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THE SEPARATION OF PLATFORMS AND COMMERCE

*Lina M. Khan**

A handful of digital platforms mediate a growing share of online commerce and communications. By structuring access to markets, these firms function as gatekeepers for billions of dollars in economic activity. One feature dominant digital platforms share is that they have integrated across business lines such that they both operate a platform and market their own goods and services on it. This structure places dominant platforms in direct competition with some of the businesses that depend on them, creating a conflict of interest that platforms can exploit to further entrench their dominance, thwart competition, and stifle innovation.

This Article argues that the potential hazards of integration by dominant tech platforms invite recovering structural separations. Separations regimes limit the lines of business in which a firm can engage, either by proscribing entry in certain markets or by requiring that distinct lines of business be operated through separate affiliates. Previously implemented both as a standard regulatory intervention and key antitrust remedy in network industries, structural separations have been largely abandoned. At the same time that lawmakers have weakened or eliminated sector-specific regulatory regimes, judicial interpretation of antitrust law has drastically narrowed the forms of vertical conduct and structures that register as anticompetitive. And when antitrust enforcers have targeted these forms of conduct and structures, they have applied remedies that generally (1) fail to target the underlying source of the problem and (2) overwhelm the institutional capacities of the actors assigned to oversee them. Neglecting structural remedies results in both substantive harms and institutional

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misalignments—effects that are especially pronounced in digital platform markets.

This Article seeks to give structural separations a seat back at the table. Tracing the history of separations reveals that they have been motivated by a host of functional goals, ranging from fair competition and system resiliency to media diversity and administrability. Recalling this broader set of concerns brings into focus the range of factors at stake when dealing with dominant intermediaries and invites consideration of the degree to which separations in platform markets would also respond to a diverse set of problems.

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INTRODUCTION

“No competition can exist between two producers of a commodity when one of them has the power to prescribe both the price and output of the other.”

—U.S. House of Representatives, Committee on Interstate & Foreign Commerce¹

“In short, the choice is between a Bell System restrained by neither regulation nor true competition and a Bell System reorganized in such a way as to diminish greatly the possibility of future anticompetitive behavior.”

—U.S. District Court for the District of Columbia²

A handful of digital platforms exert increasing control over key arteries of American commerce and communications. Structuring access to markets, these firms function as gatekeepers for billions of dollars in economic activity. By virtue of setting marketplace rules for the millions of merchants, producers, and developers dependent on their infrastructure, dominant platforms today “function as regulators.”³

As these platforms further concentrate market power, there are rising concerns about their size—usually in reference to the large share that each firm captures of its primary markets.⁴ Yet an equally important question concerns not the scale of these companies but their structure. One feature dominant digital platforms share is that they have integrated

1. H.R. Rep. No. 52-2278, at vii–viii (1893).

2. *United States v. AT&T Co.*, 552 F. Supp. 131, 170 (D.D.C. 1982).

3. See Jacques Crémer et al., European Comm’n, *Competition Policy for the Digital Era 6* (2019), <http://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf> [<https://perma.cc/LHH7-9UEK>].

4. See, e.g., Franklin Foer, *World Without Mind: The Existential Threat of Big Tech* 103 (2017) (“Amazon doesn’t necessarily want to own whole industries, but it likes to control them. With publishing, Amazon has become the indispensable store. It sells 65 percent of all e-books and over 40 percent of all books.”); Jonathan Taplin, *Move Fast and Break Things: How Facebook, Google, and Amazon Cornered Culture and Undermined Democracy* 21 (2017) (“Google has an 88 percent market share in online searches and search advertising. Google’s Android mobile operating system has an 80 percent global market share in its category. Amazon has a 70 percent market share in ebook sales. Facebook has a 77 percent market share in mobile social media.”); David Dayen, *Big Tech: The New Predatory Capitalism*, *Am. Prospect* (Dec. 26, 2017), <http://prospect.org/article/big-tech-new-predatory-capitalism> [<https://perma.cc/H2AA-JEXD>] (arguing that tech firms, due to their market-share dominance, have “crippled entrepreneurship,” “concentrated economic gains in a few small enclaves,” “religiously avoid[ed] taxes,” developed extensive surveillance capabilities, and created addictive products that “have undermined social relationships, expanded divisiveness, and transformed what it means to be human”); Ben Smith, *Opinion, There’s Blood in the Water in Silicon Valley*, *BuzzFeed News* (Sept. 12, 2017), <https://www.buzzfeednews.com/article/bensmith/theres-blood-in-the-water-in-silicon-valley> [<https://perma.cc/3FQA-B3TC>] (describing an increasingly prevalent critique of the major American tech firms—Facebook, Amazon, Google, and Apple—as “sinister new centers of unaccountable power”).

across business lines such that they both operate a platform and market their own goods and services on it. This structure places dominant platforms in direct competition with some of the businesses that depend on them, creating a conflict of interest that platforms can exploit to further entrench their dominance, thwart competition, and stifle innovation.⁵

Consider Spotify's effort to reach users through Apple's iPhone while Apple sought to promote Apple Music. In 2016, Spotify revealed that Apple had blocked the streaming application from the App Store, "continu[ing] a troubling pattern of behavior by Apple to exclude and diminish the competitiveness of Spotify on iOS and as a rival to Apple Music."⁶ Or take the challenge faced by Yelp, Foundem, and scores of online services to reach internet users while Google sought to build out its own competitor offerings.⁷ In Europe and India, competition authorities have found that Google ranks its own services higher than those offered by rivals, a "search bias" that means anyone competing with Google properties may effectively disappear from Google search results.⁸ Merchants that rely on Amazon to reach consumers are in a similar bind: Not only must they jostle for placement against Amazon's own goods, but they also face the constant risk that Amazon will spot their bestselling items and produce them itself.⁹ Facebook, equipped with technology that

5. See *infra* sections I.A–D.

6. Peter Kafka, Spotify Says Apple Won't Approve a New Version of Its App Because It Doesn't Want Competition for Apple Music, Recode (June 30, 2016), <https://www.recode.net/2016/6/30/12067578/spotify-apple-app-store-rejection> [<https://perma.cc/T4XF-JCEJ>] (quoting Horacio Gutierrez, General Counsel, Spotify).

