A "Minority Report" on Antitrust Policy in the Generative AI Ecosystem

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Competition regulators have proposed preemptive regulatory approaches toward the generative artificial intelligence (AI) ecosystem, with a focus on partnerships, investments, and other relationships involving technology platforms and independent developers of foundation models and large language models. Detailed factual examination of platform/developer relationships in the generative AI ecosystem shows that these arrangements most likely implement an efficient division of labor between platforms, which specialize in the supply of financial capital and computing infrastructure, and model and applications developers, which specialize in the supply of innovation expertise. Developers typically enter into non-exclusive relationships with multiple platforms, which diminishes anticompetitive risks arising from potential foreclosure effects while generating procompetitive gains arising from scale economies and reduced cost of capital. Moreover, large platforms are exposed to significant competition both at the "ecosystem" level from other large platforms that may have comparable economies of scope across each segment of the AI stack and specialized developers that have differentiated capacities in a particular segment of the AI stack. While there is little basis for antitrust intervention at this stage in the development of the generative AI ecosystem, there is considerable basis for enhanced enforcement of intellectual property rights to address a potential market failure in supporting financing, production, and licensing structures for higher-value creative content in AI-enabled digital environments.

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INTRODUCTION

Currently antitrust enforcers around the world often appear to inhabit a dismal world in which market failure is endemic and regulatory intervention is a continuous imperative. Following this model, the digital economy is a market failure in which a small number of entrenched platforms suppress entry threats and are immune from competitive discipline. It is largely undiscussed that this consensus view appears to stand in tension with the economic value, increased product and service accessibility, and business-model and transactional innovations that have been unleashed by digital technologies, which have exhibited rapid adoption across income segments around the world.[1] Nonetheless this popular narrative has secured widespread adoption among the policymaking community, think tanks and advocacy organizations, and much of the scholarly literature, in the United States, Europe, and other major jurisdictions, driving calls for dramatic antitrust action against major tech platforms, including divestiture and breakup. In the United States, this has resulted in several major litigations by the federal government against "Big Tech" platforms,[2] while in the European Union, it has resulted in monetary penalties against those companies, constituting some of the largest fines ever imposed by competition regulators.[3]

The generative artificial intelligence (AI) market is the latest iteration in the unfolding development of both the digital ecosystem and scrutiny of that ecosystem by antitrust enforcers. The market has experienced explosive growth since the launch of the ChatGPT service by OpenAI in late 2022, eliciting billions of dollars in investments, securing adoption by hundreds of millions of users, attracting millions of developers, and enabling tens

1. Jonathan M. Barnett, *Illusions of Dominance: Revisiting the Market-Power Assumption in Platform Ecosystems*, 86 ANTITRUST L.J. 1, 8–9 (2024).

2. Ian Tang, *Challenging the Giants: Big Tech's Growing Antitrust Battles in Court*, CAPSTONE (Jan. 2, 2025), https://capstonedc.com/insights/big-tech-2025-preview/ [https://perma.cc/6G7P-DAL4].

3. *Meta, Apple Fined 700 Million Euros for Violating EU Antitrust Rules*, REUTERS (Apr. 23, 2025), https://www.reuters.com/sustainability/boards-policy-regulation/meta-apple-fined-700-million-euros-violating-eu-antitrust-rules-2025-04-23 (on file with the *Journal of Corporation Law*).

of thousands of new startups.[4] As the market has rapidly grown, regulators in the United States, European Union, and United Kingdom have pushed the global regulatory campaign in digital markets a step further and have undertaken investigations, and contemplated taking other preemptive action, in this relatively young market, even before any significant harm to competition can be identified. In the ongoing landmark litigation involving the Google search service, the United States Department of Justice had even sought to impose notification requirements on Google for any investment it makes in an AI-related company, going well beyond the merger notification requirements under the Hart-Scott-Rodino Act.[5]

There are few markets that have been examined with such close scrutiny by competition regulators at such an early stage of development. Like the "PreCrime" enforcers in the classic 2002 film, *Minority Report*,[6] agency regulators apparently believe they can predict antitrust offenses even before they occur. As the film warns concerning the actions of the "PreCrime Division," a preemptive enforcement policy runs the risk that enforcers may rely on the "group mind" and overlook "minority reports," which can lead to erroneous prosecutions of hypothetical crimes that would never have occurred.[7] In a case of science fiction meets reality, this plot line conveys the dangers that arise from grounding antitrust policy in the rigid presumptions of market failure that antitrust regulators, and like-minded academic commentators and advocacy groups, have adopted and promoted concerning digital markets in general and AI-enabled markets in particular.

Antitrust regulators' model of preemptive intervention in the generative AI market reflects a reversion to the unsettled theory of "monopoly leverage."[8] This theory relies on the intuition that existing platforms can extend their purported dominance in existing digital markets into adjacent and emergent AI markets through investments in, and partnership with, independent developers of AI models and applications.[9] On the basis of this theory, regulators have undertaken extensive investigations into platform/developer relationships in the AI ecosystem and suggested the possibility of enforcement action. Yet it is largely overlooked that antitrust scholarship has generally confined the leverage theory to particular circumstances, while in all other cases treating it as an innocuous or beneficial form of bundling that reduces transaction costs or yields product synergies for consumers. Consistent with this skepticism toward leverage theories, close examination of the terms of actual relationships among platforms and AI model and app developers and taking into account the capital and technical requirements that characterize various elements of the AI "technology stack," casts significant doubt on regulators' antitrust concerns. Rather than constituting a tool for perpetuating and extending any market power reasonably attributable to existing platforms, these relationships appear to promote competition by lowering entry barriers that may otherwise slow down or impede entry by independent model and app

4. *See generally* MARY MEEKER ET AL., TRENDS—ARTIFICIAL INTELLIGENCE (AI) (2025), https://www.bondcap.com/report/tai/#view/2 [https://perma.cc/7ZVH-DL6L] ("We set out to compile foundational trends related to AI. A starting collection of several disparate datapoints turned into this beast.").

5. Plaintiffs' Revised Proposed Final Judgment, United States v. Google LLC, No. 1:20-cv-03010 (E.D. Va. Mar. 7, 2025).

6. The film was released in 2002 and is based on PHILIP K. DICK, THE MINORITY REPORT (1956).

7. In the film, the "group mind" refers to the aggregation of the views reached by certain selected individuals deemed to have superior analytical and predictive powers. A "minority report" refers to a dissenting view expressed by one of those individuals.

8. *See supra* Part II.B–C.

9. *Id.*

developers. In fact, some commentators contend that answer-engine services developed by independent AI model developers such as OpenAI now pose a competitive threat to Google's long-standing leadership in the general search market.[10]

While regulators' concerns over a potential market failure arising from platform/developer relationships appear to lack a compelling factual basis, the focus on these relationships has diverted attention from a more likely source of market failure. The development of the AI ecosystem has so far been characterized by widespread infringement of copyright-protected content,[11] which has been "ingested" into AI models and then relied upon to generate outputs in response to user prompts in a variety of applications. Contrary to claims by many AI model and app developers,[12] robust enforcement of copyright is not inherently antithetical to development and growth of the AI ecosystem. As has been illustrated frequently in the past,[13] content markets exhibit robust capacities to develop technological and contractual solutions that deliver remuneration to reflect content developers' contributions to the creative ecosystem without unduly impeding technological development and innovation. As suggested by licensing transactions involving major content owners and AI model developers as well as the emergence of nascent licensing and attribution technologies,[14] the same pattern is likely to arise in the AI ecosystem so long as courts or legislatures restore a robust baseline of property-rights protections for content owners, taking into account the unique characteristics of AI systems development.

Organization of the paper is as follows. In Part I, this Article presents evidence that casts doubt on the now-common view that digital markets are prone to monopoly entrenchment. In Part II, it presents the principal concerns raised by antitrust enforcers concerning competitive conditions in the generative AI ecosystem. In Part III, it assesses those concerns in the context of partnerships, investments, and other arrangements involving large technology platforms and independent model and applications developers in the AI ecosystem, with a focus on the partnership between Microsoft (MS) and OpenAI. Specifically,

10. Dan DeFrancesco, *AI Search Engines Are Starting to Challenge Google's Search Dominance*, BUS. INSIDER (May 8, 2025), https://www.businessinsider.com/ai-engines-google-search-dominance-openai-chatgpt-2025-5 (on file with the *Journal of Corporation Law*) (reporting that Apple executives attributed a drop in Safari searches to growing use of AI tools such as OpenAI's ChatGPT and Perplexity AI, suggesting a shift in user search behavior away from Google); Adam Levine, *Perplexity AI Looks to Raise $500 Million, Increasing the Pressure on Google Search*, BARRON'S (May 12, 2025), https://www.barrons.com/articles/perplexity-google-stock-ai-search-engine-5d7b8ea3 (on file with the *Journal of Corporation Law*) (describing how Perplexity AI's rapid valuation growth and user adoption indicate intensifying competition for Google's search business). For additional discussion, see Jonathan M. Barnett, *Models v. Markets: Does User Inertia Explain User Conduct in the Search Ecosystem?*, ANTITRUST L.J. (forthcoming 2026).

11. George Hammond, *AI Start-Up Anthropic Accused of 'Egregious' Data Scraping*, FIN. TIMES (July 26, 2024), https://www.ft.com/content/07611b74-3d69-4579-9089-f2fc2af61baa (on file with the *Journal of Corporation Law*).

12. U.S. COPYRIGHT OFFICE, COPYRIGHT AND ARTIFICIAL INTELLIGENCE, PART THREE: GENERATIVE AI COPYRIGHT TRAINING 1 (2025) ("[S]ome warn that requiring AI companies to license copyrighted works would throttle a transformative technology, because it is not practically possible to obtain licenses for the volume and diversity of content necessary to power cutting-edge systems."); Joshua Levine, *Don't Let Copyright Kill American AI*, FOUND. FOR AM. INNOVATION (Nov. 25, 2024), https://www.thefai.org/posts/don-t-let-copyright-kill-american-ai [https://perma.cc/7WXR-WDWG] (stating if AI developers are required to get permission from every rights holder for every piece of data they use to train their systems, the costs would be astronomical and innovation would be severely constrained).

13. *See infra* notes 116–17.

14. *See infra* notes 118–22.

it presents evidence suggesting that these relationships typically implement an efficient division of labor between entities that specialize in model and applications development and entities that can most efficiently supply the capital and infrastructure necessary to deploy those models. In Part IV, the Article explores the extent to which the generative AI market may face the risk of market failure attributable to the absence of robust mechanisms for securing IP rights over the informational assets used by models and applications developers. In general, this Article addresses regulatory actions in the generative AI market by U.S. antitrust enforcers, although the analysis has implications for preemptive actions being undertaken or contemplated by regulators in the European Union, United Kingdom, and other jurisdictions.

I. A MINORITY REPORT FOR ANTI-MONOPOLY GROUPTHINK

Today's newly prevailing approach to digital antitrust reflects the now-common assumption that digital markets are inherently prone to converge on entrenched monopoly outcomes.[15] Based on the strength of this assumption, regulators and expert reports have argued for taking action against purportedly "nascent" antitrust risks that presage this inevitable market failure, especially in the context of acquisitions of emerging firms by digital incumbents.[16] This popular narrative of digital doom that drives regulatory policy at major competition agencies, and has permeated much of antitrust commentary among the press and significant portions of the practitioner and scholarly literature, fails to address at least two inconvenient facts.[17]

First, contrary to the entrenchment narrative, the historical record shows that digital markets tend to exhibit sudden changes in market leadership. Incumbents do enjoy high market shares but periodically lose those shares rapidly as new entrants release technologies that disrupt an existing paradigm. Specific examples suggest a sequence of punctuated equilibria involving periodically disrupted, rather than perpetually entrenched, periods of market leadership. In March 2000, Cisco was the most valuable company in the world as measured by market capitalization; yet its stock plummeted during the ensuing stock-market crash and it is generally not categorized among today's "Big Tech" leaders. Uber and

15. *See* Lina M. Khan, *The End of Antitrust History Revisited*, 133 HARV. L. REV. 1655, 1664 (2020) (referring to the "dominance of a small number of technology platforms, certain aspects of which seem to exhibit natural monopoly features"); STIGLER CTR. FOR THE STUDY OF THE ECON. & THE STATE, UNIV. OF CHI. BOOTH SCH. OF BUS., STIGLER COMM. ON DIGITAL PLATFORMS, FINAL REPORT 21 (2019) (stating that, in the search engine market, "there are increasing returns to scale and thus it is efficient to have a single search provider").

16. THE WHITE HOUSE, ECONOMIC REPORT OF THE PRESIDENT AND ANNUAL REPORT OF THE COUNCIL OF ECONOMIC ADVISERS 219 (2020) (stating that "dominant platforms are harming competition by buying too many smaller firms, such as startups funded with venture capital"); JACQUES CRÉMER, YVES-ALEXANDRE DE MONTJOYE & HEIKE SCHWEITZER, COMPETITION POLICY FOR THE DIGITAL ERA 111 (2019) [hereinafter CRÉMER REPORT] (noting that "[c]oncerns may . . . arise notably when such acquisitions result in a strengthening of dominance . . . e.g., by eliminating a competitive threat and/or by raising barriers to entry for other (potential) competitors, thus further reducing the risk of attacks on a strongly entrenched market position from the fringe"); UK GOV'T, UNLOCKING DIGITAL COMPETITION: REPORT OF THE DIGITAL COMPETITION EXPERT PANEL 95 (2019) ("[D]igital mergers are also more likely to involve theories of harm which relate to elimination of potential competition or harming innovation.").

17. The following two paragraphs draw on arguments presented at greater length in Jonathan M. Barnett, *Illusions of Dominance: Revisiting the Market-Power Assumption in Platform Ecosystems*. *See generally* Barnett, *supra* note 1.

Airbnb were once routinely included among the "digital giants" but are rarely included today in that group as their economic fortunes have waned. Facebook may have once been the clear leader in the social networking market but it now trails TikTok in certain demographic segments.[18] In the 2000s, Nokia and Blackberry were widely regarded as the "unbeatable" leaders of the mobile phone market, and Palm Pilot led the nascent market in handheld computing and communications devices, but all were rapidly reduced to insignificance by the Apple iPhone (released in 2007) and Android-based devices (following release of the Android operating system in 2008).[19] MS Office may have once led the market for office productivity software but has lost significant share to Google's competing applications, especially for word-processing applications among younger users, which are generally perceived to have a superior design for group work and are available with a significant range of features at no cost.[20] The list could continue.

Second, digital platforms have generally lowered prices, enhanced user convenience, and expanded product variety, as in the case of Amazon in the online books and other e-commerce markets, or Spotify, Apple, and Amazon music services in the digital music service market.[21] Digital music platforms offer a once-unimaginable inventory of music for a monthly subscription at less than the price of a single CD or, with ads, for no fee at all. More generally, digital platforms offer a valuable and broad suite of applications at no out-of-pocket cost (although there may be personal data implicitly or explicitly "paid" by the user). To take one of many examples: at no charge, drivers can navigate traffic in "real time," using what was once military-grade geolocation satellite services and exploiting computing power that was once reserved for large corporations and government agencies. As compared to pre-digital environments, these are attractive policy outcomes for consumers in terms of price, innovation, and convenience. While current regulators (including antitrust enforcers under both the Biden and Trump administrations)[22] and some scholars may

18. Emily A. Vogels, Risa Gelles-Watnick & Navid Massarat, *Teens, Social Media, and Technology* 2022, PEW RSCH. CTR. (Aug. 10, 2022), https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/ [https://perma.cc/8K5F-ZA5C] (reporting survey data that the percentage of U.S. teens who reported using Facebook declined from 71% during 2014–2015 to 32% as of 2022, while the same figures for TikTok increased from 52% to 67%, although Instagram increased from 52% to 62%).

19. Nikhil Joshi, *Why Nokia and Blackberry Lost Their Edge*, MEDIUM (Mar. 15, 2025), https://medium.com/@cast_shadow/why-nokia-and-blackberry-lost-their-edge-ab1c050d99e7 [https://perma.cc/QX7B-7J2M].

20. *Market Share of Major Office Productivity Software Worldwide in 2022*, STATISTA (Feb. 2022), www.statista.com/statistics/983299 [https://perma.cc/2WSV-PK6H] (reporting user survey data that of 2022, Google and Microsoft enjoyed virtually identical shares (48% for MS Office and 46% for Google's G suite) of the worldwide market for office productivity software). On preferences for Google office productivity applications among younger users, see Matt Richman, *Millennials Prefer Microsoft Word for Individual Work, Google Docs for Collaborative Work*, VOX (July 29, 2016), https://www.vox.com/2016/7/29/12312086/millenials-microsoft-word-google-docs-collaboration-study (on file with the *Journal of Corporation Law*).

