 2024 analysis of job postings, Meta, Google, Microsoft, OpenAI and Apple were hiring for 501 generative AI-related positions and another 1,725 in AI and machine learning more broadly.<sup>37</sup>

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33 Wes Davis, “OpenAI’s custom GPT Store is now open to all for free,” *The Verge*, May 13, 2024, <https://www.theverge.com/2024/5/13/24155582/openai-custom-gpt-store-available-free-subscribers>

34 McKinsey, “New McKinsey survey reveals the AI tech-talent landscape,” blog, January 20, 2023, <https://www.mckinsey.com/about-us/new-at-mckinsey-blog/ai-reinvents-tech-talent-opportunities>

35 Red Hat, “AI Skills Gap Must be Addressed Urgently, say 72% of IT leaders in Red Hat Survey”, press release, <https://www.redhat.com/en/about/press-releases/ai-skills-gap-must-be-addressed-urgently>

36 Jai Vipra and Anton Korinek, “Market concentration implications of foundation models: The Invisible Hand of ChatGPT,” *Brookings*, September 2023, <https://www.brookings.edu/wp-content/uploads/2023/09/Market-concentration-implications-of-foundation-models-FINAL-1.pdf>

37 Mark Sullivan, “Big Tech is on a generative AI hiring spree,” *Fast Company*, April 15, 2024, <https://www.fastcompany.com/91092373/big-tech-is-on-a-generative-ai-hiring-sprees>



This talent “crunch” acts as a significant constraint on the ability of new entrants and smaller businesses to compete in AI, while placing them in a constant struggle to hold onto the skilled workers they do already have. Microsoft’s recent move to poach Inflection AI’s CEO and much of its workforce – effectively “acquiring” most of the startup’s value – is a potent illustration of this skewed power dynamic.<sup>38</sup> This phenomenon not only narrows the competitive landscape but also stifles innovation by concentrating expertise within a few dominant firms.

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38 Shirin Ghaffary and Rachel Metz, “Microsoft to Pay Inflection AI \$650 Million After Scooping Up Most of Staff,” *Bloomberg*, March 21, 2024, <https://www.bloomberg.com/news/articles/2024-03-21/microsoft-to-pay-inflection-ai-650-million-after-scooping-up-most-of-staff?sref=ZvMMMOkz>



# II.

## Competition Issues in AI

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## Competition Issues in AI

The AI ecosystem remains at an early stage in its development, particularly regarding large language models and generative AI. It remains to be seen which specific firms and technologies will come to dominate the various existing and future markets for AI models, applications and related products and services.

What is already abundantly clear, however, is that Big Tech's domination of today's digital realm – from the reams of data they have harvested to the computing power and platforms they control – have put them in pole position to extend their dominance into AI. Should they succeed in doing so, history suggests that this dominance will result in a wide range of harms to businesses, consumers, and ultimately society itself, unless competition authorities step in to prevent them.

In this section, we identify some of the exclusionary and unfair practices that are already emerging and that may develop as the AI ecosystem continues to mature. While many of these harmful practices are occurring right now, some, given the nascent state of the market, are potential areas of concern informed by a long history of similar conduct in digital markets, largely by the same players now poised to dominate AI.

### **A. Anticompetitive Partnerships, Exclusive Deals, and Acquisitions**

One critical way in which fair competition in the AI market is already being undermined is through partnerships, investments, and acquisitions involving dominant tech firms and startups. In many aspects, these arrangements resemble the so-called “killer acquisitions” and “reverse killer acquisitions” of the past – including Meta's acquisitions of WhatsApp and Instagram, and Google's acquisitions of DoubleClick and YouTube. These types of transactions enabled a few powerful firms to use their privileged access to capital to eliminate potential competitive threats and consolidate their hold on digital markets in a way that is now virtu-

ally irreversible, instead of innovating by themselves.<sup>39</sup> According to one analysis, between 2010 and 2023, Big Tech acquired nearly 100 AI startups – not to mention hundreds of other businesses building related technologies.<sup>40</sup>

Against the background of competition enforcers seeking to strengthen enforcement against anti-competitive mergers, the tech giants have begun using partnerships with smaller firms as a means of cementing their market power. Prominent examples include Microsoft’s partnerships with OpenAI and Mistral AI<sup>41</sup>, Google and Amazon’s combined \$6 billion worth of investment in Anthropic<sup>42</sup>, and the “reverse acqui-hires” of staff at AI startups including Inflection, Adept and Character.AI.<sup>43</sup> These partnerships often involve joint ventures, equity stakes, or long-term collaboration agreements that can be tantamount to de facto mergers.

A key factor driving this consolidation is the concentration of resources (primarily computing power and data) needed to train advanced AI models among a few Big Tech firms. Training state-of-the-art AI models like GPT-4 or DALL-E 3 requires immense computational resources and vast datasets spanning terabytes or even petabytes. Smaller incumbents and new entrants that do not have access to such resources find themselves becoming increasingly dependent on the large firms able to provide them – creating the incentive for smaller firms to partner with the tech giants. This access typically takes place through deals whereby in return for computing power, investment, and support with commercialization, the dominant tech firm gains privileged or exclusive access to a startup’s technology, a lucrative customer, and a material stake in its future success.

While the precise nature of many of these deals remains opaque, the degree of exclusivity entailed varies significantly. For example, while OpenAI is required to use Microsoft Azure as its exclusive cloud provider, similar restrictions do not appear to apply to Amazon’s partnership with Anthropic, or Google’s partnership with Cohere. Matters are less clear cut when it

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39 See generally Mark Glick and Catherine Ruetschlin, “Big Tech Acquisitions and the Potential Competition Doctrine: The Case of Facebook,” Institute for New Economic Thinking, Working Paper No. 104, October 2019, [https://econ.utah.edu/antitrust-conference/session\\_material/Tech%20Acquisitions%20and%20Competition%20Doctrine.pdf](https://econ.utah.edu/antitrust-conference/session_material/Tech%20Acquisitions%20and%20Competition%20Doctrine.pdf). See also, Jason Furman et al, “Unlocking Digital Competition,” page 12 [https://assets.publishing.service.gov.uk/media/5c88150ee-5274a230219c35f/unlocking\\_digital\\_competition\\_furman\\_review\\_web.pdf](https://assets.publishing.service.gov.uk/media/5c88150ee-5274a230219c35f/unlocking_digital_competition_furman_review_web.pdf)

40 Laura Bratton, “Big Tech Is Swallowing up AI,” *Quartz*, March 29, 2024, <https://qz.com/microsoft-apple-google-ai-consolidation-antitrust-scr-1851370263>

41 Microsoft, “Microsoft and Mistral AI announce new partnership to accelerate AI innovation and introduce Mistral Large first on Azure,” press release, February 26, 2024, <https://azure.microsoft.com/en-us/blog/microsoft-and-mistral-ai-announce-new-partnership-to-accelerate-ai-innovation-and-introduce-mistral-large-first-on-azure/>

42 Google, “Google DeepMind: Bringing together two world-class AI teams,” press release, April 20, 2023, <https://blog.google/technology/ai/april-ai-update/>

43 George Hammond, “Big Tech’s talent raids on AI start-ups sideline early investors,” *Financial Times*, August 13, 2024, <https://www.ft.com/content/95eca7ee-41e7-4106-a746-34f8383b7d71>

comes to privileged but not exclusive access to technology, such as Anthropic’s obligation to give Amazon engineers and AWS customers privileged access to its models,<sup>44</sup> access that is not exclusive but more comprehensive than that provided to other customers.<sup>45</sup>

These partnerships – which in many ways resemble mergers – pose several threats to fair competition in the AI ecosystem. Often vertical relationships in nature, these partnerships risk giving dominant firms control of multiple layers of the technology stack, from the hardware level (such as the graphics processing units – GPUs – crucial to performance in AI) to AI development platforms, cloud infrastructure, and eventually downstream applications and devices. Moreover, they significantly blunt the incentives of the partnered firms to compete against each other, given the extensive financial and technological interdependence involved.<sup>46</sup> OpenAI, which relies on Microsoft for a large proportion of its funding and computing power, has little, if any, incentive to compete aggressively with Microsoft if it risks putting that support at stake.

Similarly, one would expect Microsoft to be reluctant to pursue a commercial strategy that involves directly taking on OpenAI’s technology by building its own competing frontier models, given the billions it has invested in the startup. Anthropic’s partnerships with Google and Amazon can be seen in a similar light, albeit at a lesser scale. These exclusive agreements are likely to result in the partners shelving or failing to develop products and research initiatives that are in direct competition with each other.<sup>47</sup> Indeed, we are already seeing such events take place – consider Microsoft’s sunsetting of its Cortana virtual assistant following the launch of its OpenAI-powered “Copilot” assistant.<sup>48</sup>

The public harms from these partnerships are not limited to the partnered firms themselves. Where there is exclusivity involved, for example, in OpenAI’s obligation to use Microsoft’s cloud computing services,<sup>49</sup> this prevents rival providers (in this instance, other cloud platforms) from competing for the partnered firm’s business (in this case, OpenAI) and thus

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44 Amazon, “Amazon and Anthropic Announce Strategic Collaboration to Advance Generative AI,” press release, September 25, 2023, <https://press.aboutamazon.com/2023/9/amazon-and-anthropic-announce-strategic-collaboration-to-advance-generative-ai>

45 Such conduct can be described as exclusive dealing, monopolistic leveraging. Daniel A. Hanley, “Per Se Illegality of Exclusive Deals and Tying as Fair Competition,” 37 Berkeley Tech. L.J. 1057, 2022. This conduct can also be called “monopolizing by conditioning.” Daniel Francis, “Monopolizing by Conditioning,” \_\_ Colum. L. Rev. \_\_ (forthcoming 2024), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4721709](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4721709).

46 Daniel A. Hanley, “Per Se Illegality of Exclusive Deals and Tying As Fair Competition,” 37 Berkeley Tech. L.J. 1057, 1073-74, 2022.

47 Ibid.

48 Microsoft, “End of support for Cortana,” blog post, <https://support.microsoft.com/en-us/topic/end-of-support-for-cortana-d025b39f-ee5b-4836-a954-0ab646ee1efa>

49 See OpenAI, “OpenAI and Microsoft,” <https://openai.com/index/openai-and-microsoft/> (“We’re working with Microsoft to start running most of our large-scale experiments on Azure. This will make Azure the primary cloud platform that OpenAI is using for deep learning and AI, and will let us conduct more research and share the results with the world.”).

likely pushes up prices.<sup>50</sup> Moreover, even privileged, if not exclusive, access to technology negatively affects competition. An incumbent tech giant that enjoys early or more comprehensive access to a partner's technology – such as a new large language model – has a clear advantage over rivals that do not benefit from such rights.