7. See Charles Duhigg, The Case Against Google, N.Y. Times (Feb. 20, 2018), <https://www.nytimes.com/2018/02/20/magazine/the-case-against-google.html> (on file with the *Columbia Law Review*).

8. Findings of search bias prompted antitrust authorities in Europe and India to fine Google for violating competition laws. Natasha Lomas, Google Fined \$2.7BN for EU Antitrust Violations over Shopping Searches, TechCrunch (June 27, 2017), <https://techcrunch.com/2017/06/27/google-fined-e2-42bn-for-eu-antitrust-violations-over-shopping-searches/> [<https://perma.cc/5J57-2KNW>]; Natasha Lomas, Google Fined \$21.1M for Search Bias in India, TechCrunch (Feb. 9, 2018), <https://techcrunch.com/2018/02/09/google-fined-21-1m-for-search-bias-in-india/> [<https://perma.cc/RU8L-FZML>].

9. See Greg Bensinger, Competing with Amazon on Amazon, Wall St. J. (June 27, 2012), <https://www.wsj.com/articles/SB10001424052702304441404577482902055882264> (on file with the *Columbia Law Review*) ("According to some small retailers, the Seattle-based giant appears to be increasingly using its Marketplace—where third-party retailers sell their wares on the Amazon.com site—as a vast laboratory to spot new products to sell, test sales of potential new goods, and exert more control over pricing."); Julie Creswell, How Amazon Steers Shoppers to Its Own Products, N.Y. Times (June 23, 2018), <https://www.nytimes.com/2018/06/23/business/amazon-the-brand-buster.html> (on file with the *Columbia Law Review*); Robinson Meyer, When Does Amazon Become a Monopoly?, Atlantic (June 16, 2017), <https://www.theatlantic.com/technology/archive/2017/06/when-exactly-does-amazon-become-a-monopoly/530616/> [<https://perma.cc/3T2B-7DC8>] ("[Amazon] is, in short, an Everything Store: not only selling goods but also producing them, not only distributing media from its servers but also renting them out to

lets it detect which rival apps are succeeding, would often give companies a choice: Be acquired by Facebook, or watch it roll out a direct replica.¹⁰ Competing with one of these giants on the giant's own turf is rife with hazards.

Venture capitalists now factor this risk into their investment decisions.¹¹ Indeed, the power of these gatekeeper platforms to steer the fate of countless other firms is described by entrepreneurs and investors as “having a profound impact on innovation in Silicon Valley”¹² and “choking off the start-up world.”¹³ Venture capitalists now discuss a “kill-zone” around digital giants—“areas not worth operating or investing in, since

others.”); Eugene Kim, Amazon Is Doubling Down on Its Private Label Business, Stoking ‘Huge Fear’ in Some Sellers, CNBC (Oct. 6, 2018), <https://www.cnn.com/2018/10/06/amazon-doubling-down-on-private-label-sellers-see-huge-fear.html> [<https://perma.cc/NZC8-XEVA>] [hereinafter Kim, Amazon Is Doubling Down].

10. See Elizabeth Dwoskin, Facebook’s Willingness to Copy Rivals’ Apps Seen as Hurting Innovation, Wash. Post (Aug. 10, 2017), https://www.washingtonpost.com/business/economy/facebooks-willingness-to-copy-rivals-apps-seen-as-hurting-innovation/2017/08/10/ea7188ea-7df6-11e7-a669-b400c5c7e1cc_story.html (on file with the *Columbia Law Review*) (describing Facebook’s “aggressive strategy” for attempting to break into fields beyond social networking by “mimic[ing] the most successful features of rival companies’ apps”); Betsy Morris & Deepa Seetharaman, The New Copycats: How Facebook Squashes Competition from Startups, Wall St. J. (Aug. 9, 2017), <https://www.wsj.com/articles/the-new-copycats-how-facebook-squashes-competition-from-startups-1502293444> (on file with the *Columbia Law Review*) [hereinafter Morris & Seetharaman, New Copycats]; Deepa Seetharaman & Betsy Morris, Facebook’s Onavo Gives Social-Media Firm Inside Peek at Rivals’ Users, Wall St. J. (Aug. 13, 2017), <https://www.wsj.com/articles/facebooks-onavo-gives-social-media-firm-inside-peek-at-rivals-users-1502622003> (on file with the *Columbia Law Review*). Faced with criticism that it was using Onavo in potentially anticompetitive ways, Facebook announced in 2019 that it was no longer using the technology to collect data on rivals. See Josh Constine, Facebook Will Shut Down Its Spyware VPN App Onavo, TechCrunch (Feb. 21, 2019), <https://techcrunch.com/2019/02/21/facebook-removes-onavo/> [<https://perma.cc/5UMD-E5E4>].

11. See Dwoskin, *supra* note 10 (“At Sequoia’s annual off-site retreat, held in March, skirting Google and Facebook were main topics of conversation, said Sequoia partner Alfred Lin. . . . ‘We don’t touch anything that comes too close to Facebook, Google or Amazon,’ he said.”); Olivia Solon, As Tech Companies Get Richer, Is It ‘Game Over’ for Startups?, Guardian (Oct. 20, 2017), <https://www.theguardian.com/technology/2017/oct/20/tech-startups-facebook-amazon-google-apple> [<https://perma.cc/BT2G-34G4>] (“‘People are not getting funded because Amazon might one day compete with them,’ said one founder, who wished to remain anonymous. ‘If it was startup versus startup, it would have been a fair fight, but startup versus Amazon and it’s game over.’”); Asher Schechter, Google and Facebook’s “Kill Zone”: “We’ve Taken the Focus Off of Rewarding Genius and Innovation to Rewarding Capital and Scale,” ProMarket (May 25, 2018), <https://promarket.org/google-facebooks-kill-zone-weve-taken-focus-off-rewarding-genius-innovation-rewarding-capital-scale/> [<https://perma.cc/TZ98-LBX6>] (“The scale of these companies and their impact on what can be funded, and what can succeed, is massive.” (internal quotation marks omitted) (quoting Albert Wenger, Managing Partner, Union Square Ventures)).