21. *See generally* Imke Reimers & Joel Waldfogel, *Throwing the Books at Them: Amazon's Puzzling Long-Run Pricing Strategy*, 83 S. ECON. J. 869 (2017) (showing that Amazon has maintained low-margin pricing in the books market for approximately two decades); Tom Ryan, *Is Being the Low Price Leader Critical to Amazon's Ongoing Success?*, RETAILWIRE (Nov. 28, 2022), retailwire.com/discussion/is-being-the-low-price-leader-critical-to-amazons-ongoing-success [https://perma.cc/96J2-2VN8] (describing findings of the Profitero pricing report, finding that, in 2020, 2021, and 2022, Amazon's prices were, respectively, 16%, 14%, and 13% lower on average than the prices offered by other major U.S. retailers in 15 product categories).

22. On this approach under the Biden administration, see Jonathan M. Barnett, *The Antitrust Revolution That Mostly Wasn't and Probably Won't Be*, NETWORK L. REV., https://www.networklawreview.org/barnett-

seek to shape antitrust law in a manner that discounts the interests of consumers in favor of small businesses and workers or a generalized interest in deconcentrated markets as a matter of principle, that policy trajectory runs counter to settled U.S. federal antitrust case law anchored in the consumer welfare standard. This standard is singularly dedicated to preserving competition grounded in evidence of harm to consumers, rather than any competitor, class of competitors, or ideal market structure.[23]

II. PRECRIME ANTITRUST IN THE GENERATIVE AI ECOSYSTEM

To address the purportedly systemic failure in the digital economy, antitrust enforcers in the United States, European Union, United Kingdom, and some EU member countries, now seek to move from a "post-crime" model based on litigation that targets factually demonstrated competitive harms to a "pre-crime" model based on intervention that seeks to suppress preemptive competitive harms that are expected with confidence to arise in the future. This "crystal ball" approach to antitrust enforcement appears to underlie recent decisions to undertake investigations even at early stages in the development of the generative AI market, which has attracted extensive regulatory scrutiny in the United States, European Union, United Kingdom, and other jurisdictions during the short period since the launch of OpenAI's ChatGPT application in late 2022. As noted, in the landmark litigation involving Google's search service, the government sought to impose an *ad hoc* remedy requiring Google to notify antitrust authorities any time it invests in an AI-related company.[24] There is little precedent for taking extensive regulatory action at the inception of a market, where, by definition, no harm to competition could have materialized.

A. Structure of the Generative AI Technology Stack

To assess regulators' claims concerning purported risks to competition at this early stage in the development of the generative AI ecosystem, it is necessary to review briefly the fundamental elements of the "technology stack" (usually known as a "tech stack") that ultimately leads to a generative AI-enabled service or product being delivered to the end-user (approximately equivalent to a supply chain in a non-digital market). A tech stack can encompass both vertical and horizontal relationships between actual and potential competitors, whether analyzed on a segment-by-segment basis or a "cross-segment" basis. While the tech stack concept has arguably not been extensively developed in antitrust case law or

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future-brandeis/ [https://perma.cc/X8ML-TM7Z]. On the approach under the Trump administration, see Jonathan M. Barnett, *Big Tech M&A Risks Under Trump May Resemble Biden Era*, LAW360 (May 20, 2025), https://www.law360.com/articles/2340345/big-tech-m-a-risk-under-trump-may-resemble-biden-era (on file with the *Journal of Corporation Law*); *see also* Eric Fruits, *A Hipster and a Hillbilly Walk Into a Bar*, TRUTH ON THE MKT. (May 30, 2025), https://truthonthemarket.com/2025/05/30/a-hipster-and-a-hillbilly-walk-into-a-bar/ [https://perma.cc/4U6P-572N].

23. For the leading Supreme Court decision recognizing the consumer welfare principle as the principal objective of the antitrust laws, see Reiter v. Sonotone Corp., 442 U.S. 330, 341 (1979). On the related concept of antitrust standing, which requires that any antitrust cause of action identify a harm to competition (rather than a particular competitor), see Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc., 429 U.S. 477, 487 (1977).

24. *See* Plaintiffs' Revised Proposed Final Judgment, *supra* note 5.

scholarship, it supported the principal monopolization theory in the classic antitrust litigation brought by the federal government against Microsoft in the early 2000s.[25]

Prior to the release of the PC to the consumer market in the early 1980s, computing products were generally sold as "end-to-end" integrated systems and hence, with some exceptions, there were limited opportunities for component providers—or more generally, providers of a service for a particular segment of a tech stack—to enter the market independently.[26] The release of the IBM PC enabled users to build a technology stack comprised of "plug and play" components from multiple suppliers—for example, the operating system for the IBM PC was supplied by MS and the microprocessor was supplied by Intel.[27] As the PC industry developed, different companies periodically established leadership positions in different segments of the PC technology stack, which contrasts with the pre-PC area in which all components were generally sourced from a single provider.[28] This has favorable implications for competitive markets because it lowers entry costs for device producers and distributors, who can assemble components from multiple independent suppliers.

In the generative AI ecosystem, the stack consists of several components, including (at least): (1) GPU processors, (2) cloud-computing services, (3) foundation models or "FMs" (which includes as a subset, "large language" models (LLMs) for natural language processing applications), (4) alignment and other "training" tools that optimize a model's performance based on a data sample, and (5) AI-enabled applications for end-users.[29] No firm is currently the sole source of any of these components. Although Nvidia is currently the leading supplier of certain specialized graphic processing units (GPUs) for the AI market,[30] it faces competition both from specialized chip developers and "Big Tech" platforms such as Google and Amazon that have internal chip-development capacities.[31] Generally

25. Specifically, the government had claimed that Microsoft's tactics had impeded Netscape from reaching target consumers and, as such, prevented Netscape from potentially contesting Windows' leadership in the PC operating system market by establishing a competing leadership position in the "middleware" segment of the PC tech stack. *See* United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001).

26. Mark Jackson, Tom Mandeville & Jason Potts, *The Evolution of the Digital Computation Industry*, 20 PROMETHEUS, 323, 329 (2002).

27. *Id.* at 329.

28. *Id.* at 328–29.

29. Cole Stryker, *What Is an AI Stack?*, IBM, https://www.ibm.com/think/topics/ai-stack. [https://perma.cc/QQ4X-Z5GK]; Jonathan Shriftman, *The Building Blocks of Generative AI*, MEDIUM (July 10, 2023), https://shriftman.medium.com/the-building-blocks-of-generative-ai-a75350466a2f [https://perma.cc/V24X-RLDN].

30. Nvidia faces increasing competition from AMD in certain portions of the GPU market, internal production of AI-specific chips by large platforms such as Amazon, and Google, and "neural processing units" for "edge" computing devices produced by companies such as Qualcomm, Intel, AMD and Hailo. For discussion, see Robbie Whelan & Sebastian Herrera, *After a Year of Blistering Growth, AI Chip Makers Get Ready for Bigger 2026*, WALL ST. J. (Dec. 29, 2025), https://www.wsj.com/tech/ai/after-a-year-of-blistering-growth-ai-chip-makers-get-ready-for-bigger-2026 (on file with the *Journal of Corporation Law*); Jeffrey Burt, *Chipmakers Putting a Laser Focus on Edge AI*, THE NEW STACK (Apr. 12, 2024), https://thenewstack.io/chipmakers-putting-a-laser-focus-on-edge-ai/ [https://perma.cc/W9FR-ENRB]; *see also* Kif Leswing, *Nvidia Dominates the AI Chip Market, But There's More Competition Than Ever*, CNBC (June 2, 2024), https://www.cnbc.com/2024/06/02/nvidia-dominates-the-ai-chip-market-but-theres-rising-competition-.html [https://perma.cc/57B6-7NNX].

31. Anissa Gardizy & Qianer Liu, *Google Convinces OpenAI to Use TPU Chips in Win Against Nvidia*, THE INFO. (June 27, 2025), https://www.theinformation.com/articles/google-convinces-openai-use-tpu-chips-win-nvidia?rc=e6btlo (on file with the *Journal of Corporation Law*).

speaking, as can be observed in the following Table, the level of concentration in each segment of the generative AI tech stack—as suggested anecdotally by the number of competitors in each segment—appears to decrease as the stack approaches the various applications that interface directly with the end-user market.[32]

Table 1. Generative AI Technology Stack (as of August 2025).[33]

Segment	Capital invested in startups (est.)	Leading providers in U.S. market (selected)
Graphic processing units (GPU), internal Tensor processing units (TPUs)	n/a	GPUs: Nvidia, AMD, Intel. Internal TPUs: Alphabet, Amazon, Apple, IBM, Meta, and MS.
Cloud-computing services	n/a	AWS, MS Azure, Google Cloud, Oracle Cloud
FMs/LLMs (general intelligence, independent developers)	$98.7B	AI21 (Jurassic-2), Anthropic (Claude), Cohere (Aya), Databricks (DBRX), Grok (xAi), Hugging Face (BLOOM), Mistral AI, OpenAI (GPT-4/GPT-4o)
FMs/LLMs (general intelligence, platforms)	n/a	Apple (MM1), AWS (Titan), Google (Gemini), Meta (Llama 3), MS (Orca, Ph-2), Nvidia (Nemo)
LLM software tools	$2.6B	Numerous (encompasses prompt engineering, data management, fine-tuning, and optimization)
Apps (image generation)	$357M	Adobe Firefly, Craiyon, DALL-E 3 (OpenAI), Flux/FLUX.1, Kive, KREA, Leonardo AI, Midjourney, Nano Banana (Google), NightCafe, Stability AI
Apps (video generation)	$1.1B	Canva AI Video, Colossyan, Elai, Fliki,

32. *See e.g.*, Jonathan M. Barnett, *The Case Against Preemptive Antitrust in the Generative Artificial Intelligence Ecosystem*, *in* ARTIFICIAL INTELLIGENCE AND COMPETITION POLICY (Alden Abbott & Thibault Schrepel eds., 2025).

33. Felix Ullmer & Lorenzo Chiavarini, *Generative AI Startups*, DEALROOM.CO (Aug. 11, 2025), https://app.dealroom.co/lists/33530 [https://perma.cc/F2E4-7CZM]. For the "leading providers" column, some information is drawn from trade press or industry sources. Estimates of capital invested may omit amounts invested internally by platforms and other large tech incumbents in certain layers. All entities are listed in alphabetical order, except for GPU/TPU and cloud-computing layers (where entities are listed by order of importance). For FMs/LLMs, the model supplied by each provider is indicated in parentheses.

		Google Veo 3, HeyGen, Pika Labs, Rephrase.ai, RunwayML, Sora (OpenAI), Synthesia, Tavus .
Apps (music generation)	$71M	Amper Music, Beatoven.ai, Boomy, Endel, Loudly, Mubert, MusicGen, Soundful, Soundraw, Suno AI, Udio
Apps (code generation)	$6.2B	Amazon Q Developer (Code Whisperer), Codeium, Cursor GitHub Copilot, Gemini Code Assist, Replit, TabNine
Chatbots (provider in parentheses)	n/a	Amazon Q (Amazon), ChatGPT (OpenAI), Claude (Anthropic), Copilot (MS), Gemini (Google), Grok (xAI), Llama Chat (Meta), Perplexity

These segment-specific concentration tendencies most likely reflect the fact that upstream segments in the AI stack (in particular, the semiconductor and cloud-computing segments) are capital-intensive production and infrastructural segments that pose significant entry costs, which is consistent with the higher amounts of capital invested in the FM/LLM segment. By contrast, the tools and applications segments do not have comparable capital requirements and enjoy abundant opportunities for product differentiation, which favors fragmented market outcomes. The FM/LLM segment lies between these extremes: while capital requirements remain significant, there are ample opportunities for differentiation based on horizontal parameters (for models that deploy a single methodology across a broad range of industries or applications) or vertical parameters (for models tailored to a particular industry or type of application). Lastly, it should be noted that significant capital has been invested in emerging firms active in each segment of the AI stack (including the FM/LLM layer), suggesting that capital requirements are not a barrier to entry into the market.

B. Monopoly Leverage Claims in AI Markets

Since the launch of the generative AI market, competition regulators have initiated several investigations, including (among others) U.S., U.K., and EU regulators, and national regulators in certain EU member states. The FTC initiated formal investigations of MS, Google, and Amazon concerning relationships with OpenAI and Anthropic (independent model developers), issuing in January 2024 compulsory information requests concerning all investments and partnerships involving generative AI companies.[34] Regulators in

34. Press Release, FTC, FTC Launches Inquiry into Generative AI Investments and Partnerships (Jan. 25, 2024), https://www.ftc.gov/news-events/news/press-releases/2024/01/ftc-launches-inquiry-generative-ai-investments-partnerships [https://perma.cc/4BVN-J5V5]; United States of America Before the Federal Trade Commission, Order to File a Special Report, FTC Matter No. P246201 (Jan. 24, 2024), https://www.ftc.gov/system/files/ftc_gov/pdf/P246201_AI_Investments_6%28b%29_Order_and_Resolution.pdf [https://perma.cc/B55K-NEDD].

the U.K. and EU announced investigations of various partnerships involving large digital platforms and independent model developers. Regulators in the United States[35], United Kingdom,[36] and the European Union[37] took a special interest in the MS/OpenAI relationship, which will be the focus of much of this paper's subsequent analysis. In June 2024, the German competition regulator indicated that it was considering opening an investigation into certain business practices in the AI sector, including the relationships between tech incumbents and model developers.[38] In July 2024, it was reported that the United States Department of Justice had initiated an investigation of certain sales practices by Nvidia.[39] In actions filed as part of the DOJ's litigation concerning the "Google Search" service, the DOJ sought various limitations on Google's ability to make investments in independent AI model and app developers.[40] The DOJ also opened an investigation into Google's "acqui-hire" of key personnel at Character.AI, a leading AI model developer.[41] In May 2025, the European Commission's top commission economist called for potential action to preempt what he described as potential harms arising from platform investments in the artificial intelligence ecosystem.[42]

These are just a sampling of various statements and actions by major competition authorities relating to these transactions. The Appendix sets forth all significant investigations or other actions in the AI market by antitrust and competition authorities in the United States, United Kingdon, European Union, and EU member countries concerning platform/developer relationships in the generative AI market.

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35. Emily Birnbaum, Dina Bass & Rachel Metz, *Microsoft-OpenAI Partnership Raises Antitrust Concerns, FTC Says*, BLOOMBERG (Jan. 17, 2025), https://www.bloomberg.com/news/articles/2025-01-17/microsoft-openai-partnership-raises-antitrust-concerns-ftc (on file with the *Journal of Corporation Law*).

36. Press Release, Competition & Mkts. Auth., CMA Seeks Views on Microsoft's Partnership with OpenAI (Dec. 8, 2023), https://www.gov.uk/government/news/cma-seeks-views-on-microsofts-partnership-with-openai [https://perma.cc/8664-MQZM].

37. Press Release, Eur. Comm'n, IP/24/85, Commission Launches Calls for Contributions on Competition in Virtual Worlds and Generative AI (Jan. 8, 2024), https://ec.europa.eu/commission/presscorner/detail/en/ip_24_85 [https://perma.cc/8TJK-N8PT].

38. Samuel Stolton, *Microsoft's $13 Billion OpenAI Pact Faces Extra EU Scrutiny*, BLOOMBERG (June 28, 2024), https://www.bloomberg.com/news/articles/2024-06-28/microsoft-s-13-billion-openai-pact-faces-extra-eu-scrutiny (on file with the *Journal of Corporation Law*).

39. Anissa Gardizy, Stephanie Palazzolo and Amir Efrati, *Nvidia Faces DOJ Antitrust Probe Over Complaints from Rivals*, THE INFO. (Aug. 1, 2024), https://www.theinformation.com/articles/nvidia-faces-doj-antitrust-probe-over-complaints-from-rivals (on file with the *Journal of Corporation Law*).

40. Plaintiffs' Revised Proposed Final Judgment, *supra* note 5 (withdrawing previous petition to bar Google from holding or making investments in AI model and app developers but requiring Google to provide notice of all such transactions, even if not reportable under merger review guidelines); Plaintiffs' Proposed Remedy Framework, United States v. Google LLC, No. 1:20-cv-03010, 2025 WL 2523010 (D.D.C. Oct. 8, 2024) (seeking remedy to require Google to divest from investments in AI model and app developers and to bar Google from making any further investments).

41. Josh Sisco, *Google Faces Antitrust Investigation Over Deal for AI-Fueled Chatbots*, BLOOMBERG (May 22, 2025), https://www.bloomberg.com/news/articles/2025-05-22/google-faces-antitrust-investigation-over-deal-for-ai-fueled-chatbot-technology (on file with the *Journal of Corporation Law*); United States v. Google LLC, No. 20-cv-3010, 2025 WL 2523010 (D.D.C. Sept. 2, 2025).