More fundamentally, partnerships between dominant tech firms and startups – particularly when the market is in its nascency – allow the former to steer the development of AI in a direction that benefits their commercial interests, reducing market diversity and limiting the real choices available to consumers.<sup>51</sup> With this in mind, it is important to place little emphasis on the fact that a formal merger (i.e., the acquisition of the entire business and assets of an AI company) has yet to occur.

To take the example of Microsoft's partnership with OpenAI again, the intense collaboration between the two companies, combined with Microsoft's considerable equity stake (reported to be close to 50%) and its right to a large share of OpenAI's profits (reportedly 75%), gives the tech giant an unparalleled ability to shape the startup's commercial strategy, research priorities, and day-to-day business decisions without a formal acquisition.

## **B. Self-Preferencing, Tying, and Other Forms of Leveraging**

Today's tech giants typically exert significant power across a range of markets and technologies, not just one.<sup>52</sup> These highly concentrated and conglomerated ecosystems enable and incentivize the firms controlling them to use their dominance in one market or technology to strengthen their position in another.<sup>53</sup>

This kind of “self-preferencing” or “leveraging” represents a large share of the anticompetitive conduct seen in digital markets to date. Notable cases include Microsoft's tying of its browser and media player to its operating system,<sup>54</sup> Apple requiring users (including end-user consumers and application developers) of its App Store to also use its payment system,<sup>55</sup>

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50 Daniel A. Hanley, “Per Se Illegality of Exclusive Deals and Tyings As Fair Competition,” 37 Berkeley Tech. L.J. 1057, 1072, 2022, (exclusive agreements “shu[t] out the opportunity for rival firms to compete for the business of the dependent firm and potentially depriving the dependent firm of necessary inputs—particularly when the market is concentrated and there are few, if any, alternative providers.”).

51 Ibid.

52 Daniel A. Hanley, “A Topology of Multisided Digital Platforms,” 19 Conn. Pub. Int. L.J. 271, 346, 2020 (detailing the multiple markets Big Tech companies like Google, Microsoft, and Amazon occupy).

53 Cristina Caffarra, “Furthering Ecosystem Analysis in Antitrust,” ProMarket, December 14, 2023, <https://www.promarket.org/2023/12/14/furthering-ecosystem-analysis-in-antitrust/>

54 United States v. Microsoft Corp., 253 F. 3d 34 (D.C. Cir. 2001).

55 *E.g.*, Complaint for Injunctive Relief, Epic Games, Inc. v. Apple Inc., No. 4:20-CV-05640-YGR (N.D. Cal. September 10, 2021).

Google's ranking of its proprietary shopping service above rival offerings in its own search results,<sup>56</sup> and Amazon steering third-party sellers on its marketplace towards using its logistics and delivery services.<sup>57</sup>

AI gives these same companies, and the startups they are partnered with, new opportunities to repeat and expand these harmful practices. Vertical integration and power in multiple markets across the AI technology stack – including semiconductors, cloud computing, foundation models, search engines, browsers, operating systems, app stores, and more – give dominant firms many opportunities to promote their own hardware and software over independent rival offerings, undermining fair competition and restricting choice for consumers.

The importance of cloud computing in the context of AI cannot be understated. Cloud computing services provide AI models and other technologies with the computing power and server capacity necessary to develop, host, and run these services. In light of the critical role cloud computing plays in the AI ecosystem, the fact that all the major cloud providers are also key players in AI itself – not to mention their partnerships with AI startups – creates a significant conflict of interest by enabling them to advantage proprietary or preferred AI technologies at the expense of fair market competition.

For example, a dominant cloud provider could seek to steer existing and potential customers towards using its own or its preferred partner's AI foundation model(s) and applications by promoting these above rival products on its user interface, or bundling AI and cloud services into a single package. There is little to prevent Amazon Web Services from leveraging its Bedrock platform – which provides API access to foundation models hosted on its servers – to give preferential treatment to its own foundation models or those supplied by firms it has invested in, such as Anthropic.<sup>58</sup> Indeed, Amazon has previously used its privileged position as a provider of cloud services and applications to copy rival applications and integrate them into its own product offerings.<sup>59</sup>

On the business end, cloud providers can and already do grant superior access to computing resources to their own AI technologies and those of favored partners. Microsoft, for example, which already devotes a significant amount of computing resources to training and

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56 European Commission, "Commission fines Google €2.42 billion for abusing dominance as search engine by giving illegal advantage to own comparison shopping service," press release, June 27, 2017, [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_17\\_1784](https://ec.europa.eu/commission/presscorner/detail/en/IP_17_1784)

57 Complaint at 106-121, Fed. Trade Comm'n v. Amazon.com, Inc., No. 2:23-cv-01495 (W.D. Wash. September 26, 2023).

58 Amazon, "AWS announces the general availability of Amazon Bedrock and powerful new offerings to accelerate generative AI innovation," press release, September 28, 2023, <https://www.aboutamazon.com/news/aws/aws-amazon-bedrock-general-availability-generative-ai-innovations>

59 Daniel A. Hanley, "Zoom, Netflix, Slack: Amazon Is Behind All the Services We Use to Work From Home (and That's a Problem)," *ProMarket*, April 9, 2020, <https://www.promarket.org/2020/04/09/zoom-netflix-slack-amazon-is-behind-all-the-services-we-use-to-work-from-home-and-thats-a-problem/>.

commercializing OpenAI's technology, is reportedly working with its junior partner to build a dedicated \$100 billion AI supercomputer which would presumably not be available on equal terms to other market participants.<sup>60</sup>

The same logic can be applied to foundation models, assuming these technologies come to play an infrastructural role themselves in the future. If, as already largely appears to be the case, the AI ecosystem ends up mainly consisting of a handful of large upstream foundation models providing services to a much greater number of application developers downstream, these upstream providers will be able to exploit their centrality in similar ways to the cloud giants. A foundation model provider, like OpenAI, that also builds applications on top of its model has the ability and incentive to give preferential treatment to its own apps over those developed by third parties. This could include, for example, giving them access to a wider range of technical capabilities.<sup>61</sup>

Given the high demand for cutting-edge semiconductors that power advanced AI models and applications, firms that develop chips will also be in a strong position to require or encourage customers to also use their AI technologies (or those of their partners). Companies that produce both advanced semiconductors and AI models include Amazon, Apple<sup>62</sup>, Google, Meta<sup>63</sup>, Microsoft, and Nvidia.

In addition, control over a dominant software platform puts its owner in a strong position to preference its own AI products. Such practices are already widespread – Google and Microsoft are rapidly integrating their respective AI technologies (in Microsoft's case, also those of OpenAI) across their extensive product suites, from productivity software and search engines to operating systems and browsers (see Figure 2 above).

As a result, the same group of powerful firms are present in multiple parts of the AI technology stack. These firms develop and supply foundation models, foundation model developer tools, and inputs to foundation models (such as cloud compute and chips) at the upstream

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60 Erin Snodgrass, "Microsoft and OpenAI Plan to Build a \$100 Billion Supercomputer to Power Artificial Intelligence," Business Insider, March 30, 2024, <https://www.businessinsider.com/microsoft-openai-plan-100-billion-supercomputer-stargate-artificial-intelligence-report-2024-3>.

61 See, e.g., Daniel A. Hanley, "A Topology of Multisided Digital Platforms," 19 Conn. Pub. Int. L.J. 271, 331-337, 2020, (describing the ability of platform owners to copy dependent competitor's services and incorporate them into their own hosted service, such as Amazon copying a product sold on its ecommerce site); Reed Albergotti, "How Apple uses its App Store to Copy the Best Ideas" *Washington Post*, September 5, 2019, <https://www.washingtonpost.com/technology/2019/09/05/how-apple-uses-its-app-store-copy-best-ideas/>; Jack Nicas & Keith Collins, "How Apple's Apps Topped Rivals in the App Store It Controls," *New York Times*, September 9, 2019, <https://www.nytimes.com/interactive/2019/09/09/technology/apple-app-store-competition.html>

62 Aaron Tilley and Yang Jie, "Apple Is Developing AI Chips for Data Centers, Seeking Edge in Arms Race," *Wall Street Journal*, May 6, 2024, <https://www.wsj.com/tech/ai/apple-is-developing-ai-chips-for-data-centers-seeking-edge-in-arms-race-0bedd2b2>

63 Meta, "How Meta is creating custom silicon for AI," press release, October 18, 2023, <https://engineering.fb.com/2023/10/18/ml-applications/meta-ai-custom-silicon-olivia-wu/>



level. They also compete at the downstream level by offering their own foundation model services. A downstream firm may need to rely on a third-party supplier if purchasing API access to a third-party foundation model or using a plug-in. If that supplier is vertically integrated, it may also compete with the firm at the downstream level.

Left unchallenged, these exclusionary practices will severely hinder the ability of independent businesses to compete in the market, with negative consequences for innovation, growth, and user choice and affordability.

### **C. Exploitation of Gatekeeper Power**

Another significant risk in the rapidly evolving AI ecosystem is that dominant corporations use their control over crucial bottlenecks in the AI tech stack to exploit and/or exclude downstream actors that depend on their essential infrastructure. This capability, known as gatekeeper power,<sup>64</sup> has been a core feature of digital markets to date, particularly on platforms that serve as marketplace intermediaries between businesses and end users. Prominent examples, all of which have attracted worldwide antitrust scrutiny, include Apple and Google's imposition of excessive fees and unfair terms and conditions on developers reliant on their app stores and similar treatment by Amazon of third-party sellers dependent on its e-commerce marketplace.<sup>65</sup>

In the AI sector, the emergence of powerful gatekeepers could have far-reaching consequences. The boom in AI applications will provide an immediate boost to revenues for app stores run by Apple and Google through the high commission rates that developers are required to hand over. But while Apple and Google may well maintain their stranglehold over app distribution in the long run, their dominance could also be challenged by new app stores built directly on top of popular foundation models.<sup>66</sup>

As mentioned earlier, OpenAI recently launched a GPT Store which millions of developers have already used to create customized versions of ChatGPT.<sup>67</sup> However, while the GPT Store could act as a much-needed rival to Apple and Google's duopoly, it also risks elevating OpenAI to a similarly powerful gatekeeper position, should its technology become the foun-

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64 Daniel A. Hanley, "A Topology of Multisided Digital Platforms," 19 Conn. Pub. Int. L.J. 271, 321, 2020.