12. Dwoskin, *supra* note 10.

13. *Id.* (internal quotation marks omitted) (quoting Roger McNamee, Founder, Elevation Partners).

defeat is guaranteed.”¹⁴ Discussing how tech platform giants today use their integrated structure to undermine rivals, a product manager who worked for Microsoft leading up to its antitrust suit observed, “It’s what we did at Microsoft.”¹⁵

Indeed, the way in which dominant online platforms threaten to undermine competition and distort markets today is not entirely new. At its core, the problem traces to a basic challenge posed by firms that capture control over a critical network or channel of distribution. Regulators and competition authorities have traditionally harnessed a set of tools to ensure that bottleneck facilities do not distort competition. These tools include common carriage, which requires firms to offer customers equal access on equal terms,¹⁶ as well as interoperability, which

14. Schechter, *supra* note 11; see also American Tech Giants Are Making Life Tough for Startups, *Economist* (June 2, 2018), <https://www.economist.com/business/2018/06/02/american-tech-giants-are-making-life-tough-for-startups> [<https://perma.cc/J56F-PML6>] (describing venture capitalists’ hesitance to support startups in industries dominated by tech giants such as Google, Amazon, and Facebook).

15. Dwoskin, *supra* note 10 (internal quotation marks omitted) (quoting Scott Sandell, Managing Partner, New Enterprise Associates).

16. See Eli M Noam, *Beyond Liberalization II: The Impending Doom of Common Carriage*, 18 *Telecomm. Pol’y* 435, 436–38 (1994) (explaining the origins of common carriage and the underlying principle that no customer willing and able to pay for a service should be denied its use). Recognizing the gatekeeper power of internet service providers (ISPs), academics and policymakers in the 2000s re-embraced common carriage in the form of “network neutrality.” Under the Obama Administration, the Federal Communications Commission (FCC) codified net neutrality rules requiring that ISPs treat all internet traffic equally. See *Protecting and Promoting the Open Internet*, 30 *FCC Rcd.* 5601, 5603, para. 4 (2015) (adopting “carefully-tailored rules that would prevent specific practices we know are harmful to Internet openness—blocking, throttling, and paid prioritization—as well as a strong standard of conduct designed to prevent the deployment of new practices that would harm Internet openness”); *Preserving the Open Internet, Broadband Industry Practices*, 25 *FCC Rcd.* 17905, 17906, para. 1 (2010) (ordering that “[f]ixed broadband providers may not unreasonably discriminate in transmitting lawful network traffic”). In December 2017, the Trump Administration’s FCC voted to undo this order. See *Restoring Internet Freedom*, 33 *FCC Rcd.* 311, 318, para. 20 (2018). Numerous lawsuits—including one on behalf of twenty-three state attorneys general—are now challenging the legitimacy of the FCC’s repeal. See, e.g., *Petition for Review at 1–2*, *New York v. FCC*, No. 18-1055 (D.C. Cir. Feb. 22, 2018). A wealth of scholarship has discussed and debated the revival of common carriage in the form of network neutrality. See, e.g., Mark Lemley & Lawrence Lessig, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era*, 48 *UCLA L. Rev.* 925, 928–30 (2001) (advocating against government policies that reduce competition among internet service providers); Barbara van Schewick, *Toward an Economic Framework for Network Neutrality Regulation*, 5 *J. on Telecomm. & High Tech. L.* 329, 331–36 (2007) (analyzing the “potential for discriminatory behavior by network providers”); Kevin Werbach, *Only Connect*, 22 *Berkeley Tech. L.J.* 1233, 1270–72 (2007) (noting that, while network neutrality “followed a classic non-discrimination script” when it was first promoted, both sides of the contemporary network neutrality debate “fail to recognize the significance of interconnection”); Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 *J. on Telecomm. & High Tech. L.* 141, 150 (2003) [hereinafter Wu, *Network Neutrality*] (explaining “how a common carriage or anti-discrimination model might be better developed

requires networks to maintain an open interface, enabling users to switch between platforms with ease.¹⁷ These policies respond, respectively, to problems of discrimination and lock-in.

In digital markets, however, third parties that depend on a platform risk not just discrimination and lock-in but also appropriation. Because dominant platforms monitor with unrivaled precision the business activity of third parties while also competing with them, a platform can harvest insights gleaned from a producer at the producer's expense.

This Article argues that these combined problems of discrimination and information appropriation invite recovering common carriage's forgotten cousin: structural separations. Structural separations place clear limits on the lines of business in which a firm can engage. Rather than prohibit particular business practices, separations proscribe certain organizational structures. In antitrust, structural remedies are contrasted with behavioral ones: Whereas behavioral remedies seek to prevent firms from engaging in specific types of conduct, structural remedies seek to eliminate the incentives that would make that conduct possible or likely in the first place.¹⁸

Structural prohibitions have been a traditional element of American economic regulation. They have been applied as a standard regulatory tool and key antitrust remedy in network industries, often to prohibit a dominant intermediary from competing with the businesses that depend on it to get to market. While common carriage regimes prevent a firm from discriminating—requiring equal service on equal terms—structural prohibitions eliminate one source of the incentive to discriminate. In this way, common carriage and structural separations often functioned as complements in the service of nondiscrimination.

to address the current Internet environment”); Christopher S. Yoo, *Beyond Network Neutrality*, 19 *Harv. J.L. & Tech.* 1, 13–18 (2005) (arguing that proponents of network neutrality mistakenly focus on promoting competition among internet content providers, which are already competing vigorously, instead of among internet service providers, which are not currently very competitive).

17. See Philip J. Weiser, *Regulating Interoperability: Lessons from AT&T, Microsoft, and Beyond*, 76 *Antitrust L.J.* 271, 272–74 (2009) (using the AT&T and Microsoft cases to illuminate why interoperability is an important antitrust tool, and noting that “in network industries, cooperation is essential for rivals of dominant firms to have any chance of success in the marketplace”).

18. See Howard A. Shelanski & J. Gregory Sidak, *Antitrust Divestiture in Network Industries*, 68 *U. Chi. L. Rev.* 1, 15 (2001) (discussing the distinction between behavioral and structural remedies). It's worth noting that the structural-behavioral divide is not so clear-cut. See Eric Emch et al., *What Past U.S. Agency Actions Say About Complexity in Merger Remedies, with an Application to Generic Drug Divestitures 1* (Dusseldorf Inst. for Competition Econ., DICE Discussion Paper No. 270, 2017), <https://www.econstor.eu/bitstream/10419/169412/1/898962412.pdf> (on file with the *Columbia Law Review*) (“[T]he simple dichotomy of structural versus behavioral does not illuminate the greyer area into which most remedies containing both structural and behavioral elements, fall.”).