42. Rashid Baxter, *DG Comp Chief Economist Signals Possible AI Ecosystem Theory of Harm*, GLOB. COMPETITION REV. (May 15, 2025), https://globalcompetitionreview.com/article/dg-comp-chief-economist-signals-possible-ai-ecosystem-theory-of-harm?utm_source=Social+Media&utm_medium=LinkedIn&utm_campaign=Lead_gen (on file with the *Journal of Corporation Law*).

Echoing concerns expressed by competition agencies concerning digital platforms generally,[43] regulators, expert commissions, and some scholars have suggested that large platforms can "leverage" their existing dominance in one segment of the AI ecosystem to secure dominance in adjacent market segments, leading to an entrenchment effect that protects existing digital leaders and blocks potential challengers.[44] Based on this theory of incipient competitive harm, the agencies and other policymakers have focused in particular on the relationships between large platforms and independent model developers, apparently reflecting a concern that the incumbent could use this relationship to secure a dominant position in the generative AI market. While these investigations have not continued beyond initial stages or may still be ongoing, the level of scrutiny applied to a market in its early stage of development has few precedents in antitrust history.

C. Contextualizing "Monopoly Leverage" Theories of Competitive Harm

In current assertions of the purportedly imminent competitive risks in AI markets, regulators and commentators broadly and loosely deploy "monopoly leverage" theories, while making little reference to the fact that the economic literature (and U.S. case law) have generally found that these theories only provide plausible accounts of competitive harm in specific circumstances. To rigorously evaluate these assertions on an informed basis, it is helpful to situate these claims within the decades-long history of U.S. antitrust law and scholarship that have sought to assess the sometimes-complex mix of competitive effects reasonably attributable to business practices that may fall under the "leverage" rubric. In the following discussion, this Article will present the traditional theory of monopoly leverage, the critique of that theory, and a refined version that can then be applied to assess the specific circumstances under which current leverage theories could potentially provide an economically coherent account of competitive conditions in the AI ecosystem.

1. Traditional Monopoly Leverage Theory

The term, "monopoly leverage," has not been used consistently in antitrust jurisprudence and scholarship but, generally speaking, refers to the purported use by an incumbent of vertical integration and vertical restraints such as tying, refusal to deal, exclusive dealing, and resale price maintenance for purposes of expanding the incumbent's market power into adjacent markets for complementary goods or services.[45] As Richard Todd observes, the term does not refer to "a standalone theory of abuse in antitrust law" but rather, "[i]t is better thought of as a *category* that encompasses numerous legal theories of harm . . . where the conduct's competitive effects are felt in a market distinct from the one in which the defendant is said to be dominant."[46] In the context of EU competition law, Robert O'Donoghue and Jorge Padilla similarly note,

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43. Patrick F. Todd, *Digital Platforms and the Leverage Problem*, 98 NEB. L. REV. 486, 488–89 (2019).

44. *See, e.g.*, CRÉMER REPORT, *supra* note 16, at 35, 49, 65–66; *Antitrust and Competition: It's Time for Structural Reforms to Big Tech*, AI NOW INST. (Apr. 11, 2023), https://ainowinstitute.org/publication/antitrust-and-competition [https://perma.cc/DL3V-KS4N].

45. Louis Kaplow, *Extension of Monopoly Power Through Leverage*, 85 COLUM. L. REV. 515, 516 (1985) ("Traditional leverage theory claims that a monopolist's use of its power in its own market to control activities in another market typically represents an attempt to spread its power to the other market.").

46. Todd, *supra* note 43, at 489.

> Leveraging is not an independent ground of abuse. It is simply a convenient (and sometimes misleading) label to identify cases that have in common the feature that a dominant firm uses its power in one market to commit an abuse that has effects in an adjacent . . . market.[47]

In the case of vertical integration, the leverage theory in its traditional form posits that a firm that has a dominant position in one segment of a supply chain can purportedly extend its dominance and secure additional monopoly profits by vertically integrating into other segments of the supply chain.[48] In the generative AI context, this theory would appear to hypothesize that a firm like MS can leverage its leading position in the upstream cloud-computing market to secure a dominant position and additional monopoly profits in the downstream LLM segment of the generative AI ecosystem. In the case of tying, the leverage theory posits that a firm that has a dominant position in one product market can purportedly extend its dominance and secure additional monopoly profits by obligating consumers to purchase a complementary product.[49] In the generative AI context, this theory would appear to hypothesize that a firm like MS can leverage its leading position in the office productivity software market by integrating generative AI-enabled functionalities into its software, extending its dominance of the adjacent office productivity software market into, and extracting additional monopoly profits from, the generative AI market.

2. Critique of Traditional Monopoly Leverage Theory

Current assertions by regulators and some commentators of "monopoly leverage" in AI markets reflect a revival in the digital context of leverage theories that were once accepted by courts but fell out of favor in the wake of scholarly criticism.[50] Starting with an article in 1957 by Ward Bowman,[51] as the late 1950s, the theory was widely criticized by scholars and heavily qualified by U.S. courts, culminating in influential critiques that appeared in books by Richard Posner and Robert Bork published in 1976 and 1978, respectively.[52] In 1975, Oliver Williamson published the landmark work, *Markets and*

47. ROBERT O'DONOGHUE & JORGE PADILLA, THE LAW AND ECONOMICS OF ARTICLE 102 TFEU 153 (2d ed., 2013).

48. *See* KEITH N. HYLTON, ANTITRUST LAW & COMMON LAW EVOLUTION 195–96 (2003) (describing without endorsing the theory in its traditional form).

49. *Id.* at 211–14.

50. *See, e.g.*, Times-Picayune Pub. Co. v. United States, 345 U.S. 594, 611 (1953) (holding that "monopolistic leverage" can arise when "a seller exploits his dominant position in one market to expand his empire into the next"); United States. v. Griffith, 334 U.S. 100, 108 (1948) ("When the buying power of the entire circuit is used to negotiate films for his competitive as well as his closed towns, he is using monopoly power to expand his empire.").

51. *See* Ward Bowman, Jr., *Tying Arrangements and the Leverage Problem*, 67 YALE L.J. 19, 19–20 (1957) (describing the original critique of the monopoly leverage theory); *see* Herbert Hovenkamp, *Robert Bork and Vertical Integration: Leverage, Foreclosure, and Efficiency*, 79 ANTITRUST L.J. 983, 994 (2014) (dating the critique as early as the 1920s and 1930s).

52. ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 232–33, 241(1978); RICHARD A. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 171–84 (1976); *see, e.g.*, Robert Bork, *Vertical Integration and the Sherman Act: The Legal History of an Economic Misconception*, 22 U. CHI. L. REV. 157 (1954) (presenting some critique of the traditional leverage theory); *see* Richard A. Posner, *The Chicago School*

Hierarchies, which critiqued the related assumption that vertical integration inherently poses a risk to competitive markets and antitrust policy should therefore be used to discourage it.[53] This shift in prevailing opinion among antitrust scholars concerning the leverage theory, as applied to vertical integration and vertical restraints, is reflected by the fact that the 1978 and 2008 editions of the influential antitrust treatise by Professors Areeda and Turner rejected a monopoly leverage theory under Section 2 of the Sherman Act.[54] Reflecting the influence of this scholarship on antitrust jurisprudence, the Supreme Court in 2004 rejected a stand-alone theory of monopoly leverage absent a "dangerous probability" of monopolization in the targeted market.[55] Scholars aligned with the Chicago school criticized the monopoly leverage theory on the ground that it was guilty of a double counting error.[56]

Concerning vertical integration, scholars argued that a company that enjoyed a monopoly position in one segment of a supply chain could already extract the full monopoly profit by setting a profit-maximizing price for the input it supplied in that segment.[57] Therefore a firm would not plausibly undertake vertical integration to increase monopoly profits since inflating prices at any downstream segment would push the total price borne by the end-user above the profit-maximizing level, necessitating a reduction in the price offered in the upstream input segment. If that is the case, then vertical integration should be construed presumptively as a procompetitive practice motivated by an interest in securing operational synergies, increasing economies of scale, or eliminating "double marginalization" costs.

Concerning tying, an analogous double counting critique applies. Using the facts from an actual litigation, suppose a firm has a monopoly position in the shoe-making equipment market and elected to compel its customers (in this case, shoe producers) to purchase leather supplies together with the purchase of equipment.[58] Scholars argued that this practice could not cause any incremental harm to competition since, assuming the firm had market power in the shoe equipment market, it could already extract supra-competitive rents through the sale price of the equipment. Obligating customers to purchase leather supplies together with the shoe-making equipment therefore could not enable the monopolist to extract additional profits; rather, it would simply increase the total price above profit-maximizing levels, which would make the monopolist worse off. If that is the case, then any tying practice should be construed presumptively as a procompetitive practice

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of Antitrust Analysis, 127 U. PA. L. REV. 925 (1979) (recognizing circumstances in which vertical integration could be used for purposes of strategic entry deterrence regarding his critique of the leverage theory).

53. OLIVER E. WILLIAMSON, MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS 115–16 (1975).

54. Herbert Hovenkamp, *Harvard, Chicago and Transaction Cost Economics in Antitrust Analysis*, 55 ANTITRUST BULL. 613, 621 n.35 (2010) (citing PHILLIP AREEDA & DONALD F. TURNER, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST AND THEIR APPLICATION ¶ 626-g, 79–83 (1978)).

55. Verizon Commc'ns Inc. v. Curtis V. Trinko LLP, 540 U.S. 398, 410–11 (2004) (holding that Verizon Communications' ability to use its statutory monopoly over local-exchange telephone networks to disadvantage competitors in downstream services markets did not state a cause of action under Section 2 of the Sherman Act without allegations of a "dangerous probability" that those actions would enable Verizon to monopolize the downstream services market).

56. *See supra* note 52 and accompanying text.

57. BORK, *supra* note 52, at 232–33; POSNER, *supra* note 52, at 171–84.

58. *See e.g.*, United States v. United Shoe Mach. Corp., 110 F.Supp. 295 (D. Mass. 1953).

motivated by an interest in maintaining product quality and preserving reputational capital (among other explanations).

3. Refined Versions of Monopoly Leverage Theory

U.S. courts and antitrust agencies, and many scholars, largely adopted the Chicago school's critique of the traditional version of the leverage theory (at least in the circumstances in which the critique properly applies)[59] and, more generally, adopted the view that vertical integration and vertical restraints are often, if not usually, procompetitive.[60] At the same time, courts, agencies, and many scholars continued to recognize a range of circumstances in which vertical integration, tying, and other practices that are sometimes described as "leverage" may nonetheless have anticompetitive effects.[61] Reflecting this nuanced view that tying and vertical integration generally promote efficiency but may sometimes be used for anticompetitive purposes, the case law has developed demanding evidentiary standards that require evidence of actual or likely anticompetitive effects to avoid making false-positive enforcement errors.[62]

One of the most common scenarios where it is still generally recognized that anticompetitive effects may potentially arise in leverage-type scenarios involves the use of vertical integration or bundling to execute a foreclosure strategy that raises entry costs for equally or more efficient competitors.[63] This can occur in two ways. A vertically integrated firm can seek to foreclose a downstream firm's access to a required input (in the case of backward integration) or to block an upstream firm's access to a required distribution pathway (in the case of forward integration). An economically comparable strategy can be implemented by tying an upstream good with the downstream good, or *vice versa,* using either technological or contractual means. Even if vertical integration or tying may generate efficiencies that benefit consumers, those same practices may nonetheless harm competitive conditions in the aggregate by raising entry costs since an outsider firm is compelled to

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59. David S. Evans & A. Jorge Padilla, *Designing Antitrust Rules for Assessing Unilateral Practices: A Neo-Chicago Approach*, 72 U. CHI. L. REV. 73, 77 (2005) (noting applications by courts of "[v]ariants of the single-monopoly profit theorem" to "tying, essential facilities, and, more broadly, to the analysis of vertical integration").

60. *See, e.g.*, Ohio v. Am. Express, 138 S. Ct. 2274, 2285 n.7 (2018) (stating that "[v]ertical restraints often pose no risk to competition"); Comcast Cable Commc'ns, LLC v. FCC, 717 F.3d 982, 990 (D.C. Cir. 2013) ("Vertical integration and vertical contracts in a competitive market encourage product innovation, lower costs for businesses, and create efficiencies—and thus reduce prices and lead to better goods and services for consumers.").

61. For an overview, see Herbert Hovenkamp, *Vertical Control*, 96 N.Y.U. L. REV. ONLINE 215, 217 (2021) (referring to an "emergent theory of competitive harm" where foreclosure or a "restrictive vertical agreement can exclude competitors or at least severely limit their opportunities").

62. On the standard for tying, see Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2 (1984) (holding that tying is per se illegal, subject to a showing of market power and a significant anticompetitive impact in the tied product market). On the standard for vertical integration (in the merger review context), see United States v. AT&T, Inc., 916 F.3d 1029, 1032 (D.C. Cir. 2019) (holding that challenge to vertical merger must show that acquisition "may be substantially to lessen competition," including a "fact-specific' showing that the proposed merger is 'likely to be anticompetitive'").

63. For reviews of the antitrust literature on foreclosure, see Matthias Hunold & Jannika Schad, *Single Monopoly Profits, Vertical Mergers, and Downstream Foreclosure*, INT'L J. INDUS. ORG., Dec. 2021; Patrick Rey & Jean Tirole, *A Primer on Foreclosure*, *in* HANDBOOK OF INDUSTRIAL ORGANIZATION 2145–220 (Mark Armstrong & Robert H. Porter eds., Vol. 3, 2007).

enter the market in both the upstream and downstream segments to ensure access to a necessary distribution channel or input, respectively.

A similar effect arises in tying, which compels an entrant to offer a product bundle to match the incumbent, rather than only offering a standalone product, notwithstanding the fact that tying may still confer transactional gains or other efficiencies on consumers. To be clear (as is sometimes overlooked), both theories of competitive harm are only economically plausible in cases where the competitor is equally or more efficient as compared to the incumbent.[64] Absent that critical qualification, any antitrust constraint on vertical integration or tying would protect less efficient competitors at the expense of consumers.

This qualified theory of anticompetitive harm arising from vertical integration and tying—effectively, a modified form of the leverage theory—was recognized by a federal court in the landmark *United States v. Microsoft* litigation.[65] In that case, Netscape had pioneered the internet browser market but was then challenged by MS, which released a competing browser as part of its Windows operating system, at no additional charge to users.[66] Among other claims, the government argued that MS had integrated its operating system and browser (a technological tie) and used quasi-exclusive contractual practices to impede Netscape's access to the principal channels for distributing its browser to users.[67] MS's bundling strategy and quasi-exclusive relationships with major distribution channels—arguably, a contractual instrument that mimics the economics of a vertically integrated structure—neutralized the competitive threat allegedly posed by Netscape's browser technology to MS's position as the dominant platform in the PC technology stack.

In a development that appears to be consistent with the government's theory, Netscape was subsequently acquired by AOL,[68] in an unsuccessful effort to embed Netscape's browser technology within an integrated product ecosystem (the equivalent of a competing product bundle), given the inability to monetize its technology as a stand-alone product in the face of MS's browser giveaway strategy. MS's distribution practices, combined with its bundling strategy, had raised entry costs for its competitor in the browser market, ultimately resulting in Netscape's exit from the market as a stand-alone entity (followed later by the withdrawal of its browser product by AOL).[69]

It can be debated whether the anti-competitive effects attributable to Netscape's exit from the browser market outweighed the considerable pro-competitive effects in the immediate term of Microsoft's bundling strategy in the combined operating system/browser market (which benefited consumers by reducing the price of the browser product to zero). However, it is largely uncontroversial that the refined form of the leverage theory adopted by the court in the *Microsoft* litigation represents an economically coherent theory of competitive harm in factually supportive circumstances. In the next Part, I will apply this

64. Richard A. Posner, *Vertical Restraints and Antitrust Policy*, 72 U. CHI. L. REV. 229, 239–40 (2005) (stating that, in context of vertical restraints, "the antitrust concern is with the exclusion of equally or more efficient competitors").

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

66. *Id.* at 47.

67. *Id.* at 85.

68. For a description of these events, see JONATHAN M. BARNETT, THE BIG STEAL: IDEOLOGY, INTEREST, AND THE UNDOING OF INTELLECTUAL PROPERTY 34–36 (2024).

69. For a description of these events, see *id.*

refined version of the leverage theory to competitive conditions in the generative AI ecosystem.

III. ASSESSING ANTITRUST RISKS OF PLATFORM/DEVELOPER RELATIONSHIPS IN THE GENERATIVE AI ECOSYSTEM

In this Part, this Article assesses regulators' concerns over purported threats to competitive conditions in the generative AI market raised by partnerships and other relationships between tech platforms and model or applications developers in the generative AI ecosystem. For this purpose, this Part presents evidence concerning specifically the MS/OpenAI relationship, with some discussion of other platform/developer relationships, and assesses that evidence using concepts drawn from the antitrust economics, business management, and institutional economics literatures. Given the early stages in the development of the generative AI market, this analysis is inherently tentative.