65 First Amended Complaint for Injunctive Relief, Epic Games, Inc. v. Google LLC, (N.D. Cal.) (No. 20-CV-05671); Complaint for Injunctive Relief, Epic Games, Inc. v. Apple Inc., No. 4:20-CV-05640-YGR (N.D. Cal. September 10, 2021); see generally Complaint, Fed. Trade Comm'n v. Amazon.com, Inc., No. 2:23-cv-01495 (W.D. Wash. September 26, 2023).

66 See, e.g., United States v. Microsoft Corp., 253 F. 3d 34, 74-77 (D.C. Cir. 2001) (discussing how Java *operates* as a "middleware" service and can circumvent Microsoft's dominance as a host of software on its Windows operating system).

67 OpenAI, "Introducing the GPT Store," blog, January 10, 2024, <https://openai.com/blog/introducing-the-gpt-store>

dation for developing most AI apps. While OpenAI has yet to provide details on its approach to monetization, it is not difficult to envision the company employing a similar playbook as Google and Apple by eventually imposing excessive fees on developers or sharing revenue on disadvantageous terms, raising costs for consumers in the process.<sup>68</sup>

The centrality of cloud computing to the AI revolution and the sector's excessive levels of market concentration, will also provide myriad opportunities for dominant providers to abuse their gatekeeper power. Already, several extensive investigations by regulators in the UK,<sup>69</sup> France,<sup>70</sup> and the Netherlands<sup>71</sup> have uncovered a whole host of monopolistic practices by dominant cloud providers, including imposing excessive and arbitrary "egress fees" when customers move data; giving discounts, credits and preferential rates to favored customers; and using restrictive contractual clauses and technical limitations on interoperability to prevent customers from switching to rivals.

The growth of the AI ecosystem – coupled with its dependence on the cloud oligopoly – risks greatly magnifying these existing problems, while creating room for new abuses. As the use of AI models and applications becomes increasingly monetized, the cloud giants will be able to exploit their infrastructural position to seize a disproportionate share of the economic pie. Should Amazon, Microsoft and Google – all of which offer access to popular third-party AI models – become the main gateways for accessing these and other popular AI models, they would be well-positioned to extract a growing share of the value generated by these developers.

Beyond extractive fees, other harmful practices may emerge due to gatekeeper power in the AI tech stack. Large providers of app stores, foundation models, and cloud computing could also exploit their power to impose unfair and one-sided terms and conditions on customers, mirroring practices already seen on today's leading digital marketplaces.<sup>72</sup> AI developers could, for example, find themselves forced to hand over valuable data and sensitive commercial information subject to arbitrary contractual conditions, forced to use other services provided by the gatekeeper, or suspended from the platform with limited recourse to appeals.

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68 Emma Roth, "Apple's Biggest Critics Are Big Mad About the New 27 Percent App Store Tax," *The Verge*, January 18, 2024, <https://www.theverge.com/2024/1/18/24042892/apple-critics-27-percent-app-store-tax>

69 See Ofcom, Cloud services market study (final report), October 5, 2023, <https://www.ofcom.org.uk/internet-based-services/cloud-services/cloud-services-market-study>

70 See Autorité de la Concurrence, Market study on competition in the cloud sector, June 29, 2023 <https://www.autoritedelaconcurrence.fr/en/press-release/cloud-computing-autorite-de-la-concurrence-issues-its-market-study-competition-cloud>

71 See Authority for Consumers and Markets, Market study into cloud services, September 5, 2022, <https://www.acm.nl/en/publications/market-study-cloud-services>

72 Le Monde With Afp, "France Fines Amazon €3.3 Million Over Contracts With Third-party Sellers," *Le Monde.Fr*, December 7, 2022, [https://www.lemonde.fr/en/economy/article/2022/12/07/france-fines-amazon-3-3-million-over-contracts-with-third-party-sellers\\_6006871\\_19.html](https://www.lemonde.fr/en/economy/article/2022/12/07/france-fines-amazon-3-3-million-over-contracts-with-third-party-sellers_6006871_19.html)

Most egregiously, gatekeepers could use data collected from their customers to compete against them, for example, by using it to fine-tune their own AI models or create copycat versions of popular AI apps.<sup>73</sup> Big Tech firms have already faced significant public and regulatory scrutiny for this practice, including accusations that Amazon<sup>74</sup> and Apple<sup>75</sup> copy popular products and apps from their Marketplace and App Store, respectively. While most of these practices target business users, they ultimately harm consumers by making it harder for new entrants to challenge incumbents, leading to less choice and higher prices.

Moreover, lack of choice means consumers are left exposed to the exploitative practices of dominant firms. Without meaningful alternatives for consumers to use, incumbent firms are able to impose increasingly invasive tracking and data collection on their users, which further bolsters their revenues and entrenches their dominance. To take a relatively recent example of this dynamic, it was only after Facebook's primary competitor, MySpace, was toppled in the early 2010s that the company started aggressively exploiting its access to user data for financial gain.<sup>76</sup> Given the data-hungry nature of the existing AI industry, we can expect similar consequences if a diverse marketplace of different business models is not allowed to flourish.

## **D. Restricting Interoperability and Limiting Access to Essential Inputs**

Finally, there is a real risk that the infrastructural and gatekeeper role played by a few dominant corporations across the AI technology stack and ecosystem gives them the ability to weaken competitors and limit user choice by restricting access to key inputs, technical functionalities, and commercial channels. These include everything from computing power, data, and application programming interfaces (APIs) to important channels of commerce such as app stores and search engines. These practices are closely related to the self-preferencing and exploitative practices discussed above, given they also result from a single firm or small number of firms controlling access to multiple and often overlapping platforms and technologies that businesses and consumers rely on.

Take cloud computing. Today's dominant cloud providers already have the ability and the

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73 Daniel A. Hanley, "A Topology of Multisided Digital Platforms," 19 Conn. Pub. Int. L.J. 271, 331-337, 2020, (describing the incentives technology platforms have for both hosting and subsequently copying their rival's services).

74 Aditya Kalra and Steve Stecklow, "Amazon copied products and rigged search results to promote its own brands, documents show," *Reuters*, October 13, 2021, <https://www.reuters.com/investigates/special-report/amazon-india-rigging/>

75 Reed Albergotti, "How Apple uses its App Store to copy the best ideas," *Washington Post*, September 5, 2019, <https://www.washingtonpost.com/technology/2019/09/05/how-apple-uses-its-app-store-copy-best-ideas/>

76 See generally Dina Srinivasan, "The Antitrust Case Against Facebook: A Monopolist's Journey Towards Pervasive Surveillance in Spite of Consumers' Preference for Privacy," 16 Berkeley Bus. L.J. 39, 2019, (describing how competition limited Facebook's ability to degrade user privacy and that when Facebook ultimately prevailed as the leading social network, the company degraded privacy protections for users).

incentive to degrade or shut off access in order to undermine potential rivals in AI or retaliate against customers who refuse to accept unfair treatment. To give just one example, a dominant cloud provider offering its own AI services could shut off or degrade a rival developer's access to its high-performance computing infrastructure if it determined that developer posed a competitive threat. While it remains to be seen whether such practices become commonplace in the cloud, similar behavior by dominant players has been evidenced in other parts of the AI ecosystem. Reports have already circulated detailing Microsoft's threats to cut off rival search engines' access to its search index data, one of only two prominent licensable indexes,<sup>77</sup> if they use it to develop their own generative AI services.<sup>78</sup>

Alternatively, a cloud services provider could seek to lock AI businesses into using its computational infrastructure – and simultaneously protect its advantage over rival cloud providers – by limiting their ability to interoperate with or transfer data over to other cloud platforms. In practice this could involve making it difficult or impossible for an AI model developer to move its operations to another cloud provider (or to operate across multiple providers), including by placing technical barriers in the way of this. Indeed, cloud platforms have already faced regulatory scrutiny for placing restrictions on interoperability and portability to defend their dominance.<sup>79</sup>

A similar analysis applies to AI models themselves, should – as appears probable – a small number come to play an infrastructural role in the AI technology stack. A vertically integrated business that offered both AI models and applications built atop those models would have the power to weaken and even eliminate rival application developers reliant on it for core model functionalities. The vertically integrated provider could achieve this in a number of ways, from limiting interoperability with rival models to downgrading the developer's access to its model – for instance, from fully open to limited API-based access – or simply shutting off access entirely.<sup>80</sup> While this would itself reduce consumer choice, dominant AI firms could deploy similar tactics to lock users into a specific ecosystem directly, for instance, by restricting their freedom to switch from one AI model or application (such as a chatbot) to another.

Open source AI has an important role to play in countering a lack of interoperability and access, and fostering innovation, by lowering barriers to entry, particularly for smaller

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77 DuckDuckGo, "White Paper on the Search Engine Market," March 2021, page 4 ("Today, only Google and Microsoft still produce competitive organic web link indexes."). [https://staticcdn.duckduckgo.com/press/DuckDuckGo-White-Paper-on-search\\_March-2021.pdf](https://staticcdn.duckduckgo.com/press/DuckDuckGo-White-Paper-on-search_March-2021.pdf)

78 Leah Nysten and Dina Bass, "Microsoft Threatens Data Restrictions In Rival AI Search," *Bloomberg*, March, 24, 2023, <https://www.bloomberg.com/news/articles/2023-03-25/microsoft-threatens-to-restrict-bing-data-from-rival-ai-search-tools?sref=ZvMMMOKz>

79 Ofcom, Cloud services market study

80 See this article for a typology of different degrees of AI model access <https://arxiv.org/abs/2302.04844>

and less well-resourced actors. Building on open source platforms, developers can create customized AI models and applications without having to make massive investments in computing power, data and other inputs. Open source also supports critical public interest research on the safety and trustworthiness of AI – for example, ensuring that researchers have access to foundation models or their training data, in order to carry out assessments of harmful biases. However, there is often a lack of clarity about what qualifies as open source in the context of AI, particularly when dominant tech firms are offering apparently “open source” models.

A case in point is Meta, which has sought to differentiate itself from competitors by releasing its AI models on an “open source” basis (despite skepticism from the open source community as to whether this meets the formal definition of open source).<sup>81</sup> This supposedly “open” access is in fact tied to a whole host of conditions, including usage restrictions (which, among other things, prohibit the use of Meta’s model to train rival large language models) and the need to acquire a license once a business surpasses 700 million users.<sup>82</sup> It is not hard to see how Meta could use these restrictions as a means of stifling potential competitors that emerge on the back of its technology. Frameworks for assessing openness in foundation models (such as the recent OSI definition of open source AI)<sup>83</sup> will be increasingly important to avoid “openwashing” and ensure that models which are labeled as open source live up to their billing.<sup>84</sup>

Finally, there is a need to consider how control over the platforms and gateways needed to effectively commercialize AI services could be leveraged by dominant tech companies to extinguish competition and lock in consumers. Depending on the specific gateway or platform in question, there are many potential manifestations of such conduct. As discussed above, a dominant search engine could limit AI developers from using its search index data to train their products, as Microsoft has reportedly threatened to do.