Today, structural separations have largely been abandoned.¹⁹ At the same time that lawmakers have significantly weakened or outright eliminated sector-specific regulatory regimes, judicial interpretation of antitrust law has drastically narrowed the forms of vertical conduct and structures that register as anticompetitive. And when antitrust enforcers *have* targeted these forms of conduct and structures in recent years, they've applied remedies that generally (1) fail to target the underlying source of the problem and (2) overwhelm the institutional capacities of the government actors assigned to oversee them.²⁰ Neglecting structural separations results in both substantive harms and institutional misalignments—effects that are especially pronounced in digital markets.

This Article seeks to give structural separations a seat back at the table. Its contribution is twofold. First, it demonstrates that both the risk and cost of information appropriation are heightened in digital markets, rendering conduct remedies especially ineffective and structural remedies critical.²¹ Dominant digital platforms passively capture highly precise and nuanced data on their business customers, information that they can exploit when competing against those same customers. These data are more valuable by virtue of being more sophisticated—and more likely to be exploited given their value. This risk of appropriation coupled with discrimination, moreover, is especially harmful in digital platform markets, given the important role platforms play as innovation catalysts. Even within a framework where only welfare-based harms justify regulatory interventions, the likely innovation harms stemming from platform appropriation and discrimination invite serious consideration of structural limits.

Second, this Article identifies the host of functional goals that motivated previous separations regimes, ranging from fair competition and system resiliency to media diversity and administrability.²² These concerns register in a normatively pluralistic framework: While some are cognizable in terms of welfare economics, others appeal to a broader set of democratic and institutionalist values. In the context of business and market structure, these distinct values sometimes align—such that a separation that promotes a robust marketplace of ideas also promotes dynamic efficiency—while in other instances they are in tension.

After identifying the tradition of structural separations and the diverse set of concerns that motivated them,²³ this Article explores whether integration by dominant tech platforms poses risks and challenges

19. See *infra* Part II.

20. See Spencer Weber Waller, *Access and Information Remedies in High-Tech Antitrust*, 8 J. Comp. L. & Econ. 575, 575–77 (2012) (“Finally, the more complex the remedy, the greater the need for sophisticated oversight and dispute resolution mechanisms that typically exceed the resources and strengths of the enforcement agencies.”).

21. See *infra* Part I.

22. See *infra* Part II.

23. See *infra* Parts III–IV.

analogous to those previously addressed through separations.²⁴ It closes by briefly sketching out relevant considerations for separating platforms and commerce and identifying likely challenges.²⁵

This Article is a project in diagnosis and intellectual recovery. It seeks to provide a general analytical framework for thinking through problems stemming from integration by dominant digital platforms and to identify principles through which Congress and agencies can issue policy prescriptions to remedy them. Its goal is to enrich our understanding of the tools and remedies through which lawmakers and regulators have previously addressed integration by dominant intermediaries—an effort in recovery necessitated by the abandonment of traditional regulatory interventions and partial collapse of antitrust. Several questions that this Article only partially engages—such as how to scope and design specific separations in digital markets—invite deeper study.

Several factors render this project especially timely. First, the central role dominant platforms play in structuring access to online commerce and communications is prompting both scholarly and policy discussions about whether these firms should be designated as forms of infrastructure or essential services, meriting regulatory interventions coupled with reinvigorated antitrust.²⁶ Second, after years of retreating from structural remedies in favor of behavioral ones, antitrust enforcers are confronting the difficulty of enforcing pure conduct remedies and asking whether greater reliance on structural interventions would better

24. See *infra* Part V.

25. See *infra* Part V. Although the question of how antitrust enforcers should assess vertical mergers is receiving renewed attention today, the focus of this Article is much narrower: namely, vertical expansion by digital platforms operating in markets characterized by network externalities. Because these markets can favor the emergence of a single dominant player, integration is more likely to raise concerns in network markets than in highly competitive ones. See, e.g., FTC, Commission File No. 181-0180, Statement of Commissioner Rebecca Kelly Slaughter: In the Matter of Sycamore Partners, Staples, and Essendant 2 (2019), https://www.ftc.gov/system/files/documents/public_statements/1448321/181_0180_staples_essendant_slaughter_statement.pdf [<https://perma.cc/98Y4-V5EA>] (“Vertical tie-ups are occurring across the economy, and they present an enforcement challenge that we must meet.”).

26. See, e.g., Ariel Ezrachi & Maurice E. Stucke, *Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy* 203 (2016) (noting that, while online markets create a “competitive veneer,” “complex webs of algorithms” give tech firms new anticompetitive strategies to “maximize the firms’ profits, while harming our welfare”); Maurice E. Stucke & Allen P. Grunes, *Big Data and Competition Policy* 215–16 (2016) (arguing that antitrust authorities should account for “data-driven network effects,” which can “increase entry barriers”); K. Sabeel Rahman, *The New Utilities: Private Power, Social Infrastructure, and the Revival of the Public Utility Concept*, 39 *Cardozo L. Rev.* 1621, 1626 (2018) [hereinafter Rahman, *New Utilities*] (identifying “principles for twenty-first century public utility regulation” and applying those principles “to the emergent debates over private power and infrastructure in the context of internet platforms”).

promote competition.²⁷ And third, a neo-Brandeisian movement²⁸ is refocusing attention on the structural underpinnings of the competitive process, critiquing the current welfare-based approach for both betraying the founding values of antitrust and failing on its own terms.²⁸

Part I of this Article documents how dominant digital platforms use their integrated structure to engage in both discrimination and information appropriation and reviews why this conduct likely undermines innovation. Part II traces the institutional and doctrinal shifts that account for the retreat from structural separations. Part III reviews five instances in which separations were implemented. Part IV identifies the set of harms that lawmakers, regulators, and enforcers sought to address through structural separations and the functional goals they aspired to promote. Part V examines whether integration by dominant platforms gives rise to analogous harms, briefly explores what a separations framework for digital intermediaries might look like, and identifies likely challenges and questions that remain unresolved. The Appendix engages the relevant economic literature to examine why platforms would act in ways that risk undermining their ecosystems.