Concerns over platform/developer partnerships have focused on the widely-publicized partnership between MS and OpenAI. OpenAI was founded as a nonprofit in 2015, converted in 2019 to a for-profit entity with contractually capped returns, and in 2025, restructured as a public benefit corporation (in which the nonprofit entity retains certain governance rights).[70] Rather than holding equity in OpenAI as would typically be the case in a corporate VC investment, MS is reportedly entitled to 20% of OpenAI's profits through 2030, up to a certain cap.[71] The partnership involves a commitment by MS to invest approximately $13 billion (starting with a $1 billion investment in 2019) in OpenAI, an agreement by OpenAI to make use of MS Azure as its cloud computing service provider, and an agreement by MS to collaborate on the deployment of certain OpenAI services in its software applications (including Copilot in MS Office, Azure OpenAI Service, and GitHub Copilot).[72] Simultaneously, the contract provides MS with access to OpenAI's technology releases through 2030 (subject to the proviso that OpenAI may deny access if any such technology is deemed to confer "artificial general intelligence").[73] In late 2022, OpenAI launched ChatGPT, which is now the most widely adopted service in the answer-engine market, holding approximately 75% of the U.S. market as of December 2025.[74]

Regulators' concerns arise principally from the purportedly exclusive relationship between OpenAI and MS. Yet this factual assumption is substantially overstated and has been

70. Yazhou Sun & Seth Fiegerman, *OpenAI Is Creating a Public Benefit Corporation. What Does That Mean?*, BLOOMBERG (Oct. 29, 2025), https://www.bloomberg.com/news/articles/2025-10-29/openai-s-public-benefit-corporation-plan-pbc-explained (on file with the *Journal of Corporation Law*); *Our Structure*, OPENAI, https://www.openai.com/our-structure [https://perma.cc/S7QR-4YM7].

71. *OpenAI Negotiates with Microsoft for New Funding and Future IPO, FT Reports*, REUTERS (May 11, 2025), https://www.reuters.com/business/openai-negotiates-with-microsoft-unlock-new-funding-future-ipo-ft-reports-2025-05-11/ (on file with the *Journal of Corporation Law*).

72. Chris Metinko, *Microsoft Agrees to Multibillion-Dollar Deal With OpenAI*, CRUNCHBASE NEWS (Jan. 23, 2003), https://news.crunchbase.com/ai-robotics/microsoft-funding-startup-ai-openai/ [https://perma.cc/AS83-N47W].

73. Aaron Holmes, Stephanie Palazzolo & Amir Efrati, *OpenAI and Microsoft Duel Over AGI in High-Stakes Negotiation*, THE INFO. (June 25, 2025), https://www.theinformation.com/articles/openai-microsoft-duel-agi-high-stakes-negotiation (on file with the *Journal of Corporation Law*).

74. *AI Chatbot Market Share United States of America (Jan 2025–Jan 2026)*, STATCOUNTER GLOBALSTATS, https://gs.statcounter.com/ai-chatbot-market-share/all/united-states-of-america [https://perma.cc/5LKL-66P8].

complicated by subsequent developments in the entities' relationship. While OpenAI initially agreed to use MS Azure as its exclusive cloud computing provider, this commitment was modified by an agreement in January 2025 that converted that commitment into a "right of first refusal" requiring OpenAI to offer MS Azure the opportunity to provide cloud computing services, and a further agreement in October 2025 that removed the right of first refusal entirely.[75] These modifications have relieved OpenAI's dependence on the MS/Azure relationship. Additionally, OpenAI entered into an agreement in January 2025 with Softbank to develop AI infrastructure through the $500 billion "Stargate" initiative,[76] and in June 2025, OpenAI entered into cloud-services deals with Google Cloud and CoreWeave.[77]

Regulators (and like-minded commentators) have expressed concerns that MS may use its partnership with OpenAI both to deter potential competitors and, by embedding OpenAI in MS's cloud-computing and office-productivity applications, secure an advantage over actual or potential competitors in the generative AI market that do not have comparable bundling opportunities.[78] As discussed in the following section, this interpretation is contestable on several grounds and, based on the current development of the AI ecosystem, is less persuasive than multiple efficiency explanations for the MS/OpenAI and other platform/developer relationships.

A. Division of Labor

At least presumptively, MS's partnership with OpenAI appears to reflect an efficient alliance between OpenAI, which excels in the innovation segment of the AI supply chain, and MS, which delivers the computing capacity and financial capital without which OpenAI might still be a relatively unknown startup. This is a simple application of the well-known principle of division of labor, which competitive forces push firms to implement, subject to geographic, technological, or legal barriers.

Entry into the FM/LLM segment requires access to a capital-intensive cloud-computing infrastructure, which is principally supplied by AWS (Amazon), MS Azure, Google Cloud, and Oracle Cloud. It is important to appreciate the capital requirements in the

75. *The Next Chapter of the Microsoft-OpenAI Partnership*, OPENAI (Oct. 28, 2025) [hereinafter *The Next Chapter*], https://openai.com/index/next-chapter-of-microsoft-openai-partnership/ [https://perma.cc/M33S-FSJ5]; Jordan Novet, *Microsoft Loses Status as OpenAI's Exclusive Cloud Provider*, CNBC (Jan. 21, 2025), https://www.cnbc.com/2025/01/21/microsoft-loses-status-as-openais-exclusive-cloud-provider.html [https://perma.cc/DGF5-NQED].

76. Kevin Okemwa, *Microsoft Loses OpenAI Exclusive Cloud Provider Status to $500 Billion Stargate Project—as the ChatGPT Maker Races to Hoist the AGI Flag First*, WINDOWS CENT. (Jan. 22, 2025), https://www.windowscentral.com/microsoft/microsoft-loses-openai-exclusive-cloud-provider-status-to-500-billion-stargate-project?utm [https://perma.cc/PD9G-B33K].

77. Jana Brnakova, *Google Cloud Signs Deal With OpenAI, Ending Microsoft's Exclusive Role*, REVOLGY (June 20, 2025), https://www.revolgy.com/insights/blog/google-cloud-signs-deal-with-openai-ending-microsofts-exclusive-role?utm_source=chatgpt.com [https://perma.cc/35EN-YH94].

78. Tim Bradshaw, Cristina Criddle & Madhumita Murgia, *UK and US Regulators Examine Microsoft's Ties to OpenAI*, FIN. TIMES (Dec. 8, 2023), https://www.ft.com/content/c3e8acee-536a-47c2-9322-464d14c51053 (on file with the *Journal of Corporation Law*); Foo Yun Chee, *Microsoft's OpenAI Partnership Could Face EU Antitrust Probe, Sources Say*, REUTERS (Apr. 18, 2024), https://www.reuters.com/technology/microsofts-openai-partnership-could-face-eu-antitrust-probe-sources-say-2024-04-18/ [https://perma.cc/JF5J-QESW].

FM/LLM market. OpenAI has reportedly spent several billions of dollars to launch ChatGPT and continues to incur billions of dollars annually to operate, maintain, and upgrade it.[79] While the launch of the China-based DeepSeek chatbot in January 2025 was reportedly executed on a budget of only a few million dollars, subsequent analyses by several industry research firms have shown that this estimate only covered the immediate launch costs and the total development and related infrastructure costs are estimated to have reached approximately $500 million.[80] Hence, while it appears that DeepSeek made significant efficiency achievements, it remains the case that entry into the FM/LLM segment of the generative AI market is highly capital-intensive. Given that fact, MS's investment most likely accelerated OpenAI's launch by supplying the necessary financial capital and physical infrastructure to a revenue-losing firm that is both incurring exceptionally high costs and has not yet developed a viable business model.

In fact, given the extreme magnitude of the capital amounts required to assemble a foundation model (FM) and the high risk of a negative return on investment, a partnership with an existing cloud-computing provider, or another platform with comparable ability to fund infrastructural investments, may have been a predicate condition for OpenAI's entry into the market. Venture capital investors may be unwilling to provide this amount of capital under this extreme investment-risk profile and independent model companies at pre-revenue stages of development are unlikely to be viable candidates for an initial public offering. This simple financing imperative may explain notable "acqui-hire" transactions involving Inflection AI (in March 2024), a model developer, and Character.AI (in August 2024), a specialized chatbot developer. In both cases, the founders and senior employees were hired by large platforms (MS in the former transaction and Google in the latter), together with IP licensing transactions, for total estimated consideration (based on press reports) in excess of $1 billion in the Inflection AI deal and $2.5 billion in the Character.AI deal.[81] While these deals have appropriately raised regulatory concern (including an investigation by EU, U.K., and German regulators into the MS/Inflection AI "acqui-hire" transaction),[82] the exceptional financing requirements faced by model developers, and the role that incumbent platforms can play in meeting those requirements, are critical factors that deserve significant attention in this context. None of the regulatory investigations opened

79. Amir Efrati & Aaron Holmes, *Why OpenAI Could Lose $5 Billion This Year*, THE INFO. (July 24, 2024), https://www.theinformation.com/articles/why-openai-could-lose-5-billion-this-year (on file with the *Journal of Corporation Law*).

80. Dylan Patel et. al., *DeepSeek Debates: Chinese Leadership on Cost, True Training Cost, Closed Model Margin Impacts*, SEMIANALYSIS (Jan. 31, 2025), https://semianalysis.com/2025/01/31/deepseek-debates/ [https://perma.cc/2FXR-GFFE].

81. On the Character.AI transaction, see Amir Efrati & Kalley Huang, *Did Google Just Pay $2.5 Billion to Hire Character's CEO?*, THE INFO. (Aug. 5, 2024), https://www.theinformation.com/articles/did-google-just-pay-2-5-billion-to-hire-characters-ceo (on file with the *Journal of Corporation Law*). On the Inflection AI transaction, see Mark Sullivan, *Microsoft's Inflection AI Grab Likely Cost More Than $1 Billion*, FASTCOMPANY (Mar. 26, 2024), https://www.fastcompany.com/91069182/microsoft-inflection-ai-exclusive [https://perma.cc/G7GN-6PJL] (discussing the details of Microsoft's transaction with Inflection AI). The amounts in both cases are based on estimates and appear to be subject to considerable uncertainty.

82. On the U.K. investigation, see Katherine Gemmell, *Microsoft Investigated by UK Over Ex-Inflection Staff Hires*, BLOOMBERG (July 16, 2024), https://www.bloomberg.com/news/articles/2024-07-16/microsoft-gets-uk-merger-probe-over-ex-inflection-staff-hires?embedded-checkout=true (on file with the *Journal of Corporation Law*) (discussing the investigation by the U.K. into Microsoft's investment into Inflection AI). On the EU and German investigations, see the Appendix.

by competition authorities into the MS/Inflection AI "acqui-hire" transaction have proceeded.

Additionally, it should be noted that the partnership with MS may have enabled OpenAI to leapfrog Google, which had originated some of the technological breakthroughs behind the launch of AI-enabled chatbots (including most notably, the Transformer architecture disclosed in a 2017 paper by Google researchers).[83] The result: Google now lags behind MS and OpenAI in the FM segment and, to some extent, faces competition from OpenAI's ChatGPT answer engine in the general search market, although Google has recovered some ground since the launch in early 2024 of its Gemini chatbot and integration into Google search and the Google Workspace productivity suite.[84] As of December 2025, OpenAI still maintained a significant lead in terms of market share over Google in the U.S. chatbot market, holding 75% of the market as compared to 9.4% for MS Copilot, 7.4% for Perplexity, an independent model developer, and almost 6% for Google Gemini.[85] The proliferation of competing providers (encompassing both incumbent platforms and independent developers) at the boundary between conventional search and AI-enabled chatbot services is a self-evidently attractive outcome as a matter of competition policy.

Any credible assertion that the OpenAI/MS partnership is an anticompetitive strategy to "dominate" the AI market must recognize these procompetitive effects and then identify a reasonable set of circumstances under which comparable effects—specifically, financing and entry into the market of an independent FM developer at a comparable pace—could have been achieved through an alternative set of business practices. If that cannot be shown with some reasonable level of confidence, then any such critique (and any regulatory action grounded in such a critique) has fallen prey to what Harold Demsetz famously described as the "nirvana fallacy" in public policy analysis.[86] The practical result can be policy actions that degrade the competitive environment while purporting to protect it. In this case, if antitrust regulators erect obstacles that disrupt platform/developer partnerships, this may have the practical effect of barring entry by independent model developers and driving the development of generative AI models into the confines of the platforms that are the only entities that can feasibly finance this high-risk, high-cost undertaking.

B. Hedging and Seeding Strategies

It is not clear how MS can establish dominance in the AI market through its investment in OpenAI. MS holds no more than a minority ownership stake and lacks any governance or voting rights in the OpenAI entity. Starting in November 2023, it held a non-

83. Mike Kruppa & Sam Schechner, *How Google Became Cautious of AI and Gave Microsoft an Opening*, WALL ST. J. (Mar. 7, 2023), https://www.wsj.com/tech/ai/google-ai-chatbot-bard-chatgpt-rival-bing-a4c2d2ad (on file with the *Journal of Corporation Law*); Nitasha Tiku & Gerrit De Vynck, *Google Shared AI Knowledge With the World—Until ChatGPT Caught Up*, WASH. POST (May 5, 2023), https://www.washingtonpost.com/technology/2023/05/04/google-ai-stop-sharing-research (on file with the *Journal of Corporation Law*).

84. *SearchGPT Prototype*, OPENAI (July 25, 2024), https://openai.com/index/searchgpt-prototype/ [https://perma.cc/M2QB-UN6K].

85. *AI Chatbot Market Share United States of America (Jan. 2025–Jan. 2026)*, STATCOUNTER GLOBALSTATS, https://gs.statcounter.com/ai-chatbot-market-share/all/united-states-of-america [https://perma.cc/2VGN-7F2W].

86. *See* Harold Demsetz, *Information and Efficiency: Another Viewpoint*, 12 J.L. & ECON. 1, 1–2 (1969) (discussing the "nirvana approach" and its susceptibility to "logical fallacies").

voting observer seat on the OpenAI board but relinquished it in July 2024.[87] Critically, OpenAI's relationship with MS is not exclusive so OpenAI can license its technology to MS's competitors. In fact, OpenAI exercised that option by entering into an agreement in June 2024 to license its chatbot service to Apple (which also secured and then forfeited an observer seat on the OpenAI board).[88] Moreover, as noted previously, MS ceased being the exclusive cloud-computing provider to OpenAI in early 2025 and then in October 2025 relinquished its right of first refusal on delivering cloud services to OpenAI.[89] OpenAI has made use of this contractual freedom to enter into cloud services arrangements with other providers, including CoreWeave ($11.9 billion transaction signed in March 2025) and Oracle (strategic partnership signed in June 2024).[90] Relatedly, while Microsoft has access to OpenAI's answer-engine technology and can use it to embed AI functionality into existing products (such as the use of MS Copilot in MS word), OpenAI is free to offer that technology to others at a lower price. There is evidence this has already occurred: reportedly, OpenAI has offered users access to its most advanced enterprise-grade models, at prices that represent a significant discount relative to competing AI-enabled applications sold by Microsoft.[91]

Given the absence of an exclusivity commitment or any other economically equivalent contractual or technological mechanism, there seems little factual ground to support theoretical concerns that MS's investment can lock up OpenAI and foreclose access to OpenAI's LLM model to actual or potential entrants in the FM/LLM market. Both in theory and as a matter of practice, OpenAI is no longer reliant on MS Azure for its cloud computing services, nor does MS have sole access to OpenAI's models and related services. Even if market dominance through input foreclosure had been its business strategy, MS has self-evidently failed to achieve this objective given OpenAI's licensing relationship with Apple and service relationships with other cloud computing providers.

Concurrently with its relationship with OpenAI, MS has invested in other FM/LLM developers, AI tool developers, and AI application developers. During July 2019-December 2025, Microsoft and M12, its venture capital division, participated in approximately 132 investments in firms (including OpenAI) in the generative AI ecosystem. Some of these investments involve model developers such as Mistral AI, G42, and Inflection AI, and AI tool and application companies such as Databricks and Builder.ai. These companies pose actual or potential competitive threats to OpenAI, either in the FM/LLM layer of the

87. Gerrit De Vynck & Cat Zakrzewski, *Microsoft, Apple Will Not Join OpenAI's Board As Regulatory Scrutiny Grows*, WASH. POST (July 10, 2024), https://www.washingtonpost.com/technology/2024/07/10/openai-board-microsoft-apple-withdraw/ (on file with the *Journal of Corporation Law*).