Similarly, a dominant browser or operating system provider could limit a rival’s access to the core software functionalities needed to smoothly run its AI models and applications, just as the manufacturer of a popular device (such as a smart speaker or smartphone) could prevent a rival chatbot from operating properly on its hardware. Similar considerations could be applied to social networks, messaging services, app stores, and any other platform capable of being integrated with AI technologies.

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81 Open Source Initiative, Stefano Maffulli, “Meta’s LLaMa 2 license is not Open Source,” blog, July 20, 2023, <https://opensource.org/blog/metas-llama-2-license-is-not-open-source>

82 See <https://ai.meta.com/llama/license/>

83 <https://blog.mozilla.org/en/mozilla/ai/open-source-ai-definition/>

84 See, for example, Basdevant et al, “Towards a Framework for Openness in Foundation Models: Proceedings from the Columbia Convening on Openness in Artificial Intelligence,” May 17, 2024, <https://arxiv.org/abs/2405.15802v1>



# III.

## Potential Remedies

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## Potential Remedies

While the existing and potential anticompetitive harms to businesses, consumers and citizens outlined in this paper are deeply concerning, governments and competition authorities around the world already have many of the powers they need to act. In this section, we outline what those powers are and how they could be used in relation to AI, in addition to proposing a set of principles to guide these interventions.

### A. Principles to Guide Intervention

Competition authorities and other regulators typically have vast discretion in selecting the enforcement actions they initiate. To guide any potential enforcement actions against firms deploying AI technologies, we provide a set of principles for agencies to consider when selecting what kinds of actions to initiate. These principles apply equally to intervention by existing authorities under existing powers and to new legislation being considered by lawmakers.

- **Regulation of Dominant Operators.** Where economies of scale and network effects lead to the emergence of dominant operators in AI, governments should impose extensive public oversight over these businesses' operations. Such regulation reflects the systemic economic and societal role played by these firms, and is necessary to ensure that they engage fairly with customers, workers, and consumers.
- **Fair Competition.** Regulators and enforcers should ensure that competition in AI takes place on the basis of open access to critical inputs – including fair, reasonable and non-discriminatory terms, conditions, and policies (such as those relating to pricing or access) – for business users. Action should be taken to protect a marketplace where firms succeed based on their own innovation and business acumen, not the exploitation of their market dominance.

- **Proactive, Not Reactive.** Given the speed at which AI is developing, governments and regulators should take a proactive and agile approach to ensuring fair competition in AI. This should entail ongoing monitoring to identify issues as they arise, and an emphasis on preventing harms from arising in the first place – instead of addressing them after they have occurred. In practice, this should include a bias towards using ex-ante rather than ex-post forms of intervention and the active use of interim measures and preliminary injunctions in competition investigations.
- **Preserving Market Diversity.** Regulators should act when companies wielding market power use their control over ecosystems and privileged access to capital to acquire or co-opt key AI firms, assets, and technologies, rather than competing by building their own innovative products.
- **Focus on Market Structure.** Where dominant corporations are able to use their control of vertically integrated services and businesses to restrict fair competition, policymakers should prioritize structural intervention. Structural intervention should aim to not only break up dangerous concentrations of economic power, but also prohibit the re-amalgamation of such power.
- **Resources Fit for the Task.** Competition agencies and other relevant regulatory bodies should be equipped with the financial resources and technical capabilities they need to promote fair and open digital markets. When it comes to AI, this will require greater numbers of data scientists, machine learning experts, and other relevant specialists able to monitor market developments, identify anticompetitive practices, and design effective remedies.

## **B. Use Antitrust Enforcement Powers to Combat Anticompetitive Practices**

Another critical step in ensuring AI remains open and competitive is using existing antitrust powers to investigate and prohibit attempts by large corporations to entrench, expand, and exploit their power through unfair and anticompetitive conduct. These include all of the practices discussed earlier, from self-preferencing and tying to exploitation of customers and restricting access to key inputs. Cracking down on such practices will protect the ability of new entrants to take on the tech giants, fueling innovation and maximizing the choices available to businesses and consumers.

Foremost among these existing powers are laws that ban dominant corporations from abusing their market power. In Europe, the most relevant provisions are Article 102 of the



Treaty of the Functioning of the EU (TFEU), which permits the European Commission to investigate abuses of a dominant position, and similar laws in EU member states as well as the UK, which have comparable systems of competition enforcement. In the case of Article 102, abusing a dominant position includes practices such as imposing “unfair purchase or selling prices or other unfair trading conditions,” “applying dissimilar conditions to equivalent transactions with other trading parties,” and “making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which...have no connection with the subject of such contracts.”<sup>85</sup>

In the U.S., there are two antitrust laws that can target the monopolistic practices employed by Big Tech corporations.<sup>86</sup> The first applicable law is the Sherman Act of 1890.<sup>87</sup> The second is Section 5 of the Federal Trade Commission (FTC) Act.<sup>88</sup> Section 2 of the Sherman Act prohibits practices that monopolize or attempt to monopolize.<sup>89</sup> These prohibitions broadly target methods of competition used by a single firm. Section 2 requires that a firm has “monopoly power,” which means having “the power to control prices or exclude competition.”<sup>90</sup> A monopolization claim under Section 2 also requires that a firm engage in some conduct that results in “the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident.”<sup>91</sup> Under Section 5 of the FTC Act, while a lawsuit can only be initiated by the FTC, the law does not require firms to have market power.<sup>92</sup>

Many similar laws exist elsewhere, including Section 46 of the Australian Competition and Consumer Act 2010, Sections 7, 8, and 9 of South Africa’s Competition Act, and Articles 2 and 3 of Japan’s Anti-Monopoly Act.

It is clear that these existing laws would cover many, if not all, of the monopolistic practices discussed in the previous section. For example, a dominant gatekeeper using its control of a popular foundation model or cloud computing platform to extract excessive fees from businesses or self-preference its own products would be liable to investigation for abuse of a

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85 See the full text of Article 102 TFEU here: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX-%3A12008E102>

86 Section 7 of the Clayton Act also applies here since it prohibits mergers and acquisitions that “may be substantially to lessen competition, or to tend to create a monopoly[.]” 15 U.S.C. § 18. However, we discuss Section 7 in more detail in Part III.B.

87 15 U.S.C. §§ 1-2.

88 15 U.S.C. § 45.

89 15 U.S.C. § 2.

90 *United States v. Grinnell Corp.*, 384 U.S. 563, 571 (1966) (quoting *United States v. E. I. du Pont de Nemours & Co. (Cellophane)*, 351 U.S. 377 (1956)).

91 *United States v. Grinnell Corp.*, 384 U.S. 563, 570-71 (1966).

92 *FTC v. Texaco Inc.*, 393 U.S. 223, 230 (1968) (“It is enough that the [FTC] found that the practice in question unfairly burdened competition for a not insignificant volume of commerce.”).

dominant position under Article 102 of the TFEU. Under U.S. law, it is possible for this conduct to potentially violate Sections 1 of the Sherman Act as an unlawful restraint of trade, Section 2 of the Sherman Act as an illegal act of monopolization, and Section 5 of the FTC Act as an unfair method of competition.<sup>93</sup>

Moreover, numerous antitrust investigations and decisions relating to monopolistic abuses in digital markets over the past two decades provide considerable legal precedent for tackling similar practices in relation to AI. These include several EU antitrust investigations into Google for anti-competitive practices in relation to search, Android and advertising; EU and U.S. probes into Microsoft for unfairly bundling its Windows operating system with other software; and EU and UK investigations into unfair conditions Apple imposes on users of its App Store. In the U.S., antitrust enforcers have launched several lawsuits accusing Google, Amazon, Apple, and Meta of monopolistic conduct<sup>94</sup>, and in August 2024 a judge found Google to be guilty of illegally monopolizing the search market.<sup>95</sup>

When it comes to comprehensively rectifying proven anticompetitive conduct in AI, there are good reasons to believe that structural remedies, such as divestments, will be most effective. Structural interventions provide a simpler and more robust means of addressing competition concerns without the need to design and monitor complex behavioral remedies that are easy to evade and easily outpaced by market developments.<sup>96</sup> Despite this, competition authorities, particularly in Europe, have, until recently, displayed a reluctance to use structural measures in antitrust investigations. Behavioral remedies, designed largely by Google itself, were used to conclude the European Commission's multiple investigations into the firm's anticompetitive practices, with Google subsequently facing criticism for failing to comply.<sup>97</sup> Similarly, Microsoft was fined 561 million in 2013 for failing to comply with behavioral commitments (in this case displaying a browser choice screen).<sup>98</sup>

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93 Daniel A. Hanley, "How Self-Preferencing Can Violate Section 2 of the Sherman Act," *Competition Policy International: Antitrust Chronicle*, June 2021, <https://ssrn.com/abstract=3868896>.

94 Complaint, *United States v. Google*, No. 23-CV-00108 (E.D. Va., January 24, 2023) (concerning Google's digital advertising system); Complaint, *United States v. Google*, No. 20-cv-03010 (D.D.C., October 20, 2020) (concerning Google's exclusive deals and tying arrangements); Complaint, *Fed. Trade Comm'n v. Amazon.com, Inc.*, No. 2:23-CV-01495 (W.D. Wash. September 26, 2023); Complaint, *Fed. Trade Comm'n v. Facebook, Inc.*, No. 20-CV-03590 (D.D.C., August 19, 2021); Complaint, *United States v. Apple Inc.*, No. 2:24-CV-04055 (D. N.J., March 21, 2024).

95 Nadine Yousif and Michelle Fleury, "Google's online search monopoly is illegal, US judge rules," *BBC*, August 5, 2024, <https://www.bbc.com/news/articles/c0k44x6mge3o>

96 John Kwoka & Spencer Weber Waller, "Fix it or Forget It: A No-Remedies Policy for Merger Enforcement," *Competition Policy International* 4, August 2021, (detailing the "fundamental, generally fatal, weaknesses" of behavioral remedies), <https://cssh.northeastern.edu/wp-content/uploads/2021/08/CPI-Kwoka-Weber-Waller-FINAL.pdf>.