I. INTEGRATION BY DOMINANT DIGITAL PLATFORMS

Dominant digital platforms serve as critical intermediaries of online commerce and communications. Reflecting on the vital role these firms now play, the Supreme Court has described Facebook, Google, and other

27. See Makan Delrahim, Assistant Att’y Gen., Antitrust Div., Dep’t of Justice, Keynote Address at American Bar Association’s Antitrust Fall Forum (Nov. 16, 2017), <https://www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-keynote-address-american-bar> [<https://perma.cc/X4H3-Q6KA>]; see also John E. Kwoka & Diana L. Moss, Behavioral Merger Remedies: Evaluation and Implications for Antitrust Enforcement, 57 Antitrust Bull. 979, 1008 (2012) (“Structural remedies have advantages in terms of clarity, cost, and certainty, and have withstood the test of experience.”).

28. See, e.g., K. Sabeel Rahman, Democracy Against Domination 2–3 (2017) (“Corporations, economic elites, and even market forces themselves all exercise a kind of unchecked power over others in the economy. The purpose of governance in this view is to curtail such forms of economic power, subjecting these seemingly powerful and diffuse economic forces to democratic oversight and control.”); Tim Wu, The Curse of Bigness: Antitrust in the New Gilded Age 9–11 (2018) (arguing that “[w]e have managed to recreate both the economics and politics of a century ago—the first Gilded Age—and remain in grave danger of repeating more of the signature errors of the twentieth century”); Lina Khan, The New Brandeis Movement: America’s Antimonopoly Debate, 9 J. Eur. Competition L. & Prac. 131, 131–32 (2018) (discussing the historical roots and modern goals of the neo-Brandeisian movement); David McLaughlin, Forget Consumer Welfare. This Antitrust Movement Targets Power, Bloomberg Businessweek (Jan. 17, 2018), <https://www.bloomberg.com/news/articles/2018-01-17/forget-consumer-welfare-this-antitrust-movement-targets-power-instead> (on file with the *Columbia Law Review*) (describing the movement’s goal as “not just to toughen enforcement by the federal government, but to return antitrust policy to its early 20th century roots to take on new corporate giants, particularly in the tech sector”).

online providers as serving as the “modern public square,”²⁹ while lawmakers have analogized Amazon to a nineteenth-century railroad.³⁰ Governments around the world have initiated studies and investigations examining the market power these firms enjoy.³¹ The dominant digital platforms differ in important ways: They have different business models, different value chains, and different primary markets. But one critical feature they share is the dual role they play in select markets: as both an operator of a dominant platform that hosts third-party merchants, content creators, or app developers, and as a market participant that competes with those same producers. This Part reviews some of the markets in which online platforms are integrated and the practices this integrated structure enables.

29. *Packingham v. North Carolina*, 137 S. Ct. 1730, 1737 (2017).

30. See Ramon Ramirez, Elizabeth Warren Champions Michelob Ultra, *Breaking Up Amazon* at SXSW, *Daily Dot* (Mar. 9, 2019), <https://www.dailydot.com/layer8/elizabeth-warren-john-kasich-sxsw/> [<https://perma.cc/LK66-MVZJ>] (describing Senator Elizabeth Warren’s speech at SXSW in which she likened Amazon and Facebook “to the railroads under Roosevelt: ‘The railroads were the place you had to be. . . . You had to get your wheat or your corn onto the railroads.’” (alteration in original) (quoting Sen. Elizabeth Warren)).

31. See, e.g., Australian Competition & Consumer Comm’n, *Digital Platform Inquiry: Preliminary Report 4–5* (2018), <https://www.accc.gov.au/system/files/ACCC%20Digital%20Platforms%20Inquiry%20-%20Preliminary%20Report.pdf> [<https://perma.cc/F57Z-HG5S>] (providing an overview of the “substantial market power” that Facebook and Google have in the Australian social media and online search markets, respectively); Autorité de la Concurrence & Bundeskartellamt, *Competition Law and Data 11–16* (2016), <http://www.autoritedelaconcurrence.fr/doc/reportcompetitionlawanddatafinal.pdf> [<https://perma.cc/8KJG-RFTG>] (“[T]he greater information resulting from expanded data collection, especially about competitors’ pricing, may also be used by undertakings in ways that could limit competition.”); Autorité de la Concurrence, *Opinion No. 18-A-03 of 6 March 2018 on Data Processing in the Online Advertising Sector 2–10* (2018), http://www.autoritedelaconcurrence.fr/doc/avis18a03_en_.pdf [<https://perma.cc/DVA5-FZ32>] [hereinafter *Data Processing in Online Advertising*] (concluding that profits from growth in online advertising have mainly gone to just a handful of large firms and “those that are reaping the most rewards are companies that have access to vast sets of high-quality personal data”); Digital Competition Expert Panel, *Unlocking Digital Competition 8–16* (2019), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf [<https://perma.cc/S8PP-H5TY>] (providing twenty policy recommendations for how digital markets can be made more competitive); Digital, Culture, Media & Sport Comm., *House of Commons, Disinformation and ‘Fake News’: Final Report 36* (2019), <https://publications.parliament.uk/pa/cm201719/cmselect/cmcumeds/1791/1791.pdf> [<https://perma.cc/9K7H-CZMB>] (discussing how Facebook acquired immense amount of app-usage data from its customers and utilized this information to acquire companies that appeared profitable “or shut down those they judged to be a threat”); Select Comm. on Commc’ns, *House of Lords, Regulating in a Digital World 45* (2019), <https://publications.parliament.uk/pa/ld201719/ldselect/ldcomuni/299/299.pdf> [<https://perma.cc/YZP5-NP9W>] (“Online communications platforms act as gatekeepers for the internet, controlling what users can access and how they behave. They can be compared to utilities in the sense that users feel they cannot do without them and so have limited choice but to accept their terms of service.”).