88. *OpenAI and Apple Announce Partnership To Integrate ChatGPT Into Apple Experiences*, OPENAI (June 10, 2024), https://openai.com/index/openai-and-apple-announce-partnership/ [https://perma.cc/E67U-2XL3].

89. *See The Next Chapter*, *supra* note 75; *see also* Novet, *supra* note 75.

90. *CoreWeave Announces Agreement With OpenAI To Deliver AI Infrastructure*, PR NEWSWIRE (Mar. 10, 2025), https://www.prnewswire.com/news-releases/coreweave-announces-agreement-with-openai-to-deliver-ai-infrastructure-302397595.html [https://perma.cc/W47P-N325]; Press Release, Oracle, OpenAI Selects Oracle Cloud Infrastructure to Extend Microsoft Azure AI Platform (June 11, 2024), https://www.oracle.com/news/announcement/openai-selects-oracle-cloud-infrastructure-to-extend-microsoft-azure-ai-platform-2024-06-11/ [https://perma.cc/W2H6-TZKE].

91. Aaron Holmes & Sri Muppidi, *OpenAI Starts Selling ChatGPT at a Discount, Hurting Microsoft*, THE INFO. (June 18, 2025), https://www.theinformation.com/articles/openai-starts-selling-chatgpt-discount-hurting-microsoft (on file with the *Journal of Corporation Law*).

AI tech stack, or in application or hardware layers where OpenAI is or may become active. The Table below shows all such investments (26 investments in total, involving 18 firms) by MS during this period that involve a funding round of at least $100 million in capital was raised from investors.

Table 2. Significant Equity Investments by Microsoft in FM/LLM Developers, AI Applications and Tool Developers, and AI-Enabled Hardware Developers (July 2019–December 2025)[92]

Year	Company	Primary layer in AI technology stack	Number of total investors (incl. MS)	Total amount raised in funding round ($M, all investors)
2019	OpenAI	FM/LLM	2	1000
2019	Element AI	AI tool (enterprise)	10	200
2019	Databricks	AI tool (cloud data platform)	11	400
2020	Graphcore	AI-specialized microprocessor	23	222
2021	Databricks	AI cloud data platform	24	1000
2021	Cruise	AI-enabled hardware (automotive)	3	2000
2021	Innovaccer	App dev (healthcare)	7	105
2021	FarEye	App dev (logistics)	6	100
2021	Innovaccer	App dev (healthcare)	10	150
2022	Wayve	App dev (automotive)	22	200
2022	Evisort	App dev (legal)	6	100
2023	Databricks	AI tool (cloud data platform)	25	500
2023	OpenAI	FM/LLM	1	10000
2023	Typeface	App dev (content creation)	6	100
2023	Inflection AI	FM/LLM	7	1300
2023	Builder.ai	AI tool (software dev)	2	445
2023	Adept AI	FM/LLM	13	350
2023	d-Matrix	AI tool (inference workloads)	15	110
2024	Wayve	App dev (automotive)	3	1004

92. "App dev" refers to AI-enabled application developer. Table 2 includes investments in AI companies by Microsoft or M12 in funding round above below $100M of total capital raised. Additionally, Microsoft's investment in Mistral AI is shown since it directly competes with OpenAI. Note these figures may reflect maximum commitments, rather than immediate cash investments. All information sourced from Crunchbase database (last accessed Jan. 5, 2026).

2024	G42	FM/LLM	1	1500
2024	Figure	AI-enabled hardware (robotics)	22	675
2024	OpenAI	FM/LLM	15	6600
2024	Innovaccer	App dev (healthcare)	6	275
2025	OpenAI	FM/LLM	16	4000
2025	Armada.ai	Edge computing platforms	12	131
2025	d-Matrix	AI tool (inference workloads)	9	275

As can be seen, Microsoft's AI portfolio reflects a diversified investment strategy across various segments of this emerging ecosystem, including FM/LLMs, development tools, and AI-enabled applications. MS's investment in OpenAI—one of approximately 96 AI-related firms in which Microsoft has invested (as shown in Table 3 below)—can therefore be understood as part of a hedging strategy in which it supplies capital to multiple potentially significant players in different segments of an emergent market. This strategy most likely reflects MS's uncertainty over the future direction of the market in general, and uncertainty over which segment of the AI technology stack will be the principal source of value-creation. At the inception of a new technology, this datum is often unknown. Famously, IBM pioneered the PC, but following entry by clone manufacturers, value-creation in the PC technology stack shifted to the microprocessor (developed by Intel) and the operating system (developed by MS) layers.[93]

MS's diversified investment strategy likely also reflects its rational interest in supporting the infrastructure necessary to promote the AI ecosystem—in particular, its investments in the FM/LLM and tool developer layers of the AI technology stack.[94] Leading platforms like MS, which have large market shares and a long-term commitment to the computing and communications markets, have incentives to make "seed" infrastructure investments in new technology fields even if some of the gains from those investments flow to non-paying third parties and even direct, or potentially direct, competitors.[95] If that is the case, then regulatory efforts to restrain existing tech platforms from investing in various layers of the AI technology stack is likely to restrain the growth of the AI ecosystem by counterproductively deterring the firms that have the greatest incentives, expertise, and resources to make and implement the infrastructural investments on which all stakeholders in the ecosystem rely.

93. Timothy F. Bresnahan & Shane Greenstein, *Technological Competition and the Structure of the Computer Industry*, 47 J. INDUS. ECON. 1, 3 (1999).

94. *See Microsoft Plans to Invest $80 Billion on AI-Enabled Data Centers in Fiscal 2025*, REUTERS (Jan. 3, 2025), https://www.reuters.com/technology/artificial-intelligence/microsoft-plans-spend-80-bln-ai-enabled-data-centers-fiscal-2025-cnbc-reports-2025-01-03/ (on file with the *Journal of Corporation Law*) (showing MS's interests in supporting AI ecosystem).

95. *See generally* MASSIMO PORTINCASO ET AL., THE DEEP TECH INVESTMENT PARADOX: A CALL TO REDESIGN THE INVESTOR MODEL (2021) (discussing the trend of large tech companies investing in newer technology fields even though it may benefit the market as a whole).

C. Evidence on Platform Investments and Acquisitions in the Generative AI Technology Stack

This interpretation of the MS/OpenAI relationship potentially applies to the full panoply of relationships among platforms and model/applications developers in the AI ecosystem. The MS/OpenAI partnership is one of tens of partnerships, investments, and other arrangements between large technology firms, smaller FM/LLMs, generative AI applications developers, and AI tool developers.[96] The Table below presents the number of investments and acquisitions made by the largest technology firms in developers of FM/LLMs, AI-enabled hardware, and AI development tools and applications during July 2019-December 2025.

Table 3. Equity Investments and Acquisitions by Large Technology Firms in Artificial Intelligence Companies (July 2019–December 2025).[97]

Investor	Investor's Principal Industry	Total investee firms	Investments in FM/LLM developers	Acquisitions of AI-related firms
Alphabet	Search, cloud	136	Anthropic, AI21	3
Samsung	Chips, handsets	120	AI21	0
Salesforce	Software	103	AI21, Anthropic, Cohere, Mistral	9
Intel	Chips	66	AI21	4
Nvidia	Chips	61	Adept AI, AI21, Cohere, Cohere, Inflection, Mistral, Perplexity	11
Amazon	E-commerce, cloud	46	Anthropic	4
Qualcomm	Chips	39	-	3
Microsoft	Software, cloud	25	Adept AI, G42, Inflection, Mistral, OpenAI	3
AMD	Chips	25	Cohere, xAI	5
IBM	Software, cloud	15	Mistral	7
Meta	Social networking	8	-	11
Oracle	Software, cloud	4	Cohere	1
Apple	Handsets, hardware	0	-	13

96. *See* Hayden Field & Kif Leswing, *Generative AI 'FOMO' Is Driving Tech Heavyweights to Invest Billions of Dollars in Startups*, CNBC (Mar. 30, 2024), https://www.cnbc.com/2024/03/30/fomo-drives-tech-heavyweights-to-invest-billions-in-generative-ai-.html [https://perma.cc/8HZ4-B8RR] (discussing that tech giants have been partnering with startups to develop new generative AIs).

97. Investments by internal venture capital divisions are attributed to the parent corporation. Acquisitions include "acquihire" transactions. Entities are listed by number of total investee firms, in descending order from the top. All information sourced from Crunchbase database (last accessed Jan. 5, 2026).

As shown in Table 3, during July 2019–December 2025, each of Alphabet, Amazon, Intel, Microsoft, Nvidia, Qualcomm, Salesforce, and Samsung invested in 25 or more firms involved in developing AI-related technologies. Alphabet, Salesforce, and Samsung were especially active, each of which invested in over 100 firms in the AI ecosystem. In total, the large technology firms listed in Table 3 invested in a total of 648 firms in the AI sector during this period.[98] Most of these investments were in the applications and tool segments of the generative AI stack (rather than the FM/LLM segment), which are differentiated sectors where it is less plausible that a single firm could secure market dominance.[99] For example, as shown in Table 3, Alphabet invested in a total of 136 firms in the AI tech stack but only two in the FM/LLM layer and, similarly, Samsung invested in a total of 124 firms in the AI tech stack but only one in the FM/LLM layer.[100] Moreover, also as shown in Table 3, two large platforms, Apple and Meta, made no reported investments in firms in the FM/LLM stack and few reported investments generally in firms in other layers, apparently reflecting a strategy to rely principally on internal development and external acquisitions.[101]

Acquisition activity by platforms and other large technology firms in the generative AI ecosystem has varied, ranging from none in the case of Samsung to 13 in the case of Apple.[102] Most of the large tech companies listed in Table 3 acquired five or fewer companies during the five and a half-year period ending December 31, 2025.[103] With the exception of Microsoft's acquisition in March 2024 of Inflection AI (an "acquihire" transaction executed through employment and licensing agreements),[104] an LLM and chatbot provider, all acquisitions have involved firms in the hardware, applications and tool layers of the AI technology stack.[105] This suggests that most large technology firms are engaging in acquisitions of firms that offer complementary products and services, rather than substitute models that could pose a competitive threat to a large platform or other technology incumbent that has developed, or has the capacity to develop, an FM/LLM product.

This robust level of investment activity, complemented by periodic acquisitions, by large tech firms in the AI ecosystem, does not appear at this stage to pose a salient threat to competitive conditions in the emergent AI ecosystem. Whether executed through investments, partnerships, or acquisitions, these transactions appear generally to implement a logical division of labor between innovators that are rich in intellectual capital and incumbents that can supply the financial capital and physical infrastructure necessary for deployment. Upstream platforms (encompassing chip suppliers and cloud-computing providers) exhibit economies of scale in physical infrastructure, while downstream model and applications developers exhibit diseconomies of scope in innovation. These investments

98. *See supra* tbl. 3.

99. *Id.*

100. *Id.;* Author's review of information sourced from Crunchbase database (last accessed Jan. 5, 2026).

101. *See supra* tbl. 3.

102. *Id.*

103. *Id.*

104. Krystal Hu & Harshita Mary Varghese, *Microsoft Pays Inflection $650 Mln in Licensing Deal While Poaching Top Talents, Source Says*, REUTERS (Mar. 21, 2024), https://www.reuters.com/technology/microsoft-agreed-pay-inflection-650-mln-while-hiring-its-staff-information-2024-03-21/ (on file with the *Journal of Corporation Law*). On antitrust investigations into the Microsoft/Inflection transaction (which ultimately elicited no enforcement action), see *supra* note 82 and Appendix.

105. This is based on author's review of acquisitions data available through the Crunchbase database.

generally do not confer control on the large tech company making the investment (which, as shown in Table 2, typically involves multiple investors, at least in the case of the largest investments), which further allays concerns over risks to competition. Moreover, transactions structured as longer-term partnerships between large tech companies and independent model developers appear to typically take place on a non-exclusive basis. While OpenAI initially committed to use MS Azure as its primary cloud-computing service provider, OpenAI licensed its FM/LLM product to MS on a non-exclusive basis.[106] That structure is consistent with corporate venture-capital investment generally, which typically involves non-controlling equity stakes and are motivated by a mix of investment and "market intelligence" objectives,[107] rather than a unilateralist strategy to "lock up" critical assets and block competitors.

D. Tipping Objection

Some regulators and commentators argue that the MS/OpenAI partnership confers on each firm, both through the partnership and individually, a dominant position that is already "tipping" the market toward an entrenched digital monopoly.[108] This reflects a mechanical application of the digital entrenchment model that does not address certain market-specific features of, and developments in, the generative AI ecosystem. Each of those features and developments are inconsistent with a tipping-plus-entrenchment scenario.

First, while MS and OpenAI currently enjoy the largest shares in the FM/LLM market, the market is at an early stage of development and both firms face competitive discipline from other FM/LLM providers.[109] Some of these firms include other large and well-resourced digital platforms, such as Google, Meta, Amazon, and X (formerly Twitter), which have either developed FM/LLMs for internal use or are offering these models for external adoption.[110] Hence, grounding regulatory action in current and highly fluid market shares at this early stage in the ecosystem's development does not appear to be a credible approach.

Second, well-resourced firms such as Meta and Qualcomm are offering FM/LLMs on an open-source basis at no charge,[111] in contrast to MS and OpenAI, which have adopted closed-source models that rely primarily on subscription fees from users who purchase premium or enterprise versions of the ChatGPT service. This poses a competitive threat to closed-source incumbents for two reasons: (1) developers will be attracted to a no-fee, open-source model, over a positive-fee, closed-source model, and (2) open-source models can spawn additional entrants into the model market (as illustrated by DeepSeek's launch

106. *See* ARCANA, THE MICROSOFT-OPENAI PARTNERSHIP 2 (2023).

107. Sandip Basu, Corey Phelps & Suresh Kotha, *Towards Understanding Who Makes Corporate Venture Capital Investments and Why*, 26 J. BUS. VENTURING 153, 153 (2011) (stating that "CVC refers to direct minority equity investments made by established companies in privately-held entrepreneurial ventures").

108. *See supra* note 17 and accompanying sources.

109. Christian Grech, *OpenAI's Market Share Is Shrinking—But That's Not the Whole Story*, MEDIUM (May 2, 2025), https://medium.com/techtrends-digest/openais-market-share-is-shrinking-but-that-s-not-the-whole-story-ad0e4374401d (on file with the *Journal of Corporation Law*).

110. *Id.*

111. Anton Shilov, *Qualcomm Makes Its AI Models Available to App Developers*, TOM'S HARDWARE (June 22, 2024), https://www.tomshardware.com/tech-industry/artificial-intelligence/qualcomm-makes-its-ai-models-available-to-app-developers [https://perma.cc/TW7G-23DZ].

of its R1 chatbot in late 2024, which was developed in part using elements from Meta's open-source Llama model and Alibaba's open-source Qwen model).[112] Both effects undermine any "moat" that may protect the competitive position of a leading first-mover in the FM/LLM segment (such as OpenAI).

Technology history shows that the competitive threat posed by open-source models can be powerful. As illustrated by the rapidity with which Google secured leadership in the mobile device operating system market after its release of the Android operating system, an open-source distribution strategy can rapidly displace seemingly entrenched closed-source incumbents. The Android operating system was released in September 2008 and, by the first quarter of 2012, was the most widely used operating system in the global mobile communications market.[113] From the first quarter of 2009 through the second quarter of 2012, the market share of Nokia's Symbian mobile operating system (which was only used internally) fell from 37% to 21.9% and then declined to 8% and 4% by the first quarters of 2013 and 2014, respectively.[114] The Android operating system elicited entry by device producers that quickly reduced internationally leading cellphone brands such as Nokia and Ericsson to minor players.[115]

Third, it should be noted that the FM/LLM model market encompasses both general-use, industry-specific and task-specific models, which suggests that there are substantial opportunities for differentiation across various parameters and casts doubt on the ability of any single model supplier to dominate the entire AI ecosystem. These market-specific features of the AI ecosystem, and the FM/LLM segment in particular, suggest that it does not clearly conform to the theoretical model of a winner-take-all digital market where "tipping toward monopoly" is an inevitable outcome that necessitates preemptive antitrust intervention.

Fourth, as shown above in Table 3, some of the more active investor firms in the FM/LLM segment rank below the largest "Big Tech" platforms in size (for example, Intel, Salesforce, Samsung, and Qualcomm). Investment activity by these firms may reflect a procompetitive effort to challenge the largest incumbents as the tech ecosystem evolves to support the commercialization of AI technology following the release of OpenAI's ChatGPT service and other FM/LLM models. Notably, OpenAI has engaged in a significant level of investment and acquisition activity, having invested in 12 AI-related firms and acquired 8 AI-related firms from January 2024 through December 2025.[116] Far from presenting a threat to competition, acquisition and investment activity may be a means

112. Charles Mok, *Taking Stock of the DeepSeek Shock*, STAN. CYBER POL'Y CTR.: FREEMAN SPOGLI INST. (Feb. 5, 2025), https://cyber.fsi.stanford.edu/publication/taking-stock-deepseek-shock?utm [https://perma.cc/6EVN-9RPY]; *see also Alibaba's Open-Source AI Journey: Innovation, Collaboration, and Future Visions*, ALIBABA CLOUD (Feb. 25, 2025), https://www.alibabacloud.com/blog/alibabas-open-source-ai-journey-innovation-collaboration-and-future-visions_602026 [https://perma.cc/W4NE-YTJZ].