97 Thomas Hoppner, "Google's (Non-) Compliance with the EU Shopping Decision," September 28, 2020, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3700748](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3700748), Natasha Lomas, "Google antitrust complainants call for EU to shutter its Shopping Ads Units," *TechCrunch*, October 18, 2022, <https://techcrunch.com/2022/10/18/eu-anti-trust-complaint-google-shopping-units/>

98 [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_13\\_196](https://ec.europa.eu/commission/presscorner/detail/en/ip_13_196)

In the EU, the law favors behavioral remedies over structural ones in antitrust cases. According to EU Regulation 1/2003, “structural remedies should only be imposed either where there is no equally effective behavioral remedy or where any equally effective behavioral remedy would be more burdensome for the undertaking concerned than the structural remedy.” While altering the EU’s reliance on behavioral remedies may ultimately require updating the law, there are signs that this bias is beginning to weaken. In its investigation of Google’s monopoly power in the digital advertising market, the Commission has indicated that it is inclined to pursue a structural separation to address Google’s self-preferencing conduct.<sup>99</sup> In the U.S., which has a much longer history of deploying aggressive structural fixes – including the breakups of Standard Oil and AT&T – there is also a renewed willingness to use these tools after a long period of retrenchment.

There are numerous ways in which structural separation could be used to promote openness and address monopolistic harm in AI. To take one example relevant to the harms discussed in this paper, Big Tech firms could be forced to divest their cloud computing businesses. Cloud computing serves as the backbone for numerous digital services, including AI. By owning both cloud infrastructure and AI services, these firms can preference their own AI solutions over those of competitors. Enforcing structural separation would prevent these companies from using that infrastructure to give an unfair competitive advantage to their own AI services or those offered by partners. Such separation would be grounded in the role that cloud computing plays as essential infrastructure in the digital economy and the need to ensure that this infrastructure remains neutral and freely accessible.

Similar ownership separations could conceivably be imposed between AI foundation models and operating systems. AI foundation models, such as large language models and pre-trained vision models, require significant computational resources and expertise to develop. If a single company controls both the foundational AI models and the operating systems (including mobile and desktop OS) on which these models run, it can integrate its AI solutions more seamlessly and offer exclusive features or preferential access within its downstream products, such as browsers and search engines, thereby locking in users and stifling competition. Structural separation between foundation models and operating systems would thus ensure that AI innovators can compete on a level playing field.

Another area for potential intervention is the relationship between semiconductors and cloud computing services. Semiconductors are the fundamental building blocks of all digital technology, including AI. A dominant firm controlling both semiconductor production and cloud services can optimize its hardware to work best with its own cloud and AI solutions,

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99 European Commission, “Commission sends Statement of Objections to Google,” press release, June 14, 2023, [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_23\\_3207](https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3207)

marginalizing competitors. By imposing ownership separation, regulators can ensure that semiconductor advancements benefit the entire industry, rather than reinforcing the market power of a single entity.

In each of these cases, ownership separation would dismantle the vertical integration that allows dominant firms to exploit their control over essential digital infrastructure, inputs, and platforms by giving preferential treatment to other services they own.

One notable disadvantage of antitrust enforcement is the amount of time it typically takes to achieve results. The European Commission's investigation into Google's self-preferencing of its Shopping Service took seven years (2010-2017) to reach a conclusion, with the appeals process only concluding in September 2024.

Indeed, many experts (including competition authorities<sup>100</sup>) have criticized existing laws as being inadequate when it comes to taking on digital monopolies, arguing that their ex-post nature (whereby violation of the law must be proved before action can be taken) is inadequate to the challenge posed by fast-moving digital markets. The United States faces a similar problem. In many cases, antitrust litigation, particularly concerning lawsuits involving Section 2 of the Sherman Act, can take a half-decade or more to fully resolve.<sup>101</sup>

### **C. Ensure New Digital Competition Regulation is Ready for AI**

A number of jurisdictions have recently proposed or passed new laws designed to tackle monopolistic abuse in digital markets faster than is possible under existing antitrust powers. These laws, all of which operate on an "ex-ante" rather than "ex-post" basis, include the EU's Digital Markets Act (DMA), Section 19a of the German Competition Act (GWB), the UK's Digital Markets, Competition and Consumers Act (DMCCA), Brazil's Draft Bill Regulating Digital Platforms, South Korea's Act on Promotion of Platform Competition, Japan's Act on Promotion of Competition for Specified Smartphone Software, and proposed amendments to the Turkish Competition Act, with the EU, UK, German and Japanese legislation having formally become law to date.

In the U.S., Congress has – thus far unsuccessfully – put forward the American Innovation

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100 See for instance the Competition Markets Authority's Final Report on online platforms and digital advertising. It underlines that cases under competition law take several years to reach a decision and take place after the conduct has occurred (para 7.33).

101 For example, the Microsoft litigation initiated by the United States government in the 1990s took nearly 4.5 years from the time the complaint was issued until a final judgment was obtained. Other antitrust lawsuits in the United States take a similar amount of time, if not longer. See also Kevin Caves & Hal Singer, "When the Econometrician Shrugged: Identifying and Plugging Gaps in the Consumer-Welfare Standard," 26 Geo. Mason L. Rev. 395, 419, 2018, (detailing the duration of some antitrust lawsuits).

and Choice Online Act (AICOA) and the Open App Markets Act (OAMA), bills that mirror many of the provisions in the DMA and other ex-ante regimes. Meanwhile, governments in India, South Africa, Australia, and elsewhere look set to implement similar reforms in the near future.

The basic mechanism underlying these different laws is that dominant digital platforms (defined differently but similarly in each case) are prohibited from engaging in certain anti-competitive practices, without regulators needing to prove whether the conduct in question has occurred.

These ex-ante digital competition laws could play a significant role in swiftly addressing emerging competition issues in AI. Under the DMA, for example, dominant firms designated as “gatekeepers” under the legislation are required (under Articles 5 and 6) to refrain from a wide range of practices that could be used to suppress competition in AI.<sup>102</sup> These include forcing users to subscribe to additional services offered by the gatekeeper (5(8)), using data collected from business users to compete against them (6(2)), preventing users from uninstalling certain software (6(3)), ranking one’s own services and products more favorably than those offered by third parties (6(5)), and providing preferential interoperability (6(7)).

In its current form, the DMA allows the European Commission to prevent gatekeepers from using AI to entrench or abuse their dominance, but only in other already designated services, such as search, operating systems, browsers, and social networks. At the same time, the legislation suffers from significant gaps that limit its ability to address the challenge comprehensively. Crucially, AI foundation models were not included as one of the “core platform services” (CPS) capable of being designated under the legislation, and while cloud computing is listed as a CPS in the DMA’s text, no cloud platform featured among the European Commission’s initial set of designations announced in September 2023.<sup>103</sup>

These gaps severely limit the European Commission’s ability to stamp out monopolistic abuse in AI, given that market power in foundation models and cloud computing are two main avenues through which such conduct is likely to take place. There is a strong argument for closing these gaps as quickly as feasible, by moving to designate dominant cloud computing providers – as is already allowed under the legislation – and adding foundation models to the list of core platform services, as the Commission has the power to do under Article 19 of the DMA. Where necessary, the Commission should also consider updating

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102 Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act) <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1925>

103 European Commission, “Commission designates six gatekeepers under the Digital Markets Act,” press release, September 6, 2023, [https://digital-markets-act.ec.europa.eu/commission-designates-six-gatekeepers-under-digital-markets-act-2023-09-06\\_en](https://digital-markets-act.ec.europa.eu/commission-designates-six-gatekeepers-under-digital-markets-act-2023-09-06_en)

the DMA's list of obligations (using the powers granted to it under Article 12) to capture emerging and unforeseen forms of anticompetitive conduct in AI. To get the process started, the Commission should quickly initiate a market investigation into the AI sector.

Two other notable ex-ante regimes, the UK DMCCA and Section 19a of the German Competition Act (GWB), provide more flexibility to tackle AI-specific harms. Unlike the DMA, the DMCCA does not exhaustively list the types of services that allow a firm to be designated as having “strategic market status” (SMS); the only criterion is that the firm carries out a “digital activity.” Similarly, the DMCCA does not exhaustively specify the exact requirements SMS firms must comply with. Instead, it gives the CMA the power to impose “conduct requirements” which can vary depending on the company and activity.<sup>104</sup> Section 19a of the GWB also provides the German competition authority with a great deal of leeway over which specific companies it designates as having “paramount significance for competition” and the specific legal obligations those companies must comply with, with a focus on broad factors including financial strength, vertical integration, and access to data.<sup>105</sup>

This points towards the DMCCA and Section 19a of the GWB being more effective tools – at least currently – than the DMA for addressing anticompetitive practices in AI. While the DMCCA remains at an earlier stage in its implementation than the DMA, it confers on the CMA the power to immediately designate cloud computing platforms and foundation model providers as SMS firms and to design specific conduct requirements targeted at those firms and their business models. Section 19a of the GWB was adopted into German law in early 2021 and has already been used to designate Amazon, Apple, Google, Meta and Microsoft as companies with “paramount significance”.

In the United States, Congress is currently considering bills that would strengthen the anti-trust laws, but only one appears able to provide some protection against the harms detailed in this paper. The American Innovation and Choice Online Act (AICOA) was originally introduced in 2021 by then-Representative David Cicilline and Senator Amy Klobuchar. In 2023, Senator Klobuchar reintroduced the bill.<sup>106</sup> The bill aims to prevent specific “covered platforms” (defined by bright-line metrics such as the number of U.S.-based active users) from self-preferencing their services in a manner that would “materially harm competition.”

Prohibited practices, as outlined in the proposed bill, include a qualified firm favoring its own products and services over those of another business, limiting the ability of another busi-

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104 Digital Markets, Competition and Consumers Act 2024, <https://www.legislation.gov.uk/ukpga/2024/13/contents>

105 German Competition Act, Section 19a (Abusive Conduct of Undertakings of Paramount Significance for Competition Across Markets), [https://www.gesetze-im-internet.de/englisch\\_gwb/englisch\\_gwb.html](https://www.gesetze-im-internet.de/englisch_gwb/englisch_gwb.html)

106 S.2033 - American Innovation and Choice Online Act, <https://www.congress.gov/bill/118th-congress/senate-bill/2033/text>

ness to compete with their services, and modifying terms of service in a way that discriminates unfavorably against the services of another firm. An example of a potential violation of AICOA could include Amazon preferencing its own products in search results on its online marketplace over other third-party merchant products or, more specific to AI, Google preferencing its Gemini AI chatbot on its Android operating system.<sup>107</sup> However, given that these bills predate recent developments in AI, there is a case for redesigning them before they are considered further.