A. Amazon

Amazon provides a host of different services. It is the dominant online marketplace, the world's largest cloud computing service, a massive shipping and logistics network, a media producer and distributor, a grocer, a small-business lender, a live video-gaming streaming platform, a digital home assistant, a designer of apparel, and an online pharmacy.³² Two areas where it both serves as a bottleneck facility and competes with those reliant on its bottleneck include online retail and digital home-assistant systems.

1. *Marketplace/AmazonBasics*. — In Amazon's early days, it operated primarily as an online retailer: It would procure goods at wholesale prices from suppliers and then sell them at retail prices to consumers. In 1999 it introduced Auctions, an online auctions service, and zShops, a fixed-price marketplace business—services that would evolve into the Amazon Marketplace, an open platform on which other merchants could list their products to sell directly to consumers.³³ Unlike selling wholesale to Amazon, selling through the Marketplace permitted suppliers to maintain control over retail pricing and shipping.³⁴ Inviting producers to sell through Amazon Marketplace significantly expanded the catalogue of goods available on Amazon's platform, while freeing Amazon of the risk of purchasing inventory.³⁵

This dramatic expansion in product selection has helped Amazon become the dominant online marketplace in the United States. The platform is estimated to capture 52.4% of all U.S. online retail spending³⁶

32. For a full list of the lines of business in which Amazon operates, see Paris Martineau & Louise Matsakis, *Why It's Hard to Escape Amazon's Long Reach*, *Wired* (Dec. 23, 2018), <https://www.wired.com/story/why-hard-escape-amazons-long-reach/> [<https://perma.cc/HBH7-ZBCY>].

33. Feng Zhu & Qihong Liu, *Competing with Complementors: An Empirical Look at Amazon.com*, 39 *Strategic Mgmt. J.* 2618, 2623–24 (2018); see also Lydia DePillis & Ivory Sherman, *Amazon's Extraordinary Evolution: A Timeline*, *CNN* (Oct. 4, 2018), <https://www.cnn.com/interactive/2018/10/business/amazon-history-timeline/index.html> [<https://perma.cc/63P8-QBW8>].

34. For a rundown of the tradeoffs between selling to Amazon as a vendor and selling on Amazon as a merchant, see Mary Weinstein, *How to Sell on Amazon in 2019: A Complete Guide*, *CPC Strategy* (Aug. 21, 2018), <https://www.cpcstrategy.com/blog/2018/08/sell-on-amazon/> [<https://perma.cc/2GKP-GNCX>] (observing that the benefits of selling on Amazon include maintaining control over one's brand and pricing and receiving payments more quickly).

35. See Amazon, *2000 Amazon.com Annual Report 2 (2000)*, <https://ir.aboutamazon.com/static-files/49b9a96d-f5ce-4695-a9a1-70eb8ffd3b87> [<https://perma.cc/S6HV-BVW6>].

36. Spencer Soper, *Amazon Suppliers Panic Amid Purge Aimed at Boosting Profits*, *Bloomberg* (Mar. 7, 2019), <https://www.bloomberg.com/news/articles/2019-03-07/amazon-purges-suppliers-in-push-to-boost-e-commerce-profits?> (on file with the *Columbia Law Review*) [hereinafter Soper, *Amazon Suppliers Panic*].

and 56.1% of the segment's traffic,³⁷ while 54% of all product searches originate on Amazon.³⁸ Amazon's share of ecommerce is more than double the market share of its next nine competitors combined,³⁹ and even merchants who list products on other sites can come to rely upon Amazon for up to 90% of their sales.⁴⁰ For many merchants, "Not being on Amazon doesn't feel like an option."⁴¹

37. Leading Online Marketplace Websites in the United States as of 4th Quarter 2018, Based on Share of Visits, Statista, <https://www.statista.com/statistics/270884/most-visited-websites-in-the-retail-sector-in-the-us/> [<https://perma.cc/GR62-2U2P>] (last visited Mar. 11, 2019); Ingrid Lunden, Amazon's Share of the US E-Commerce Market Is Now 49%, or 5% of All Retail Spend, TechCrunch (July 13, 2018), <https://techcrunch.com/2018/07/13/amazons-share-of-the-us-e-commerce-market-is-now-49-or-5-of-all-retail-spend/> [<https://perma.cc/AAZ7-A97Q>] [hereinafter Lunden, Amazon's Share of the US E-Commerce Market].

38. Krista Garcia, More Product Searches Start on Amazon, eMarketer (Sept. 7, 2018), <https://www.emarketer.com/content/more-product-searches-start-on-amazon> [<https://perma.cc/C5DP-U8LJ>].

39. Its closest competitor, eBay, enjoys 6.6% of the ecommerce market, followed by Apple (3.9%) and Walmart (3.7%). Lunden, Amazon's Share of the US E-Commerce Market, *supra* note 37; see also Jeff Desjardins, Chart: Amazon's Dominance in Ecommerce, Visual Capitalist (Aug. 17, 2018), <https://www.visualcapitalist.com/chart-shows-amazons-dominance-ecommerce/> [<https://perma.cc/6B3S-4SMK>]. For the purposes of antitrust analysis, the relevant product market is likely to be much narrower than "online retail."

40. Spencer Soper, Bezos Disputes Amazon's Market Power. But His Merchants Feel the Pinch, Bloomberg (Apr. 17, 2019), <https://www.bloomberg.com/news/articles/2019-04-17/is-amazon-too-powerful-its-merchants-are-starting-to-wonder> (on file with the *Columbia Law Review*) [hereinafter Soper, Bezos Disputes].