113. Mathew Carrington, *A Brief History of Android: Company, OS Versions, Features*, VELVETECH (Jan. 21, 2026), https://www.velvetech.com/blog/brief-history-android-software-development/ [https://perma.cc/8CNL-RHNY].

114. *Market Share of Mobile Operating Systems Worldwide from 2009 to 2024, by Quarter*, STATISTA (June 23, 2025), https://www.statista.com/statistics/272698/global-market-share-held-by-mobile-operating-systems-since-2009/ [https://perma.cc/73R8-4PYZ].

115. Antoine Fonfreyde, *Corporate History: The Fall of Nokia*, NETMEDIA INT'L (May 1, 2023), https://www.nmg-international.com/post/corporate-history-the-fall-of-nokia [https://perma.cc/FKD7-A3ZJ].

116. Data sourced from Crunchbase database (last accessed Jan. 6, 2026).

through which the "upper-middle" tier of technology firms (and OpenAI, the leading independent chatbot developer), can exploit the AI-enabled paradigm shift to challenge the leadership of "Big Tech" entities in the digital ecosystem. This observation is again inconsistent with a tipping scenario leading to an entrenched monopoly outcome—rather, it suggests that investment and acquisition transactions involving platforms and model developers sometimes constitute vehicles to move the market away from that outcome.

E. Bundling Objection

The current structure of the generative AI ecosystem, as illustrated by the MS/OpenAI partnership (as well as other comparably structured platform/developer relationships), does not appear to raise material competition concerns that warrant regulatory action. On the one hand, the partnership has enhanced competitive conditions by accelerating OpenAI's market entry through the supply of necessary capital inputs and physical infrastructure. On the other hand, the partnership does not appear to pose a significant risk of competitive harm because it is structured on a reciprocal non-exclusive basis and akin to standard corporate venture-capital investments, does not confer control or other governance rights on the platform investor. Moreover, like corporate venture-capital (CVC) investments, these transactions are presumptively *pro*-competitive since they facilitate startups' access to capital, which in turn lowers entry costs. Technology platforms widely invest in startups (in 2024, CVC investment accounted for 23% of all U.S. venture investments and with an even greater percentage in AI-related startups),[117] providing a key source of capital that fuels startup entry and growth in the digital ecosystem in addition to in some cases providing and distribution infrastructure that traditional VC firms cannot provide. Any antitrust intervention that exerts a chilling effect on these transactions counterproductively reverse these effects, making it harder for smaller firms to enter the AI ecosystem.

It may still be argued that MS is advantaged by the partnership because it can integrate OpenAI's generative AI technologies into its office productivity and cloud-computing applications and infrastructure.[118] This type of objection makes the fundamental error of mistaking harm to competitors with harm to competition—only the latter category of harm can support an antitrust cause of action under United States case law.[119] It is important to recall that an economic advantage is only relevant for antitrust purposes—both as a matter of policy analysis and legal standing—if that advantage derives from something other than a superior product or service (what the courts sometimes call "competition on the merits"). The OpenAI/MS partnership does enable MS to deploy AI-enabled functionalities into its office productivity and cloud-computing software, which may therefore be more attractive as compared to competitors' alternative product/service combinations. Yet that is a *benefit* to users and therefore does not raise an antitrust-relevant issue, unless there is evidence that MS has used an anticompetitive strategy that excludes equally or more efficient competitors.

In the AI market, the anticompetitive "unless" hypothetical seems unlikely. The reason is simple: the same type of investment-plus-bundling strategy pursued by Microsoft in

117. NAT'L VENTURE CAP. ASS'N & PITCHBOOK, VENTURE MONITOR Q4 2024 21 (2024).

118. *See, e.g.*, Tejas N. Narechania & Ganesh Sitaraman, *An Antimonopoly Approach to Governing Artificial Intelligence*, 43 YALE L. & POL'Y REV. 95, 122–23 (2024).

119. Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc., 429 U.S. 477, 487–88 (1977).

its relationship with OpenAI could be pursued by other leading platforms. Apple and Amazon could bundle LLMs and applications supplied by independent developers with their existing cloud-computing services. Google could bundle LLMs and generative AI-enabled applications with its search-engine and office productivity products.

In fact, this is not mere speculation. The AI ecosystem already delivers multiple cases where major model developers have assembled various product-and-services bundles, either independently or in conjunction with other entities. In March 2024, Amazon entered into a relationship with Anthropic (an independent model developer), involving a $4 billion investment by Amazon, a commitment by Amazon to integrate Claude (Anthropic's family of LLMs) into Amazon's Bedrock platform, which offers Amazon users FM/LLMs and tools to build AI-enabled applications.[120] At the same time, Anthropic committed to use AWS as its "primary" cloud-computing provider and to use Amazon's AI-specialized chips in developing future models.[121] In June 2025, it was reported that OpenAI had started to offer product bundles comprising the ChatGPT app and other complementary AI-enabled services, competing in some cases against apps offered by Microsoft, the largest investor in OpenAI, and offering competitive prices to siphon away customers.[122] In August 2025, it was reported that Oracle had entered into a one-year partnership with Google under which Oracle's cloud customers would have access to advanced models of Gemini, Google's answer-engine service.[123] The agreement represents a synergistic and likely procompetitive transaction that promotes Oracle's position in the cloud computing market, where it is a latecomer entrant, while promoting the usage of Google's answer-engine service, which is seeking to undermine the first-mover advantage of OpenAI's ChatGPT.

It may nonetheless be objected that independent developers such as OpenAI, Mistral, and Anthropic cannot match the platforms' bundling strategies due to the lack of an existing complementary product and hence are "forced" to enter into partnerships with large tech firms. To address this objection, it is important again to identify a harm to competition in general, rather than a particular competitor or group of competitors. It is unclear how market competition is adversely impacted by freely negotiated relationships between platform firms, which offer infrastructural and capital inputs, and model developers, which offer innovation inputs. These arrangements, and the specific terms of these arrangements, simply reflect different "make/buy" decisions concerning various layers of the AI technology stack. Certain platforms and developers elect to vertically integrate on certain layers of the AI "tech stack," while other platforms and developers elect not to do so. Any regulatory intervention that compels or encourages firms to elect "make" over "buy"—for example, an antitrust policy that bars or raises obstacles to platform/developer relationships—would compel the AI market to inefficiently adopt more integrated organizational structures that had been implicitly rejected through the competitive process. Moreover, any such regulatory intervention would *raise* entry barriers for independent model developers, who

120. *Amazon and Anthropic Deepen Their Shard Commitment to Advancing Generative AI*, AMAZON NEWS (Mar. 27, 2024), https://www.aboutamazon.com/news/company-news/amazon-anthropic-ai-investment [https://perma.cc/5E2F-H6HZ].

121. *Id.*

122. *See* Holmes & Muppidi, *supra* note 91.

123. Kevin McLaughlin, *Oracle Strikes Deal with Google to Host Gemini AI Models*, THE INFO. (Feb. 5, 2026), https://www.theinformation.com/briefings/oracle-strikes-deal-google-host-gemini-ai-models?rc=e6btlo (on file with the *Journal of Corporation Law*).

would be compelled to raise the significant capital required to independently acquire or build the computing infrastructure and other technical inputs necessary to achieve product release. Some of those firms would decline to enter or would grow at a slower rate.

There is a final consideration. As noted, antitrust regulators and commentators suggest that large tech platforms are seeking to dominate the AI ecosystem by entering into relationships with FM/LLM developers.[124] Yet these same transactions support the alternative interpretation that these partnerships are being used by *FM/LLM developers* to seed adoption of their technology in the FM/LLM layer of the AI ecosystem, which may then place those firms in a position to impose competitive discipline on existing tech platforms who would then depend on the developers' technology. The intellectual and human capital required to develop and train FM/LLM developers are scarce assets and can therefore confer valuable bargaining power on the individuals and entities that hold those assets. [125] The multiple relationships negotiated concurrently by OpenAI and other model developers with existing tech platforms are consistent with this overlooked possibility that platform/developer relationships may operate as a vehicle to advance developers' competitive position relative to platforms that may lack comparable innovative capacities in the applicable layer or niche of the AI ecosystem. If OpenAI or other model developers are successful in securing market adoption of their answer-engine technology in the FM/LLM layer *and* large tech platforms cannot develop quality-comparable those answer-engine technologies, then there is a reduced likelihood that any existing cloud-computing platform could dominate the AI technology stack. The resulting division of economic surplus among various contributors of necessary inputs to the AI technology stack—in particular, between model developers on the one hand, and providers of cloud-computing services or semiconductors, on the other hand—would be a business matter without implications for the competitive health of the entire ecosystem.

IV. INTELLECTUAL PROPERTY RIGHTS IN THE GENERATIVE AI ECOSYSTEM

There is one respect in which the generative AI market does face the prospect of a market failure, which has been largely overlooked by regulators and commentators.

A. Weak IP Rights in the Generative AI Ecosystem

Currently, the owners of creative assets often lack an effective legal remedy against the unauthorized use of their work by generative AI models and application providers. While the largest IP owners may be able to negotiate individual licensing agreements with the largest AI providers (such as reported licensing transactions between OpenAI and large content providers such as Axel Springer, Associated Press, News Corp., Reddit, and

124. *See, e.g.*, Rafael Longo & Marta Rocha, *Generative AI: The New Digital Frontier for Competition*, 2024 CONCURRENCES COMPETITION L. REV. 23, 23 (stating that "[t]he world's biggest technology companies . . . are racing to dominate the market, alongside start-ups, and with several partnerships").

125. Katherine Bindley, *The Fight for AI Talent: Pay Million-Dollar Packages and Buy Whole Teams*, WALL ST. J. (Mar. 27, 2024), https://www.wsj.com/tech/ai/the-fight-for-ai-talent-pay-million-dollar-packages-and-buy-whole-teams-c370de2b (on file with the *Journal of Corporation Law*) ("Tech companies are serving up million-dollar-a-year compensation packages, accelerated stock-vesting schedules and offers to poach entire engineering teams to draw people with expertise and experience in the kind of generative AI that is powering ChatGPT and other humanlike bots.").

Shutterstock),[126] this is unlikely to be feasible for individual or smaller IP owners for whom the transaction and litigation costs would make individualized licensing economically unfeasible. Without a resolution to this obstacle, the AI market *does* face a potential market failure. Without meaningful property rights over creative works, it will be challenging to maintain a market for financing creative production in AI-enabled segments and the production of original "higher-value" content would be expected to decline over time. This assumes that "higher-value" original content generally involves higher costs, including the short-term costs involved in content production and the long-term costs involved in acquiring the skills necessary to engage in certain forms of content production.

B. Restoring Property Rights in the Generative AI Content Market

Addressing this market failure principally requires a solution in intellectual property (IP), not antitrust law. In the United States, this may require either judicial or legislative intervention to modify, or at least clarify, the scope of the fair use exemption that shields infringing use that adds a "new expression, meaning or message" (sometimes known by shorthand as a "transformative use") to the original work and (among other factors) does not cause significant economic harm to the copyright owner.

As interpreted by courts, the fair use exemption has been expanded since approximately the mid-2000s in a manner that has dramatically reduced the copyright infringement liability associated with content digitization initiatives.[127] In a landmark decision in 2015 concerning the Google Books project, a federal court held that the digitization of millions of books constituted fair use because the books were being copied for a "new and different" purpose and, since no more than "snippets" were displayed to users, did not cause significant economic harm to copyright owners.[128] Based on that precedent and similar decisions,[129] AI model developers have claimed that the "scraping" (also sometimes known as "ingestion") of content by FMs and LLMs is analogous to Google's digitization of millions of physical books for the purposes of the Google Books initiative. Additionally, at the "inference" stage of the generative AI process, there are questions whether the output generated by various AI-enabled chatbots and other applications constitutes both "actual copying" and "copying as a matter of law" as is required for an infringement finding.[130] AI model and app developers have taken the position that any such output is simply the result of a predictive calculation based on the application of statistical principles to the training sample, rather than a conventional fact pattern involving direct copying of a particular

126. *AI Content Licensing Deals: Where OpenAI, Microsoft, Google, and Others See Opportunity*, CB INSIGHTS (July 19, 2024), https://www.cbinsights.com/research/ai-content-licensing-deals/ [https://perma.cc/XU3B-Z5U7].

127. BARNETT, *supra* note 68, at 84–87.

128. Authors Guild, Inc. v. Google, Inc., 804 F.3d 202, 214–17 (2d Cir. 2015).

129. *See* Authors Guild, Inc. v. HathiTrust, 755 F.3d 87, 105 (2d Cir. 2014) (holding that the doctrine of "fair use" allowed a defendant to create a full-text searchable database of copyrighted works and to provide those works to those with disabilities); Kelly v. Arriba Soft Corp., 336 F.3d 811, 822 (9th Cir. 2003) (holding that the reproduction of images as thumbnails in a search engine was "fair use").

130. Feist Publ'g Inc. v. Rural Tel. Servs. Co., 499 U.S. 340, 361 (1991) (explaining that a plaintiff in a copyright infringement claim must prove both actual copying and copyright as a matter of law); Arnstein v. Porter, 154 F.2d 464, 468 (2d Cir. 1946) (distinguishing between "actual copying" (a factual question) and "improper appropriation" (a legal question turning on substantial similarity of protected expression)).

element of a copyrighted work.[131] So long as the output does not involve verbatim replication of copyright-protected textual, visual, or other content, then, following this argument, no copying has taken place for purposes of infringement analysis.

Yet it is not clear that AI model and app developers will prevail in these defenses, especially concerning the application of the fair use exemption to the ingestion stage of development of a generative AI model or application. Recently there has been a shift in the judicial interpretation of fair use case law that may increase liability exposure for copyright infringement in the AI context.[132] In 2023, the United States Supreme Court decided *Andy Warhol Foundation for the Visual Arts v. Goldsmith*, which places some limits on the expansive understanding of fair use that had enabled online content aggregators to escape liability for hosting copyright-protected content uploaded by users.[133] In particular, the Court adopted a narrower understanding of what constitutes transformative use and reemphasized that significant commercial harm precludes the fair use exemption.[134] Moreover, some federal appellate courts (most notably, the influential Court of Appeals for the Second Circuit) have issued decisions that reflect a similar shift in the judiciary's willingness to adopt broad application of the fair use exemption, especially when there is evidence of commercial purpose on the part of the alleged infringer and commercial harm to the copyright owner.[135]

The enhanced threat of infringement liability, in light of the *Warhol* decision and these prominent appellate court decisions, may have played a role in both the decisions of some content owners to file suit against model developers and the decisions of some model developers to preclude or settle litigation by entering into licensing agreements with major content owners. During 2020 through April 2025, at least 37 suits had been filed by copyright owners in United States federal courts on grounds of copyright infringement against

131. *See, e.g.*, JANEL THAMKUL, PUBLIC COMMENTS OF ANTHROPIC PBC IN RESPONSE TO U.S. COPYRIGHT OFFICE NOTIFICATION OF INQUIRY REGARDING ARTIFICIAL INTELLIGENCE AND COPYRIGHT 6 (Oct. 30, 2023) ("[T]he training process makes copies . . . for the purposes of performing a statistical analysis . . . [and] is . . . non-expressive . . . To the extent copyrighted works are used in training data, it is for analysis (of statistical relationships between words and concepts) that is unrelated to any expressive purpose of the work"), https://www.openfuture.eu/wp-content/uploads/2023/11/231111_copyright_offoce_noi_anthropic.pdf [https://perma.cc/EJG5-2FK4] (asserting that there is no copyright infringement in AI-enabled output generation because the "outputs of generative AI systems are not stored or retrieved from a database of training data but are generated anew through statistical analysis"); U.S. COPYRIGHT OFFICE, *supra* note 12, at 19–20 (citing arguments from OpenAI and other commenters arguing that memorization or copying in generative AI applications is "rare, unintended, and difficult to detect").

132. On the history of the fair-use exemption and its interpretation in the courts, see BARNETT, *supra* note 68.

133. Andy Warhol Found. for the Visual Arts, Inc. v. Goldsmith, 598 U.S. 508, 515–16 (2023).

134. *Id.* at 541 (stating that transformative use cannot be understood to mean any "new expression, meaning, or message" because otherwise, it would "swallow the copyright owner's exclusive right to prepare derivative works").