## **D. Enforce and Strengthen Merger Control**

In addition to taking steps to disperse existing concentrations of power in AI, competition authorities also need to stop the problem from getting worse. One of the main ways of doing this is by preventing dominant firms from eliminating or co-opting actual and potential rivals through acquisitions, investments, and other similar strategies. Effective merger control can help to ensure the survival of independent rivals to today's tech giants, forcing these incumbents to stay on their toes while boosting innovation and maximizing choice for consumers, business customers, and workers.

Most competition authorities already have the ability to investigate corporate mergers and, where necessary, block or impose conditions on transactions. In Europe, this includes the EU Merger Regulation (EUMR), enforced by the European Commission, national merger control regimes enforced by national competition authorities (reviewing deals that do not have an "EU-dimension"), and the UK's standalone merger control regime under the Enterprise Act.

In the U.S., mergers are primarily governed by Section 7 of the Clayton Act, as amended by the Celler-Kefauver Act of 1950.<sup>108</sup> Section 7 of the Clayton Act restricts most mergers as well as partnerships if a court determines they are illegal joint ventures.<sup>109</sup> Section 7 can be enforced by state governments, the federal government (including the Department of Justice, the Federal Trade Commission, other administrative agencies with sector-specific authority), and private citizens.<sup>110</sup>

Many other competition authorities in countries and regions, including Latin America, Africa, Asia, Canada, and Australia, also have powers to investigate and intervene in mergers, with

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107 Daniel A. Hanley, "Eyes Everywhere: Amazon's Surveillance Infrastructure and Revitalizing a Fair Marketplace," *Open Markets Institute*, July 1, 2021, <https://ssrn.com/abstract=4089858>.

108 Mergers can be targeted under Section 1 and 2 of the Sherman Act, but Section 7 has a lower legal threshold.

109 *United States v. Penn-Olin Chemical Co.*, 378 U.S. 158 (1964).

110 15 U.S.C. § 18.

specific prerequisites for intervention, such as turnover thresholds, varying significantly by jurisdiction.<sup>111</sup>

Competition authorities are, therefore, already able to intervene against potentially anticompetitive takeovers in the AI space. This includes blocking such deals outright to preserve competition in the relevant market(s), or imposing binding conditions on the merging parties (including divestment of certain assets or behavioral remedies). In line with a general trend of underenforcement of anti-merger laws, in part due to the sheer number of mergers occurring, competition authorities have reviewed only a few AI acquisitions by dominant tech firms, and none have been blocked.

Significant deals already completed include Google's takeover of British AI lab DeepMind for \$400 million in 2014, Microsoft's purchase of conversational AI pioneer Nuance for \$20 billion in 2022, and a raft of AI acquisitions by Apple over the past decade. Regulatory agencies did not prevent or impose binding commitments on any of these deals. Only Microsoft's acquisitions have been subjected to formal investigations.<sup>112</sup>

Fortunately, this chronic underenforcement of merger control, which has been a major contributor to today's extreme levels of concentration in digital markets, is beginning to change (albeit slowly). Key reasons for this shift include both a more sophisticated understanding of how such mergers can be harmful in the medium to long term, and a growing recognition among competition authorities that behavioral remedies – as opposed to outright blocks – are rarely effective in addressing the competition concerns raised by takeovers.

Such remedies, which have been used in a number of high-profile investigations, including Google's acquisition of Fitbit, allow companies to merge as long as they commit to a set of actions, such as keeping certain inputs accessible to rivals or keeping different pools of data separate. However, given the flaws inherent in such commitments – including difficulties in designing and monitoring them, along with their inability to keep up with market developments – competition authorities increasingly express a preference for structural remedies, ranging from divestment of assets and business lines to outright prohibition.<sup>113</sup>

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111 For a brief overview of merger review authority by jurisdiction, see "Merger Control: Jurisdictional Comparisons" (Jean-Francois Bellis & Porter Elliot, Van Bael & Bellis, eds, 2d ed., 2014).

112 Natasha Lomas, "EU clears Microsoft-Nuance without conditions" *TechCrunch*, December 21, 2021, <https://techcrunch.com/2021/12/21/eu-clears-microsoft-nuance>

113 Competition and Markets Authority, Australian Competition and Consumer Commission, Bundeskartellamt, "Joint statement on merger control enforcement," April 20, 2021, [https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Stellungnahmen\\_Opinion/Joint\\_Statement\\_CMA\\_ACC\\_Bundeskartellamt.pdf](https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Stellungnahmen_Opinion/Joint_Statement_CMA_ACC_Bundeskartellamt.pdf). See also the European Commission's Notice on Remedies which specifies that "commitments which are structural in nature, such as the commitment to sell a business unit, are, as a rule, preferable from the point of view of the Merger Regulation's objective" (Commission notice on remedies acceptable under Regulation No 139/2004, 2008, para 15).



Recently, a number of high-profile deals involving dominant tech firms have been blocked or abandoned, in most cases after behavioral remedies offered by the parties were rejected. These include Nvidia's aborted merger with Arm, Adobe's unsuccessful acquisition of rival Figma, Meta's failed takeover of Giphy, and Amazon's abandoned purchase of iRobot. The case of Nvidia/Arm in particular has clear relevance to AI, given the central role played by advanced semiconductors in training and running AI models and applications, as well as the already very high levels of concentration in the industry.

This tougher enforcement stance is likely to apply to future attempts to consolidate power in AI through mergers and acquisitions, particularly given rising concerns among competition authorities about market concentration in AI. There is also an apparent willingness among regulators to scrutinize smaller deals (such as acquisitions of promising early-stage start-ups) that fall below existing legal thresholds – for example, under Article 22 of the EUMR and a proposed new “acquirer-focused” threshold recently introduced in the UK. As discussed earlier, however, large tech firms appear to be shifting towards a strategy of striking opaque and complex “partnerships” with smaller firms, in an apparent attempt to evade anti-trust and merger control scrutiny while still reinforcing their market power.

This raises the question of whether existing merger control regimes are equipped to tackle the threat such arrangements pose to competition. At the heart of the matter is whether such partnerships meet the legal criteria allowing competition authorities to intervene, criteria which vary in each jurisdiction. Aside from the question of whether such partnerships meet quantitative thresholds for intervention – which some, like Microsoft's deal with OpenAI, may – a more significant challenge is posed by the requirement under many merger laws to establish a change of control or the exertion of material influence.

Under the EUMR, for example, a change of control is deemed to have taken place once an acquiring firm gains the possibility of exerting “decisive influence” over another. Meeting this relatively high bar usually requires the acquisition of at least 50% of voting rights in the target firm, although it can also be triggered in situations where the acquirer is able to pass or block major business decisions. Under the Enterprise Act 2002 in the UK, the CMA has greater flexibility to investigate deals that do not resemble conventional mergers, as it only needs to demonstrate an acquirer's “material influence” over another firm. In practice, the CMA associates shareholdings of 25% or more with material influence, but can consider smaller stakes in certain circumstances. For example, in 2020, the CMA launched an investigation into Amazon's planned acquisition of a 16% stake in Deliveroo, which was ultimately approved.<sup>114</sup>

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114 Competition and Markets Authority, “CMA clears Amazon's 16% investment in Deliveroo,” press release, August 4, 2020, <https://www.gov.uk/government/news/cma-clears-amazons-16-investment-in-deliveroo>

In the U.S., regulators can intervene when a firm engages in a partial acquisition, such that a firm obtains a minority stake in another firm. Partial acquisitions are covered under U.S. antitrust laws. First, such transactions can violate Section 1 of the Sherman Act as an illegal restraint of trade.<sup>115</sup> Under this cause of action, however, a plaintiff would be required to show the actual adverse effects on competition for the conduct to violate the law. As a result of this increased legal burden, such claims under Section 1 are rare.<sup>116</sup>

Partial acquisitions can also violate Section 7 of the Clayton Act, and as such, are reviewed under the same standard and methodology as full acquisitions and mergers.<sup>117</sup> In general, assessing partial acquisitions involves the Department of Justice and Federal Trade Commission analyzing how the transaction adversely affects the incentives of firms to compete and the ability of the investing firm to influence the other.<sup>118</sup>

While unconfirmed, credible reports suggest that Microsoft either already owns or is set to own up to 49% of OpenAI's for-profit arm, an arrangement that would seem to trigger the bar for investigation in some jurisdictions, if not all.<sup>119</sup> Depending on the precise details of each deal, similar considerations could apply to other partnerships – including Google and Amazon's investments in Anthropic, and Microsoft's partnership with Mistral AI. Indeed, several competition authorities have launched early-stage probes into such partnerships, including the CMA<sup>120</sup> and European Commission<sup>121</sup> reviewing the Microsoft/OpenAI partnership (though the Commission ultimately closed the EUMR investigation and is exploring other routes),<sup>122</sup> and the CMA<sup>123</sup> and the FTC<sup>124</sup> conducting an inquiry into a wider set of deals.

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115 15 U.S.C. § 1.

116 Steven C. Salop & Daniel P. O'Brien, "Competitive Effects of Partial Ownership: Financial Interest and Corporate Control," 67 *Antitrust L.J.* 559, 565, 2000,

117 *United States v. E. I. du Pont de Nemours & Co.*, 353 U.S. 586, 592 (1957) ("*[A]ny acquisition by one corporation of all or any part of the stock of another corporation, competitor or not, is within the reach of [Section 7 of the Clayton Act] whenever the reasonable likelihood appears that the acquisition will result in a restraint of commerce or in the creation of a monopoly of any line of commerce.*") (emphasis added).

118 Dep't of Justice & Fed. Trade Comm'n, Merger Guidelines 29-29, December 18, 2023, [https://www.ftc.gov/system/files/ftc\\_gov/pdf/2023\\_merger\\_guidelines\\_final\\_12.18.2023.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/2023_merger_guidelines_final_12.18.2023.pdf); see also Laura A. Wilkinson and Jeff L. White, "Private Equity: Antitrust Concerns With Partial Acquisitions," 29 *Antitrust* 28, at 29-30, 2007.