41. Josh Dzieza, Prime and Punishment: Dirty Dealing in the \$175 Billion Amazon Marketplace, Verge (Dec. 19, 2018), <https://www.theverge.com/2018/12/19/18140799/amazon-marketplace-scams-seller-court-appeal-reinstatement> [<https://perma.cc/SW7Q-LGD2>] (internal quotation marks omitted) (quoting Zac Plansky, an Amazon merchant); see also Bensinger, *supra* note 9; Angus Loten & Adam Janofsky, Sellers Need Amazon, but at What Cost?, Wall St. J. (Jan. 14, 2015), <http://www.wsj.com/articles/sellers-need-amazon-but-at-what-cost-1421278220> (on file with the *Columbia Law Review*) ("If you say no to Amazon, you're closing the door on tons of sales[.]' . . . 'You can't really be a high-volume seller online without being on Amazon, but sellers are very aware of the fact that Amazon is also their primary competitor.'" (quoting two Amazon merchants)); Stacy Mitchell, Amazon Doesn't Just Want to Dominate the Market—It Wants to Become the Market, Nation (Feb. 15, 2018), <https://www.thenation.com/article/amazon-doesnt-just-want-to-dominate-the-market-it-wants-to-become-the-market/> [<https://perma.cc/GV4R-475U>] ("If the customer is on Amazon, as a small business you have to say, 'That is where I have to go[.]' . . . Otherwise, we are going to close our doors.'" (quoting an Amazon merchant)); Lara O'Reilly & Laura Stevens, Amazon, With Little Fanfare, Emerges as an Advertising Giant, Wall St. J. (Nov. 27, 2018), <https://www.wsj.com/articles/amazon-with-little-fanfare-emerges-as-an-advertising-giant-1543248561> (on file with the *Columbia Law Review*) ("They get all the prime real estate. It's unfair," Mr. Boyce says, but "we have to be on Amazon."). It is worth noting that, with Amazon's expansion into government procurement, even those merchants that traditionally sold directly to government agencies are being compelled onto Amazon's platform. See Olivia LaVecchia & Stacy Mitchell, Inst. for Local Self-Reliance, Amazon's Next Frontier: Your City's Purchasing 5 (2018), <https://ilsr.org/wp-content/uploads/2018/>

Marketplace sales are a lucrative and booming part of Amazon's overall business. Amazon charges merchants either a \$39.99 monthly subscription fee or a 99¢ per-item flat fee, depending on the plan, as well as a percentage of each transaction.⁴² Analysts estimate that 52% of unit-goods⁴³ and 68% of total Amazon sales derived from Marketplace merchants in 2018.⁴⁴ The service fees Amazon charges third-party sellers generated \$42.75 billion in 2018,⁴⁵ comprising around 18% of the company's net sales and its second-largest revenue segment.⁴⁶ Revenue from seller commissions is outpacing Amazon's overall online sales.⁴⁷

In addition to serving as a major marketplace for third-party sellers, Amazon now also sells Amazon-branded goods on its platform. It first began offering private labels in 2009, primarily selling commodity goods such as batteries and HDMI cables.⁴⁸ In the decade since, its private-label business has expanded to include toys, shoes, apparel, jewelry, coffee, baby wipes, furniture, mattresses, vitamins, towels, and pet food, among other products.⁴⁹ Amazon has around 137 private-label brands—with just one of these brands accounting for over 1,500 distinct products.⁵⁰

07/ILSR_AmazonsNextFrontier_Final.pdf [https://perma.cc/S9H9-36WA] (“As Amazon sells the contract, it's told public officials that they can still shop with their local businesses but just do so through Amazon's platform.”).

42. These sale percentage fees range from 3% to 45%, depending on the product category. See Selling on Amazon Fee Schedule, Amazon Seller Cent., https://sellercentral.amazon.com/gp/help/external/200336920/ref=asus_soa_p_fees?ld=NSGoogle [https://perma.cc/NU92-SJBQ] (last visited Mar. 25, 2019).

43. Eugene Kim, Amazon Added a First-Ever Warning About Counterfeit Products to Its Earnings Report, CNBC (Feb. 4, 2019), <https://www.cnbc.com/2019/02/04/amazon-10k-warns-investors-about-counterfeit-problem-for-first-time.html> [https://perma.cc/942C-V5G8]; Percentage of Paid Units Sold by Third-Party Sellers on Amazon Platform as of 4th Quarter 2018, Statista, <https://www.statista.com/statistics/259782/third-party-seller-share-of-amazon-platform/> [https://perma.cc/SV74-6EY4] [hereinafter Statista, Third-Party Sellers] (last visited Mar. 11, 2019).

44. Juozas Kaziukenas, Amazon Marketplace Is the Largest Online Retailer, Marketplace Pulse (Dec. 3, 2018), <https://www.marketplacepulse.com/articles/amazon-marketplace-is-the-largest-online-retailer> [https://perma.cc/Y6W5-38BT].

45. Statista, Third-Party Sellers, *supra* note 43.

46. *Id.*; see also Amazon.com, Inc., Annual Report (Form 10-K) 17 (Jan. 31, 2019) [hereinafter 2018 Amazon 10-K], <https://www.sec.gov/Archives/edgar/data/1018724/000101872419000004/amzn-20181231x10k.htm> [https://perma.cc/6UU4-WZMQ] (reporting that Amazon earned \$232.89 billion in net sales in 2018).

47. Dzieza, *supra* note 41.

48. Kim, Amazon Is Doubling Down, *supra* note 9.

49. To see a continually updated database of Amazon's private labels, see TJI Amazon Brand Database, TJI Amazon Research, <https://this.just.in/amazon-brand-database/> [https://perma.cc/SD2Y-8EKA] (last updated Mar. 11, 2019).

50. *Id.* As the database authors note, Amazon does not clearly delineate its private label brands or Amazon exclusive brands, leaving researchers to identify Amazon brands through trademark filings. *Id.* On its website, Amazon describes both private label and exclusive brands as “Our Brands.” To give a sense of how many products may be sold under Amazon's own brand, in 2017 just *one* of these brands—AmazonBasics—covered

Analysts estimate that Amazon's private-label sales amounted to \$7.5 billion in 2018 and will reach \$25 billion by 2022.⁵¹

Amazon exploits this dual role—marketplace operator and marketplace merchant—in two ways: first, by implementing Marketplace policies that privilege Amazon as a seller and give it greater control over brands and pricing, and, second, by appropriating the business information of third-party merchants. One way that Amazon has favored Amazon goods and services is by presenting itself as the default seller even when Marketplace vendors have offered lower prices. A *ProPublica* investigation discovered that Amazon engineers its ranking algorithm to favor its own products as well as those sold by merchants that buy Amazon's fulfillment services.⁵² Since an estimated 82% of Amazon sales go to the top listing—namely, whoever wins the Amazon “Buy Box”—this self-preferential treatment is an “oft-decisive advantage.”⁵³ Amazon also appears to have privileged Amazon goods in promotional placements. According to *The Capitol Forum*, Amazon prioritizes its own clothing brands in its space for sponsored placements and appears to restrict competitors' access to this placement, directing consumers toward its