135. *See, e.g.*, Fox News Network, LLC v. TVEyes, Inc., 883 F.3d 169, 176 (2d Cir. 2018) (holding that TVEyes's service allowing users to search and download clips from television broadcasts was not protected by fair use, since the downloading function served the same market purpose as the original and was not transformative); Hachette Book Grp., Inc. v. Internet Archive, 115 F.4th 163, 163 (2d Cir. 2024) (affirming that Internet Archive's controlled digital lending of scanned books was not fair use, and emphasizing that the digital copies were near-verbatim substitutes and harmed the market for the licensed e-books).

developers of AI-enabled models and applications.[136] As of September 14, 2025, it was reported that a total of 50 copyright infringement lawsuits had been filed in U.S. courts against AI companies and, taking into account voluntary dismissals, 47 were still pending.[137] As shown in the Table below (which covers the period from 2020 through April 2025), these suits cover textual, visual, and musical media and alleged infringing use of copyright-protected content (including software code) for purposes of training AI models or applications and, in some cases, alleged infringing distribution of that content. The plaintiffs include individual artists, authors' organizations, music publishers, image licensing entities, and news organizations, while the defendants include various types of AI model and applications developers.[138] Most suits are in the early stages of litigation and, aside from three district court opinions involving Meta, Anthropic, and Ross Intelligence (some of which are on appeal),[139] have yet to produce sufficiently developed judicial opinions that can provide guidance on how courts are likely to address infringement claims in the AI context.

Table 4. Copyright Infringement Lawsuits Against AI FM/LLM and Applications Developers (U.S. federal courts, filed 2020–April 2025).[140]

136. This figure is based on the Author's research using Westlaw and Bloomberg databases. This total figure excludes: (1) copyright infringement suits filed by copyright owners against *users* of AI-enabled models or applications, and (2) suits filed by AI applications developers alleging infringing use of software code by other AI applications developers.

137. *See Master List of Lawsuits v. AI, ChatGPT, OpenAI, Microsoft, Meta, Midjourney & Other AI Cos.*, CHATGPT IS EATING THE WORLD (Aug. 27, 2024), https://chatgptiseatingtheworld.com/2024/08/27/master-list-of-lawsuits-v-ai-chatgpt-openai-microsoft-meta-midjourney-other-ai-cos/ [https://perma.cc/9TUC-BULD].

138. *See infra* tbl. 4.

139. *See e.g.*, Richard Kadrey et al. v. Meta Platforms, Inc., Order Denying the Plaintiffs' Motion for Partial Summary Judgment and Granting Meta's Cross-Motion for Partial Summary Judgment, Case No. 3:23-cv-03417-VC (N.D. Cal. June 25, 2025) (granting summary judgment for defendant on fair use of copyrighted books in AI training context, due to lack of specific evidence of market harm), *appeal pending*, No. 25-1412 (9th Cir.) (ongoing); Bartz v. Anthropic PBC, 787 F.Supp.3d 1007 (N.D. Cal. 2025) (granting partial summary judgment to defendant on fair use of legally acquired works, denying fair use for retention of pirated works, and preliminarily approving $1.5 billion settlement with plaintiffs, subject to scheduled fairness hearing); Thomson Reuters Enter. Ctr. GMBH v. Ross Intel. Inc., 765 F.Supp.3d 382 (D. Del. 2025) (granting partial summary judgment to defendant but rejecting fair use defense because the defendant's research tool caused market harm by competing with plaintiff's Westlaw proprietary legal information service), *appeal filed*, No. 25-2153 (3d Cir.).

140. Sources organized by medium; year indicates when suit was filed:

Text: Thomson Reuters Ent. Ctr. GMBH v. Ross Intel., Inc., 765 F.Supp.3d 382 (D. Del. 2025); Emmerich Newspapers, Inc. v. Particle Media, Inc., No. 3:23cv26, No. 3:23-cv-391, 2025 WL 2146609 (S.D. Miss. July 29, 2025); Complaint & Demand for Jury Trial, Silverman v. OpenAI Inc., No: 3:23-cv-03416, (N.D. Cal. July 7, 2023); Complaint & Demand for Jury Trial, Chabon v. OpenAI Inc., No: 3:23-cv-04625 (N.D. Cal. Sept. 8, 2023); Complaint & Demand for Jury Trial, Chabon v. Meta Platforms Inc., No: 3:23-cv-04663 (N.D. Cal. Sept. 12, 2023); Complaint & Demand for Jury Trial, Tremblay v. OpenAI Inc., No: 1:25-cv-03482 (N.D. Cal. June 28, 2023); Complaint & Demand for Jury Trial, Kadrey v. Meta Platforms, Inc., No. 3:23-cv-03417 (N.D. Cal. July 7, 2023); Complaint & Demand for Jury Trial, J.L. v. Alphabet Inc., No. 3:23-cv-3440 (N.D. Cal. July 11, 2023); Complaint & Demand for Jury Trial, Authors Guild v. OpenAI Inc., No. 1:23-cv-08292 (S.D.N.Y. Sept. 19, 2023); Huckabee v. Meta Platforms Inc., No. 24-773 (D. Del. June 24, 2025) (mem.); Complaint & Demand for Jury Trial, Sancton v. OpenAI Inc., No. 1:23-cv-10211 (S.D.N.Y. Nov. 21, 2023); Complaint & Demand for Jury Trial, Alter v. OpenAI Inc., No. 1:23-cv-10211 (S.D.N.Y. Nov. 21, 2023); Complaint & Demand for Jury Trial, The N.Y. Times Co. v. Microsoft Corp., No. 1:23-cv-11195 (S.D.N.Y. Dec. 27, 2023); Complaint & Demand for Jury Trial, Basbanes v. Microsoft Corp., No. 1:24-cv-00084 (S.D.N.Y. Jan. 5, 2024); Complaint & Demand for Jury Trial, Intercept Media, Inc. v. OpenAI Inc., No. 1:24-cv-01515 (S.D.N.Y. Feb. 28, 2025); Complaint & Demand for Jury Trial, Raw Story Media, Inc. v. OpenAI Inc., No. 1:24-cv-01514 (S.D.N.Y. Feb. 28, 2024); Complaint & Demand for Jury Trial, Dubus v. NVIDIA Corp., No. 4:24-cv-02655 (N.D. Cal. May, 2 2024);

Content Type	Plaintiff Types	Defendants (selected)	Total Filed
Text (books, other writings)	Individual authors, authors' associations, news organizations	OpenAI, Meta, Alphabet, MS, Nvidia, Databricks, Perplexity, Cohere	25
Images	Individual artists, image licensing entities, design website	Stability AI, Google, Facebook, Pinterest	7
Music (incl. lyrics and voice recording)	Music publishers, record labels	Anthropic, Suno, Uncharted Labs	4
Code	Software developers	GitHub	1

Given the current unsettled state of the law, and the persistence of precedents that specifically exempt certain content digitization models from infringement liability, it remains unclear whether a content owner would prevail in a fully adjudicated suit against a model or application developer. There are some indications that at least some courts are partial to the perspective of content owners, especially in light of evidence that some platforms have willfully infringed upon copyright protections in assembling training sets for FMs/LLMs. In unusually blunt remarks, the district judge in an infringement litigation brought against Meta Platforms reportedly stated to Meta: "[y]ou are dramatically changing, you might even say obliterating, the market for that person's work, and you're saying

Complaint & Demand for Jury Trial, *In re* Mosaic LLM Litig., No. 3:24-cv-01451 (N.D. Cal., Mar. 8, 2024); Complaint & Demand for Jury Trial, Nazemia v. NVIDIA Corp., No. 3:24-cv-01454 (N.D. Cal. Mar. 8, 2024); Complaint & Demand for Jury Trial, Daily News LP. v. Microsoft Corp., No. 1:24-cv-03285 (S.D.N.Y. Apr. 30, 2024); Complaint & Demand for Jury Trial, Makkai v. Databricks Inc., No. 4:24-cv-02653 (N.D. Cal. May 2, 2024); Complaint & Demand for Jury Trial, Ctr. for Investigative Reporting, Inc. v. OpenAI, Inc., No. 1:24-cv-04872 (S.D.N.Y. June 27, 2024); Complaint & Demand for Jury Trial, Bartz v. Anthropic PBC, No. 3:24-cv-05417 (N.D. Cal. Aug. 19, 2024); Complaint & Demand for Jury Trial, Dow Jones & Co., Inc. v. Perplexity AI, Inc., No. 1:24-cv-07984 (S.D.N.Y. Oct. 21, 2024); Complaint & Demand for Jury Trial, Advance Loc. Media LLC v. Cohere Inc., No. 1:25-cv-01305 (S.D.N.Y. Feb. 13, 2025).

Images: Complaint & Demand for Jury Trial, UAB "Planner5D" v. Facebook Inc., No. 3:20-cv-08261 (N.D. Cal. Nov. 23, 2020); Complaint & Demand for Jury Trial, Harrington v. Pinterest Inc., No. 4:20-cv-05290 (N.D. Cal. July 31, 2020); Complaint & Demand for Jury Trial, Andersen v. Stability AI Ltd., No. 3:23-cv-00201 (N.D. Cal. Jan. 13, 2024); Complaint & Demand for Jury Trial, Getty Images (US) Inc. v. Stability AI Inc., No. 1:23-cv-00135 (D. Del. Feb. 3, 2025); Complaint & Demand for Jury Trial, Alcon Ent., LLC v. Tesla, Inc., No. 2:24-cv-09033 (C.D. Cal., Oct. 21, 2024); Complaint & Demand for Jury Trial, Zhang v. Google LLC, No. 3:24-cv-02531 (N.D. Cal., Apr. 26, 2024); Complaint & Demand for Jury Trial, Pierce v. Photobucket, Inc., No. 1:24-cv-03432 (D. Colo. Dec. 11, 2024).

Music, voice recording: Complaint & Demand for Jury Trial, Concord Music Grp. Inc. v. Anthropic PBC, No. 5:24-cv-03811 (N.D. Cal. Oct. 18, 2023); Complaint & Demand for Jury Trial, UMG Recordings, Inc. v. Suno Inc., No. 1:24-cv-11611 (D. Mass. Oct. 21, 2024); Complaint & Demand for Jury Trial, UMG Recordings, Inc. v. Uncharted Labs, Inc., No. 1:24-cv-04777 (S.D.N.Y. June 24, 2024); Complaint & Demand for Jury Trial, Vacker v. ElevenLabs, Inc., No. 1:24-cv-00987 (D. Del. Aug.2 9, 2024).

Code: Complaint & Demand for Jury Trial, Doe 1 v. GitHub, Inc., No. 3:22-cv-06823 (N.D. Cal. Nov. 3, 2022).

that you don't even have to pay a license to that person. I just don't understand how that can be fair use."[141] While the judge dismissed the suit against Meta largely on technical grounds,[142] this type of rhetoric suggests a newly emergent openness among some courts to infringement claims on behalf of content owners against AI model developers.

Notwithstanding this apparent (but potentially modest) pendulum shift among portions of the judiciary, it remains the case that the weight of current fair use case law tends to favor infringers. This is for the simple reason that, since approximately the mid-2000s, federal courts have widely adopted an expansive understanding of the fair use exemption that tends to overweight evidence of transformative use by the infringer and underweight evidence of commercial harm to the copyright owner.[143] It is therefore possible or even likely that pending infringement litigations against FM/LLM developers may ultimately yield decisions that uphold the fair use defense for certain uses of copyrighted content by AI model developers. This was to some extent the outcome in one of the few fully adjudicated district-court decisions, which held in June 2025 that certain uses of copyright-protected content by Anthropic for training purposes constituted transformative use while also holding that the intentional copying of content found on pirated book websites did not pass the fair use test.[144] Alternatively, courts may reach determinations on other grounds that the apparent reproduction of copyright-protected content by an LLM developer or generative AI-enabled application does not constitute infringement under copyright law principles so long as it avoids verbatim reproduction of original non-generic content. In either case, it would be necessary to intervene through legislative action to preserve meaningful protections for copyright owners in AI-enabled content ecosystems.

Any such legislation must deliver a structure that preserves a reasonably effective ability for content owners to negotiate the terms under which their content can be used by AI model and app developers (if at all), but without giving rise to opportunistic litigation that induces a "chilling effect" that unduly impedes investment in the development of AI-enabled applications.

Currently only the EU has implemented a legislative model for addressing copyright issues in generative AI markets. The EU Copyright in the Digital Single Market (DSM) Directive establishes an exemption from copyright infringement for "text and data mining" (TDM) for commercial uses but enables copyright-owners to opt out of the exemption (which is facilitated by requiring that any opt-out be reflected in machine-readable format).[145] The directive was put into practical effect by the EU AI Act, adopted in 2024 and

141. Blake Brittain, *Judge in Meta Case Warns AI Could 'Obliterate' Market for Original Works*, REUTERS (May 1, 2025), https://www.reuters.com/legal/litigation/judge-meta-case-weighs-key-question-ai-copyright-lawsuits-2025-05-01/ (on file with the *Journal of Corporation Law*).

142. Kadrey v. Meta Platforms, Inc., 2025 WL 1752484, slip op. no. 3:23-cv-03417 (N.D. Cal. June 25, 2025).

143. BARNETT, *supra* note 68, at 84–87.

144. Bartz v. Anthropic PBC, 787 F.Supp.3d 1007, 1034 (N.D. Cal. 2025) (granting summary judgment concerning fair use defense for use of content found in purchased and digitized books but denying summary judgment concerning fair use defense for use of content obtained through pirated book websites).

145. Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on Copyright and Related Rights in the Digital Single Market and Amending Directives 96/9/EC and 2001/29/EC, arts. 3–4, 2019 O.J. (L 130) 92, 98–100.

implemented starting in 2025, which requires AI providers to respect the TDM opt-out.[146] While the TDM exemption-plus-optout may enable an efficient sorting between high-value and low-value content owners (insofar as the former are likely to exercise the opt out, while the latter is not), it is an open empirical question whether AI model and app developers would consistently respect the opt-out when exercised. In late 2024, similar legislation was proposed in the U.K. but elicited significant protest from the creative community (which objected to the fact that copyright owners bear the burden to opt-out of the zero-liability regime), and the legislation is now stalled.[147]

To address the place of copyright in the AI ecosystem, policymakers currently face a choice between (1) the U.S. common-law model, which leaves the market subject to the vagaries of judicial determinations of the scope of the fair use exemption, and (2) the EU statutory model, which establishes a bright-line rule that delivers certainty but would only provide meaningful protection for copyright owners to the extent that AI model and app developers respect the opt-out when exercised by copyright owners. Yet a rich array of regulatory possibilities lies in between these two extremes that remains to be developed by academics, regulators, and others. In May 2025, the U.S. Copyright Office issued the "pre-publication" version of a report on the enforcement of copyright in connection with training data for generative AI purposes.[148] The Office took the position that, while the fair use exemption may apply to the use of content for certain technical tasks that do not operate in copyright owners' creative market, this is not true when copyright-protected material is used to generate output that can directly compete with that material.[149] Departing from the EU (and proposed U.K.) approach, the Office suggested that simply providing an opt-out to creators may not always be sufficient to sustain meaningful copyright protection in the AI context.[150] While these positions elicited controversy (and is surmised to have prompted the firing of the Copyright Office director),[151] it largely tracks Supreme Court precedent, which precludes the fair use exemption when the infringing use causes material harm to the copyright owner.[152] That position in turn reflects a recognition that copyright in some meaningful form is critical to support robust markets that generate remuneration for the producers of creative assets, rather than only the platform intermediaries that rely on that content.

146. Regulation (EU) 2024/1689 of the European Parliament and of The Council of 13 June 2024 Laying Down Harmonised Rules on Artificial Intelligence and Amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), 2024 O.J. (L 12.7.2024).

147. Eleni Courea & Dan Milmo, *Ministers Reconsider Changes to UK Copyright Law Ahead of Vote*, THE GUARDIAN (May 4, 2025), https://www.theguardian.com/technology/2025/may/04/ministers-uk-copyright-artificial-intelligence-parliament-vote [https://perma.cc/W546-FMMV].

148. *See generally* U.S. COPYRIGHT OFFICE, *supra* note 12.

149. *Id.* at 26–84.

150. *Id.* at 105.

151. Ashley Belanger, *Copyright Office Head Fired After Reporting AI Training Isn't Always Fair Use*, ARSTECHNICA (May 12, 2025), https://arstechnica.com/tech-policy/2025/05/copyright-office-head-fired-after-reporting-ai-training-isnt-always-fair-use [https://perma.cc/5ZRE-8QAW].