119 Tim Bradshaw, George Hammond, Camilla Hodgson and Madhumita Murgia, "How Microsoft's multibillion-dollar alliance with OpenAI really works," *Financial Times*, December 15, 2023, <https://www.ft.com/content/458b162d-c97a-4464-8afc-72d65afb28ed>

120 Competition and Markets Authority, "CMA seeks views on Microsoft's partnership with OpenAI," press release, December 8, 2023, <https://www.gov.uk/cma-cases/microsoft-slash-openai-partnership-merger-inquiry>

121 European Commission, "Commission launches calls for contributions on competition in virtual worlds and generative AI," press release, January 9, 2024, [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_24\\_85](https://ec.europa.eu/commission/presscorner/detail/en/IP_24_85)

122 European Commission, "Speech by EVP Margrethe Vestager at the European Commission workshop on Competition in Virtual Worlds and Generative AI," speech, 28 June, 2024, [https://ec.europa.eu/commission/presscorner/detail/en/speech\\_24\\_3550](https://ec.europa.eu/commission/presscorner/detail/en/speech_24_3550)

123 Competition and Markets Authority, "CMA seeks views on AI partnerships and other arrangements," press release, April 24, 2024, <https://www.gov.uk/government/news/cma-seeks-views-on-ai-partnerships-and-other-arrangements>

124 Federal Trade Commission, "FTC Launches Inquiry into Generative AI Investments and Partnerships," press release, January 25, 2024, <https://www.ftc.gov/news-events/news/press-releases/2024/01/ftc-launches-inquiry-generative-ai-investments-partnerships>

The experience of the European Commission, Germany's Bundeskartellamt and the UK CMA serve as an illustration of the difficulty of reviewing these partnerships under current merger control regimes. Although the Bundeskartellamt argued that Microsoft had acquired a "material competitive influence" over OpenAI as early as 2019 (a similar test to that used in the UK), it nonetheless concluded that it was unable to investigate the partnership under Germany's merger control laws, due to OpenAI only operating substantially in the country since 2023.<sup>125</sup>

Similarly, in September 2024 the European Commission announced that it was unable to investigate the Microsoft/Inflection acquihire, despite concluding that the deal was a formal merger. This is because the transaction did not meet the EU's merger control thresholds, and could not be referred to the Commission by member states (under Article 22 of the EUMR) due to a recent European Court of Justice ruling that heavily restricted the scope of such referrals. Most recently, the CMA announced that it was ending its investigation of the Amazon/Anthropic partnership due to the latter's turnover not meeting the UK's merger control thresholds.

Competition authorities should make the fullest and swiftest use possible of their existing merger control powers to prevent dominant tech firms from using partnerships with smaller players to entrench their hold over AI. However, if existing merger laws prove unfit for purpose in addressing the competition issues raised by these partnerships, then governments in the relevant jurisdictions should update them accordingly. For example, the EUMR could be revised so that the test for defining control is loosened, potentially by shifting to a focus on "material" rather than "decisive" influence. Any changes could be limited to transactions in specific sectors or activities to ensure proportionality. Competition authorities could also look to follow the example of Australia's Competition and Consumer Commission (ACCC), which is set to receive new powers to investigate small but numerous "creeping acquisitions" which, when looked at collectively, entrench the acquirer's dominance.<sup>126</sup>

When seeking to establish whether one firm has gained control or influence over another, merger control regimes should continue to focus on acquisitions of shares, voting rights, intellectual property, and physical assets. In addition, other factors relevant to digital markets and AI, but not always adequately covered by existing laws, should also be incorporated into merger control. These include, but are not limited to, large-scale transfers of data, mass acquisitions of staff, and requirements or incentives to use specific

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125 Bundeskartellamt, "Cooperation between Microsoft and OpenAI currently not subject to merger control," press release, November 15, 2023, [https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2023/15\\_11\\_2023\\_Microsoft\\_OpenAI.html](https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2023/15_11_2023_Microsoft_OpenAI.html)

126 Australian Government, "Merger Reform: A Faster, Stronger and Simpler System for a More Competitive Economy," April 10, 2024, <https://treasury.gov.au/publication/p2024-517964>

technologies and/or platforms. For example, Microsoft’s recent hiring of Inflection AI’s CEO and most of its staff, which was seen by many commentators as an acquisition in all but name, and similar “acqui-hire” deals involving Google and Amazon, have raised the question of whether such mass hires should be subject to investigation as potential mergers.<sup>127</sup>

Another option available to competition authorities that would not require legislative reform would be to investigate partnerships using existing laws that prohibit cartels and anticompetitive agreements. These include Article 101 of the TFEU and similar national laws in EU member states, Chapter I of the UK’s Competition Act 1998, Sections 1 and 2 of the Sherman Act, Section 7 of the Clayton Act, and the Federal Trade Commission Act. One can envision these laws being used to investigate – and potentially unwind – partnerships between firms in AI, given that these partnerships appear to produce many of the harms such laws are designed to prevent, from coordinating output and technological development to discriminating against outside commercial partners.

## **E. Use AI Regulation to Improve Market Transparency**

An important step towards ensuring that the AI market is open and competitive is to leverage AI regulation to enhance market transparency. The EU’s AI Act (AIA) represents a significant step forward in improving market transparency and ensuring the safety and reliability of AI products. The AIA, which fundamentally operates as a piece of product safety regulation, seeks to provide consumers and stakeholders with crucial information about how AI systems operate, the data they use, and the potential risks they pose. This includes requirements for detailed technical documentation, record-keeping, processes for data governance, and risk assessments. For instance, the AI Act’s obligations for so-called general-purpose AI (GPAI) requires that developers of foundation models provide a sufficiently detailed summary of the data used to train their models, including with regard to the potential use of personal and copyright-protected data. In doing so, it lays the groundwork for a more informed and transparent AI market, particularly regarding the development, supply, deployment, and functioning of AI technologies.

However, it is important to note that the AIA’s scope is primarily limited to regulating AI systems and models as individual products, and it does not address broader market dynamics. To fully leverage the transparency obligations mandated by the AIA, it should be applied in concert with pro-competition regulation, such as the DMA. An integrated regulatory approach could, for example, require AI developers to provide open and

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127 Alex Heath, “Microsoft Reuses Its OpenAI Playbook With Inflection Takeover,” *The Verge*, March 22, 2024, <https://www.theverge.com/2024/3/22/24109260/microsoft-openai-playbook-inflection-ai>

transparent terms of access to their systems, thus using the transparency requirements mandated by the AIA to enable other businesses and developers to build upon and innovate with these AI technologies.

In short, it is not enough to understand how an AI system works; there must also be equitable access to these systems. By ensuring coherence between AIA compliance and compliance with the obligations of the DMA, the EU can ensure that AI advancements are both safe and beneficial to the broader market, while preventing the entrenchment of existing monopolies.

While the AIA does have extraterritorial effect in certain circumstances, the U.S. and the UK do not yet have similarly comprehensive domestic AI regulation that could be used to promote market transparency in this way. In the U.S., the White House Executive Order on AI generally seeks to address safety, security, innovation, competition, and collaboration.<sup>128</sup> In the UK, the Government has published a principles-based, non-statutory, and cross-sector framework aimed at balancing innovation and safety, but (so far) it has stopped short of proposing legislative action until an understanding of the risk has “matured.”<sup>129</sup> Assuming these and other jurisdictions eventually adopt domestic AI regulation, applying a similar model of enhancing AI market transparency through regulatory integration will ensure that AI technologies are developed in a safe and transparent manner and that developers of these technologies operate within a fair and competitive market framework.

Additionally, AI regulation could be used to improve market transparency by focusing on the development stages of AI systems rather than solely on their operation or use. This would involve detailed scrutiny and regulation of the AI supply chain, ensuring transparency in how data is sourced, how models are trained, and how computational resources are allocated. For example, it could enforce data portability standards to prevent entrenched players from having exclusive control over datasets. This approach echoes the principles of the DMA, while including a layer that is tailored to the unique challenges posed by the AI market. By preemptively targeting the supply chain, AI-specific regulation could prevent dominance at any particular stage and ensure a more competitive and equitable AI market.

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128 See White House, “Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence,” <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/>

129 UK Government, “A pro-innovation approach to AI regulation: government response,” February 6, 2024, <https://www.gov.uk/government/consultations/ai-regulation-a-pro-innovation-approach-policy-proposals/outcome/a-pro-innovation-approach-to-ai-regulation-government-response>

## **F. Ensure Equal and Fair Access to Critical Inputs for AI Development and Commercialization**

If we want genuine competition in AI, we need to not only prevent further market consolidation but also ensure fair and open access to the concentrated inputs and platforms that firms require to develop and scale their products. In doing so, we can remove the necessity for startups to partner with dominant firms that currently control these resources, while also creating space for alternative business models and use cases to emerge beyond those being developed and promoted by today's tech giants. Promoting market diversity in this way promises to reinforce the depth and breadth of AI innovation while maximizing the choices available to businesses and consumers.

Most existing competition laws allow competition enforcers to impose a wide range of remedies on companies infringing the law, including measures designed to open up access to critical inputs and infrastructure. The precise nature of the remedy depends on both the competition issues identified and the specific characteristics of the industry and business in question.

In the United States, for example, a firm depriving or restricting access to a critical commercial channel, either directly or through exclusive arrangements, can violate Section 2 of the Sherman Act (and similarly Section 5 of the FTC Act) under a refusal to deal, essential facilities, or exclusive dealing claim.<sup>130</sup>

Based on these existing competencies, competition authorities could attempt to force large tech firms that abused their dominance in digital markets – for example, by restricting access to computing power to rival AI firms – to give all customers equal access to critical inputs including data, computing power, and essential platforms and commercial channels, such as search engines.

However, as discussed earlier, remedies imposed as part of antitrust investigations face a number of disadvantages. First, because they can only be imposed once illegal conduct has been proven, their ability to boost competition in a timely way, particularly in fast-moving digital markets, is reduced. Second, the need to link remedies to specific, proven anticompetitive conduct means they cannot be used to address barriers to competition in broader ways that transcend any particular, proven, illegal, and specific behavior. Third, authorities typically struggle to enforce and monitor these remedies effectively, especially in highly technical markets, and lack sufficient leeway to modify these remedies where necessary.

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130 Exclusive arrangements can also violate section 1 of the Sherman Act.

One competition tool that overcomes many of these disadvantages is the market investigation. Market investigation regimes, which competition authorities enforce, enable regulators to examine and address competition issues across a wider range of sectors, not just particular businesses or cartels. In contrast to traditional antitrust enforcement, they allow for the imposition of remedies across entire markets and do not require authorities to demonstrate that businesses have violated competition law. Competition authorities that currently have market investigation powers include the CMA, the German Bundeskartellamt, and most recently of all, the Italian Antitrust Authority, while others – such as the Dutch authority – are publicly lobbying for them. As for the European Union, although it has the ability to gather information through sector inquiries, these do not come with any power to impose remedies.