152. Harper & Row Publishers, Inc. v. Nation Enters., 471 U.S. 539, 566–67 (1985).

C. How Intellectual Property Rights Can Support the Generative AI Ecosystem

Once the legal security of IP rights in creative assets in the AI context is appropriately clarified whether by judicial determination or legislative intervention, a reasonably secure property-rights foundation would likely enable market actors to converge toward collective licensing solutions in the generative AI ecosystem to provide market-determined remuneration for original content producers. As a complement or substitute for such collective licensing solutions, model and applications developers may develop, or third parties may develop, technological solutions (for example, digital attribution services) that track the use of creative content or other informational assets by developers, which may then provide a factual basis for claiming or negotiating remuneration on behalf of content owners.

This interaction between reasonably secure property rights in creative works, privately constructed and administered collective licensing solutions, and technological attribution solutions, is a familiar element of IP-intensive environments.

At least in the United States, content and technology markets have a long history of crafting cross-licensing and collective licensing solutions to address potential transactional obstacles in IP-intensive environments.[153] For example, collective licensing organizations such as BMI and ASCAP emerged in the early 20th century to mitigate transaction costs in the market for licensing public performance rights to copyright-protected musical compositions.[154] Starting in the late 1990s, "business review" letters issued by U.S. antitrust agencies reviewed and effectively precleared the structure of various collective licensing entities that had been formed to administer patent portfolios covering technology standards in multiple segments of the consumer electronics markets.[155] To mitigate antitrust concerns over collusion among IP owners, the earliest forms of these arrangements typically enable "opt-out" by individual IP owners (who may then negotiate separately with intermediate users) and are administered by third-party entities that do not have an economic interest in the associated downstream products and services market.[156] Since the issuance of the business review letters in the late 1990s, these arrangements proliferated throughout consumer electronics markets, facilitating technology access for device producers and interoperability for consumers.[157]

In fact, there is already evidence that licensing solutions are emerging to address the dual imperative both to deliver remuneration to copyright owners and to facilitate usage of copyright-protected content by AI model and app developers. Since mid-2024, the Copyright Clearance Center, an existing copyright clearinghouse organization, has offered the option of integrating "AI Re-Use Rights" within its standard copyright license.[158] In March 2025, the CCC announced that it would be offering an "AI Systems Training License," which would be specifically designed to enable the authorized use of copyright-protected

153. Jonathan M. Barnett, *The Anti-Commons Revisited*, 29 HARV. J.L. & TECH. 127, 147–49 (2015).

154. *Id.* at 148.

155. *Id.* at 148–51.

156. *Id.* at 188–90.

157. *Id.*

158. *CCC Launches Collective AI License*, COPYRIGHT CLEARANCE CTR. (July 25, 2024), https://www.copyright.com/blog/ccc-launches-collective-ai-license/?utm [https://perma.cc/8ND5-YP6X].

content for AI training purposes.[159] In June 2025, it was reported that major record labels were engaged in licensing negotiations over the use of musical content by AI model and app developers.[160] In a landmark transaction in December 2025, Disney entered into a licensing transaction granting OpenAI the right to use more than 200 Disney-owned characters for purposes of generating user-prompted AI videos and images, together with a $1 billion investment by Disney and integration of OpenAI technology into Disney products.[161]

Additionally, a variety of startups have emerged that offer potential a mix of technological and contractual solutions in various types of AI modalities, which are tailored for different stakeholders in the AI marketplace. For visual content, Created by Humans, a startup that is partnering with the Authors Guild, is seeking to create a digital marketplace where individual creators can license IP directly to AI model and app developers, subject to a variety of price and usage terms.[162] For visual content, Bria offers AI model and app developers access to licensed datasets, enabling licensees to offer end-users image generation services without risk of copyright infringement.[163] To combat "web scraping" by AI model and app developers, Cloudflare announced in July 2024 the release of technology that enables website owners to block scraping without consent, although its effectiveness remains unclear.[164]

In general, these privately developed contractual and technological solutions to developing workable systems for remunerating content owners and enabling content usage in the AI ecosystem inherently outperform legal interventions by enabling markets to develop a rich variety of tailored usage regimes adapted to particular segments and transacting parties. Yet these licensing solutions do require a simple legal predicate to be satisfied: namely, a reasonable secure expectation that copyright protections can be enforced in a

159. *CCC Announces AI Systems Training License for the External Use of Copyrighted Works Coming Soon*, COPYRIGHT CLEARANCE CTR. (Mar. 4, 2025), https://www.copyright.com/media-press-releases/ccc-announces-ai-systems-training-license-for-the-external-use-of-copyrighted-work [https://perma.cc/GW6P-5SNN].

160. Anne Steele, *Universal, Warner and Sony Are Negotiating AI Licensing Rights for Music*, WALL ST. J. (June 2, 2025), https://www.wsj.com/business/media/ai-music-licensing-universal-warner-sony-92bcbc0d?gaa_at=eafs&gaa_n=ASWzDAg6xhXCP98wjJmfSS2yd6b7qaEb9QUs-GTsTi48LXN31Q2pnmTK_WtVGQtbT8w%3D&gaa_ts=68d45381&gaa_sig=8nWOp2z3IMCmQvSsrbEHBHQDjdu_N5-YlZvfQrp3VaWbbIlkw_jry3Lf-XHSH6Y8FOF45Qt5J5GgTAzdtNZYvA%3D%3D (on file with the *Journal of Corporation Law*).

161. *The Walt Disney Company and OpenAI Reach Landmark Agreement to Bring Beloved Characters from Across Disney's Brands to Sora*, WALT DISNEY CO. (Dec. 11, 2025), https://thewaltdisneycompany.com/disney-openai-sora-agreement [https://perma.cc/E7AJ-W5EX].

162. *See The AI Rights Licensing Platform for Books*, CREATED BY HUMANS, https://createdbyhumans.ai [https://perma.cc/5GYR-LTWJ].

163. *See The Most Comprehensive Visual AI API Suite*, BRIA, https://www.bria.ai/models [https://perma.cc/9GYX-VNP9].

164. Alex Bocharov et al., *Declaring Your AIndependence: Block AI Bots, Scrapers, and Crawlers with a Single Click*, CLOUDFLARE (July 3, 2024), https://blog.cloudflare.com/declaring-your-aindependence-block-ai-bots-scrapers-and-crawlers-with-a-single-click/ [https://perma.cc/8Q69-5QYE] (announcing new anti-scraping services for website operators); James Bentley, *Cloudflare Calls Out Perplexity for Hiding 'Crawling Activity' as AI Bot Scrapes Websites That Explicitly Disallow It, Perplexity Responds by Calling Them 'More Flair Than Cloud'*, PC GAMER (Aug. 5, 2025), https://www.pcgamer.com/software/ai/cloudflare-calls-out-perplexity-for-hiding-crawling-activity-as-ai-bot-scrapes-websites-that-explicitly-disallow-it-perplexity-responds-by-calling-them-more-flair-than-cloud [https://perma.cc/W9E2-DBGW] (reporting that some AI bots attempted to bypass Cloudflare's new anti-scraping technology, casting doubt on its effectiveness).

court of law when infringed. Without a legal deterrent, there is little reason for AI model and application developers to enter licensing and other arrangements with content originators. At the same time, there should be some reasonable level of certainty that AI model and app developers that make a good-faith effort to enter licensing transactions are not exposed to opportunistic suits motivated primarily by the prospect of statutory damages, rather than the legitimate interests of copyright owners in appropriate remuneration. So long as courts or the legislature restore a legal standard that can deliver reasonable security in copyright protections in the digital ecosystem (or, as a second-best scenario, the market develops technological equivalents that mimic the exclusionary properties of IP rights), and can do so without facilitating opportunistic litigation, the historical record of transactional innovation in content markets suggests that the generative AI ecosystem will likely develop licensing solutions that can both mitigate transaction costs and deliver negotiated remuneration to original content producers.

CONCLUSION

In 1972, Nobel Prize winner Ronald Coase famously observed: "One important result of this preoccupation with the monopoly problem is that if an economist finds something—a business practice of one sort or other—that he does not understand, he looks for a monopoly explanation."[165] The haste with which some economists once purported to identify market failures, which in turn led to support for antitrust intervention without clear evidence of competitive harm (an approach sometimes known as the "inhospitality tradition"),[166] has been re-adopted by competition regulators in the United States, EU, and other major jurisdictions, and promoted by certain legal academics and other commentators, in the context of digital markets. In a remarkably short period, this approach has resulted in widespread advocacy for preemptive intervention to address antitrust risks that are purportedly inevitable in various segments of the AI ecosystem.

A closer examination of the actual characteristics of the AI ecosystem—precisely the "boots on the ground" approach advocated by Coase, who counseled against making policy on the basis of theoretical models (what he famously called "blackboard economics")[167]—finds no sufficiently compelling factual basis to support this interventionist approach. Like the "group mind" in the *Minority Report,* any such preemptive approach in the AI ecosystem runs a high risk of making significant predictive errors. Consistent with Coase's words of caution, regulatory efforts to engineer the "ideal" structure of AI-enabled markets based on limited information and understanding concerning *actual* AI-enabled markets are likely to distort and stifle the development of this socially critical technological ecosystem. The same information constraints that have consistently doomed central planning models to failure condemn similar attempts to harness competition law for this purpose.

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165. Ronald H. Coase, *Industrial Organization: A Proposal for Research*, *in* POLICY ISSUES AND RESEARCH ISSUES IN INDUSTRIAL ORGANIZATION 59, 67 (Victor Fuchs ed., 1972).

166. For similar views, see Elyse Dorsey, *Anything You Can Do, I Can Do Better—Except in Big Tech?: Antitrust's New Inhospitality Tradition*, 68 KAN. L. REV. 975 (2020).

167. Ronald H. Coase, *Nobel Prize Lecture: The Institutional Structure of Production*, NOBEL PRIZE (Dec. 9, 1991), https://www.nobelprize.org/prizes/economic-sciences/1991/coase/lecture/ [https://perma.cc/5JB5-AF9C].

The alacrity with which regulators purported to identify impending risks to competition in AI markets reflects more generally an increasing tendency among the regulatory and scholarly communities in antitrust and competition law to assume that digital markets are inherently prone to entrenched monopoly outcomes. As I have argued elsewhere using evidence from the cloud-computing and online food-delivery markets,[168] and in this Article using evidence from the generative AI ecosystem, any such broad-brush assumption fails to account for a potentially significant number of digital markets that depart from this rigid narrative. Like other markets, digital markets have highly case-specific features that are not readily susceptible to sweeping generalizations concerning the proclivity toward entrenched monopoly outcomes. While leading firms in digital markets can enjoy elevated market shares for a certain period, technology history supplies numerous examples in which leading platforms rapidly lost market share to a more innovative entrant. Moreover, the bundled structures targeted by regulators, in which AI features are integrated into other applications within a platform's product-and-services ecosystem, can deliver significant transactional benefits to consumers that must be weighed against any potential harms to competition in the form of foreclosure or other effects.

The complexity of the AI ecosystem merits the nuanced on-the-ground attention that Coase recommended over a half-century ago for antitrust analysis and policymaking generally. The near-uniformity with which regulators, and much of the scholarly community, have advocated taking action to preclude purported risks to competition in the AI market posed by platform/developer arrangements makes both heroic assumptions of regulatory farsightedness. Regulatory haste in this context has a high risk of unraveling market arrangements that currently appear to reduce entry costs for independent developers and to implement a division of labor between "idea specialists" and suppliers of the capital-intensive infrastructural components in the AI tech stack. It is not clear why antitrust intervention is necessary to override market outcomes and reengineer these arrangements by regulatory fiat. Far from preserving competitive conditions in digital markets, a regulatory posture that acts to intervene preemptively even prior to the manifestation of anticompetitive harm may achieve precisely the opposite outcome.

168. *See e.g.*, Barnett, *supra* note 1.

APPENDIX

Significant Actions by U.S., U.K. and EU Antitrust and Competition Authorities Concerning Potentially Anticompetitive Practices in the AI Ecosystem (Nov. 2023–December 2025).[169]

Year	Country (agency)	Target(s)	Action
Nov. 2023	Germany (Bundeskartellamt)	MS, Open AI	Investigation concerning whether relationship is subject to merger review.
Dec. 2023	UK (CMA)	MS, OpenAI	Investigation concerning whether relationship is subject to merger review.
Jan. 2024	USA (FTC)	Alphabet, Amazon, Anthropic, MS, OpenAI	Compulsory information requests concerning partnerships and other relationships between major cloud providers and generative AI entities.
Feb. 2024	France (Autorité de la concurrence)	Nvidia	Investigation concerning certain sales practices in AI chip market.
Mar. 2024	USA (FTC)	MS, Inflection AI	Investigation concerning whether transaction is a reportable acquisition.

169. *See supra* notes 34–38; Josh Sisco, *Google Faces Antitrust Investigation over Deal for AI-Fueled Chatbots*, BLOOMBERG (May 22, 2025), https://www.bloomberg.com/news/articles/2025-05-22/google-faces-antitrust-investigation-over-deal-for-ai-fueled-chatbot-technology (on file with the Journal of Corporation Law); Clémence Coppin, *Europe's Problem Is Not Innovation, It's the Growth of New Giants*, LINKEDIN (May 13, 2025), https://www.linkedin.com/posts/clémence-coppin-7a270888_europes-problem-is-not-innovation-activity-7327982695362215937-ghbZ [https://perma.cc/MWG9-E6K5]; Théophane Hartmann, *Commission Ends Probe of Microsoft-Inflection AI Merger*, EURACTIV (Sept. 18, 2024), https://www.euractiv.com/news/commission-ends-probe-of-microsoft-inflection-ai-merger/ (on file with the Journal of Corporation Law); *UK Clears Amazon's AI Partnership with Anthropic*, REUTERS (Sept. 27, 2024), https://www.reuters.com/technology/artificial-intelligence/amazons-ai-partnership-with-anthropic-gets-uk-competition-watchdog-nod-2024-09-27/ (on file with the Journal of Corporation Law); Matt O'Brien, *FTC Opens Microsoft Antitrust Investigation That Trump Administration Must Carry On or Drop*, ASSOCIATED PRESS (Dec. 2, 2024), https://apnews.com/article/microsoft-ftc-antitrust-lina-khan-trump-biden-1b8983bec2ad1b2e943fb25c5b27619b [https://perma.cc/C9GE-2XNS]; Arne Gayk, *Taking over Employees Can Be Subject to Merger Control, the German FCO Says,* CLIFFORD CHANCE (Dec. 2, 2024), https://www.cliffordchance.com/insights/resources/blogs/antitrust-fdi-insights/2024/12/taking-over-employees-can-be-subject-to-merger-control.html [https://perma.cc/U2K9-D2W4]; Plaintiffs' Proposed Remedy Framework, US et al. v. Google LLC, No. 1:20-cv-03010 (D.D.C. Oct. 8, 2024); Thibault Schrepel, Abdullah Yerebakan & Nikoletta Baladima, A Database of Antitrust Initiatives Targeting Generative AI, Network L. Rev. (2024–2025), https://www.networklawreview.org/antitrust-generative-ai/[https://perma.cc/P58K-83WU]; other trade press and agency sources.

Apr. 2024	EU (EC)	MS, Open AI	Information request concerning MS/OpenAI relationship.
Apr. 2024	UK (CMA)	Alphabet, Amazon, Anthropic, MS, Inflection AI, Mistral AI	Investigation concerning potential anticompetitive nature of certain partnerships and hiring practices.
Aug. 2024	USA (DOJ)	Nvidia	Reported investigation concerning certain sales practices in AI-specific chip market.
Sept. 2024	UK (CMA)	Amazon, Anthropic	Closed investigation into investment by Amazon in Anthropic.
Sept. 2024	EU (EC)	MS, Inflection AI	Closed investigation into whether hiring of Inflection AI personnel constituted reportable merger transaction.
May 2025	UK (CMA)	Alphabet, Anthropic	Closed investigation into investment by Alphabet into Anthropic because did not constitute reportable merger.
Oct. 2024	USA (DOJ)	Google	In Google Search litigation, DOJ seeks order requiring Google to divest from investments in AI developers and make no further investments in AI developers.
Dec. 2024	USA (FTC)	MS	Investigation concerning MS engaged in anticompetitive bundling practices involving AI and cloud computing services.
Dec. 2024	Germany (Bundeskartellamt)	MS, Inflection AI	Rules that MS's hiring of Anthropic AI team can constitute reportable merger but did not proceed with investigation due to failure to meet national turnover threshold.
May 2025	USA (DOJ)	Alphabet	In Google Search litigation, DOJ withdraws petition to bar Google from making investments in AI

			developers seeks order requiring Google to provide notice to government of proposed investments in AI developers.
May 2025	EU (EC)	MS, Open AI	Announces that EU regulators will investigate the terms of the partnership between MS and OpenAI that are being renegotiated.
May 2025	FTC (USA)	Google, Character.AI	Reported investigation into whether Google's hiring of key personnel at Character.AI violated merger reporting requirements.