While currently underutilized, market investigation powers could potentially be used to great effect in opening up access to data, computing power, platforms and other critical inputs. Restricted access to these inputs is based both on the specific conduct of particular firms, but also on the concentrated structures of those markets themselves. Effective use of market investigations could therefore enable competition authorities to open up access to these concentrated resources across the board, for instance by imposing a data sharing requirement on dominant firms, or requiring equal treatment by gatekeepers of all cloud customers. The CMA, which recently launched a formal market investigation into the UK's cloud computing sector, has the opportunity to demonstrate the potential of these powers to protect fair competition in AI.

While market investigation powers have an important role to play, they are currently only available to a small number of competition authorities, notably excluding the European Commission and U.S. antitrust enforcers. The Commission previously considered equipping itself with such powers through the so-called “New Competition Tool”, but this was not ultimately pursued. While these authorities would also benefit from having similar powers, another path to imposing remedies on entire markets is through legislation. In some cases, legislation may be preferable to remedies imposed by competition authorities, given the former's greater democratic legitimacy and durability.

In the U.S., while legislation faces a difficult path through Congress, common carriage obligations could offer an alternative legal avenue to ensuring fair and open access to data and other critical resources. Firms can be governed by common carrier regulations, which exist both in the common law (i.e., the law created and facilitated by the judicial branch) or by federal or state statute, with the latter being the most common method since the early 20th century.<sup>131</sup> In general, common carriage obligations require a firm that seeks business from all potential customers (more commonly known as a “public calling”) to serve those custom-

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131 Ganesh Sitaraman and Morgan Ricks, “Tech Platforms as Common Carriers,” *DUKE L.J.* 1, at 21 (forthcoming 2024),

ers in a non-discriminatory way.<sup>132</sup> Non-discrimination requires fair and reasonable access, pricing, and terms of service for all customers.<sup>133</sup>

Although common carriage regulations, as applied through the American common law, have been applied to many different businesses such as grain elevators, telegraphs, and telephone corporations, their application to technology corporations such as Google and Microsoft is untested. Nevertheless, common carriage has historically been a highly flexible doctrine capable of being applied to new businesses. Modern scholars agree that, under state common law, Google and Microsoft can be regulated as common carriers.<sup>134</sup> Indeed, the current attorney general of the state of Ohio in the United States is engaged in active litigation with Google to declare it a common carrier through the common law of the state.<sup>135</sup> The states of Texas and Florida are also seeking to regulate companies like Google as common carriers through enacting laws.

Common carriage obligations like non-discrimination and mandated access could conceivably include measures to secure access to the inputs and platforms needed to train and commercialize AI services. For example, with regards to the tech giants, such regulation would effectively nullify the deals they have made to give exclusive or preferential access to their computing power or data to certain partners. Common carriage obligations could also require that a cloud computing provider treat all customers equally – offering similar rates and terms – and be prohibited from arbitrarily refusing service or giving preferential treatment to any one customer.<sup>136</sup>

In the European Union, in the context of the liberalization of network industries in the 1980s,<sup>137</sup> some obligations were imposed on companies holding historic monopolies – usually public utilities. These obligations mirror, to some extent, common carriage obligations ap-

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132 Joseph William Singer, “No Right to Exclude, Public Accommodations and Private Property,” 90 Nw. U. L. Rev. 1283, 1304-08 (1996); see generally *Niagara v. Cordes*, 62 U.S. 7, 22-24 (1858).

133 Charles M. Haar and Daniel Wm. Fessler, “The Wrong Side of the Tracks: A Revolutionary Rediscovery of the Common Law Tradition of Fairness in the Struggle Against Inequality,” 56 (1986).

134 Adam Candeub, “Common Carrier Law in the 21st Century,” *TENN. L. REV.* \_\_, at 24 (forthcoming 2024) (“There is no a priori reason why [common carrier] requirements cannot be imposed on social media platforms.”).

135 *Ohio v Google LLC*, 2022 WL 1818648. Disclosure: The Open Markets Institute has written a brief in support of the Ohio Attorney General’s claim that Google can be declared and regulated as a common carrier under the Ohio common law. Brief of Amicus Curiae Open Markets Institute in Support of Plaintiff’s Motion for Summary Judgment, *Ohio v. Google* (Ohio Ct. Com. Pl. 2024) (No. 21-CV-H-06-0274), <https://static1.squarespace.com/static/5e449c8c3ef68d752f3e70dc/t/65f8631dc9fb7c1ea1248c1b/1710777117724/Ohio+v.+Google+Amicus+Brief+%28final%29.pdf>.

136 Jurgen Basedow, “Common Carriers Continuity and Disintegration in U.S. Transportation Law,” 13 *Transp. L.J.* 1, 12 (1983) (stating “The list of exceptions to the duty to carry passengers is even longer. Carriers were held entitled to refuse drunken persons, suspected thieves and people whose behavior constituted a public annoyance, those who had previously been lawfully ejected, or who had not procured a ticket, as well as those whose purpose was not carriage, but gambling or the interference with the interests of the carrier. Finally, the carrier was not bound to transport passengers on freight trains or to places where their lives would be in danger.”).

137 These sectors included transport, telecommunications and energy.



plied in the U.S. EU regulators forced incumbent operators to grant non-discriminatory, fair and transparent access to their key infrastructures (including fair pricing).<sup>138</sup> The purpose of these laws was to ensure new entrants could compete on fair terms. One could envisage the adoption of similar EU sectoral regulation targeting technologies and infrastructure critical to AI research and development, most notably cloud computing.

## **G. Enable Data Portability and Interoperability**

Opening up access to critical inputs will go a long way in enabling new entrants to compete in AI. But while such measures will help ensure that firms get access to the computing power, data and platforms they require to develop AI services, they won't prevent powerful firms from attempting to protect their competitive position by preventing business users and consumers from migrating to other platforms.

As discussed earlier, such practices include limiting interoperability between proprietary and rival foundation models, AI applications and cloud computing platforms, and making it difficult for business customers and consumers to port their data to other services. By artificially locking users in, reducing competitive pressure from rivals, and enhancing incumbents' capacity to take advantage of customers, these restrictions undermine fair competition.

Given the natural incentive of commercial actors is to limit interoperability and data portability, there is a clear role for policy and regulation in mandating it. This is reflected by the existence of interoperability requirements in other sectors, including telecoms and energy, and existing regulation mandating data portability, including the General Data Protection Regulation (GDPR) and the DMA in the EU.

This suggests that regulation (including AI regulation as discussed above) is likely to be the most effective means of ensuring effective interoperability and data portability in AI. Several of the obligations imposed on gatekeepers under the DMA could conceivably be used in this way, subject to dominant cloud computing and foundation models being designated as core platform services. Relevant obligations include allowing end users to switch between different applications and services accessed through the gatekeeper's services (6(6)), ensuring service providers can interoperate with the hardware and software provided by the gatekeeper (6(7)), and giving end users the ability to port their data to competing services (6(10)).

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138 For more information on the regulations applied in the energy sector, see: <https://www.europarl.europa.eu/factsheets/en/sheet/45/internal-energy-market>.

For reasons discussed earlier, however, the DMA's ability to promote data portability and interoperability in AI is currently limited. Not only are cloud computing and foundation models not currently designated under the legislation, but the obligations referenced above would not fully empower business users and consumers to effectively switch between competing cloud and AI services. Article (6(6)), for example, only applies to switching between applications accessed using the gatekeeper's own core platform service, while (6(7)) focuses on giving business users access to the same functionality as that enjoyed by gatekeepers, but not more.

Considering the lengthy legislative process,<sup>139</sup> and as discussed above, there is an urgent need for the European Commission to ensure that these additional services are designated as soon as possible, while updating and adding to the DMA's obligations (for example, by expanding Article 7 to include cloud computing and foundation models) once it becomes clear where the gaps are in relation to AI.

The UK's DMCCA and Section 19a of the GWB, which do not face the same limitations, provide a more tailored tool for designing interventions that promote effective interoperability. Under the "conduct requirements" provided for by the DMCCA, the CMA is able to design requirements to prevent SMS firms from "restricting interoperability between the relevant service or digital content and products offered by other undertakings." Similarly, under Section 19a, the Bundeskartellamt has the power to prohibit dominant firms from "refusing the interoperability of products or services or data portability, or making it more difficult, and in this way impeding competition."

Beyond these specific cases of ex-ante regulation, competition authorities and governments could also use market investigation powers (where available) or legislation to impose interoperability requirements across groups of firms or even entire industries.

One can envision a whole range of potential remedies that would improve the ability of businesses and consumers to move between rival service providers. Dominant cloud platforms could be forced to allow data portability and interoperability with rival cloud platforms, which would prevent foundation models from being locked into dependence on one hyperscaler, while dominant AI firms could be required to offer the same freedom to their customers. All of these interventions would boost competition in AI by making it easier for businesses and consumers to switch where better alternatives exist.

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139 Article 19 of the DMA provides that the Commission must initiate a market investigation to examine whether new services should be added. It must also publish a report within 18 months and submit a legislative proposal to EU institutions.

# Conclusion

Right now, a handful of companies control much of the nascent AI industry, as well as the technologies upon and through which AI is developed and commercialized. Moreover, these companies are attempting to direct the trajectory of the industry in a way that primarily benefits their private interests, while also entrenching and further expanding their market power.

This potentially globally disruptive technology is too important to be left wholly at the whims of today's tech monopolists, free of democratic accountability and control.

As this report argues, not only will monopolization of AI result in abusive conduct towards businesses and consumers by dominant firms, but it will also enable these firms to pick winners – and create losers – by leveraging their access to critical inputs and commercial channels to shut out potential competitors, including those that might eventually replace them. This is detrimental to long-term innovation, as rather than being developed by a multiplicity of actors with different strengths and diverse objectives, AI is instead used primarily to reinforce and turbocharge existing business models, including those based on harmful surveillance, manipulation, and exploitation.

The interventions explored in this report do not seek to destroy what could be an immensely valuable set of technologies. Instead, they seek to channel the conduct of firms in the market to engage in positive forms of competition. Enforcement of and changes in the law can have numerous benefits, including greater choice for consumers and businesses, more and better innovation, and firms that compete in socially beneficial ways, for example, by differentiating their products based on the degree of privacy protection.

In practice, this means that rather than acquiring nascent competitive threats, firms develop their own services to compete in the marketplace – succeeding or failing due to their business acumen and strategic decision-making. Previously restricted inputs and channels of commerce become accessible to all, providing the public with more options and greater competition in the marketplace.

Competition enforcers and governments more generally have a wide-ranging set of existing tools that are ready and able to tackle the problems outlined in this paper. By acting swiftly and decisively, they can open up markets, promote fair competition, and ultimately ensure that the development and implementation of AI serves the public interest.

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