1,506 distinct products for sale. Mike Murphy, AmazonBasics Is Moving Well Beyond the Basics, *Quartz* (Dec. 14, 2017), <https://qz.com/1155843/amazonbasics-is-moving-well-beyond-the-basics/> [<https://perma.cc/VWW6-YRP7>]. Amazon-exclusive brands—which are owned by third parties but sold exclusively on Amazon—number over 400. TJI Amazon Brand Database, *supra* note 49. Through its “Accelerator Program,” Amazon recruits manufacturers to produce made-for-Amazon products. Eugene Kim, Amazon Quietly Launched a New ‘Accelerator’ Program to Create More Exclusive Brands for Its Website, *CNBC* (Oct. 4, 2018), <https://www.cnbc.com/2018/10/04/amazon-quietly-launched-a-new-accelerator-program-to-create-more-brands-exclusively-sold-on-its-website.html> [<https://perma.cc/6RQM-QJH>]. Companies that join are granted access to marketing support and superior performance information. *Id.* Analysts say the program enables Amazon to “generate better profit margins,” “control the supply chain for sourcing inventory,” and “put more pressure on bigger brands to reduce their prices on Amazon to stay competitive.” *Id.*

51. Eugene Kim, Amazon Has Been Promoting Its Own Products at the Bottom of Competitors' Listings, *CNBC* (Oct. 2, 2018), <https://www.cnbc.com/2018/10/02/amazon-testing-a-new-feature-that-promotes-its-private-label-brands-inside-a-competitors-product-listing.html> [<https://perma.cc/S53B-YEAM>] (citing investment research by Robinson Humphrey, which noted that “[p]rivate label is one of the highly under-appreciated trends within Amazon, in our view, which over time should give the company a strong ‘unfair’ competitive advantage”).

52. See Julia Angwin & Surya Mattu, Amazon Says It Puts Customers First. But Its Pricing Algorithm Doesn't, *ProPublica* (Sept. 20, 2016), <https://www.propublica.org/article/amazon-says-it-puts-customers-first-but-its-pricing-algorithm-doesnt> [<https://perma.cc/8DVN-CTDT>] (“[Amazon] appears to be using its market power and proprietary algorithm to advantage itself at the expense of sellers and many customers.”); see also Zhu & Liu, *supra* note 33, at 2637 (“We observe across many instances of entry that Amazon may present itself as the default seller even when the same product is offered at lower cost (i.e., product price plus shipping cost), with a comparable shipping speed by third-party sellers with high ratings.”). By omitting shipping costs for these Amazon-affiliated products, Amazon gives these items top placement in search results. Angwin & Mattu, *supra*.

53. *Id.*

own products over those sold by rivals.⁵⁴ Even when a customer goes on a Marketplace merchant's product page, Amazon will show prominent ads and pop-ups directing customers to Amazon's own products instead.⁵⁵

A second way Amazon has favored itself as a seller is through implementing Marketplace policies that enable it to become the exclusive merchant of certain products. According to news reports, Amazon encourages brands to sell directly to Amazon in exchange for Amazon's commitment to enforce the brand's minimum advertised prices (MAP) on Amazon.⁵⁶ Enforcing this policy, Amazon expels any third parties selling lower than the MAP, sometimes leaving Amazon as the only remaining seller.⁵⁷ Last November, Amazon also signed a deal to become an authorized reseller of Apple's devices—an agreement that prompted Amazon to delist any Apple products sold by Marketplace merchants who are not authorized Apple resellers.⁵⁸ Since one of the requirements for becoming an authorized Apple reseller includes purchasing a certain minimum amount of product directly from Apple,

54. Amazon: By Prioritizing Its Own Fashion Label Brands in Product Placement on Its Increasingly Dominant Platform, Amazon Risks Antitrust Enforcement by a Trump Administration, *The Capitol Forum* (Dec. 13, 2016), <https://thecapitolforum.com/wp-content/uploads/2016/07/Amazon-2016.12.13.pdf> (on file with the *Columbia Law Review*) [hereinafter *The Capitol Forum, Amazon Prioritizing*]; see also Creswell, *supra* note 9 (discussing how Amazon uses its data advantage “to steer shoppers toward its in-house brands and away from its competitors”). More recent analysis by L2 found that, while Amazon is investing significantly in advertising its brands on Amazon, it owns approximately 15% of the sponsored placement for certain clothing-related keywords. See Cooper Smith, *Amazon's Private Label Fever*, L2 Inc (Apr. 3, 2018), <https://www.l2inc.com/daily-insights/amazons-private-label-fever> [<https://perma.cc/WGK2-GXL8>] (noting that Amazon Essentials owns 16% of the sponsored placements for keywords related to dress shirts and 13% for polo shirts).

55. O'Reilly & Stevens, *supra* note 41.

56. Amazon Ousted Marketplace Sellers in Order to Be Only Seller of Certain Products; A Closer Look at Monopolization Enforcement, *The Capitol Forum* (Jan. 23, 2018) (on file with the *Columbia Law Review*) [hereinafter *The Capitol Forum, Ousted Marketplace Sellers*].

57. *Id.* While Amazon enforces MAP agreements that it has entered into with brands, it also overrides pricing decisions by third-party merchants in ways that could place them in violation of merchant's MAP agreements. Laura Stevens, *Amazon Snips Prices on Other Sellers' Items Ahead of Holiday Onslaught*, *Wall St. J.* (Nov. 5, 2017), <https://www.wsj.com/articles/amazon-snips-prices-on-other-sellers-items-ahead-of-holiday-onslaught-1509883201> (on file with the *Columbia Law Review*) (reporting that Amazon lowers prices on products offered by independent merchants, which “could inadvertently violate a merchant's agreement with a brand to keep its products at or above a set minimum advertised price”). In one instance, Amazon used this strategy to become the only merchant on Amazon to sell a particular type of replacement water filter. Prior to Amazon's initiation of the MAP, up to thirty sellers competed in the market for this replacement water filter. Since becoming the sole merchant of these filters on Amazon, the company has steadily raised prices. *The Capitol Forum, Ousted Marketplace Sellers*, *supra* note 56.

58. Ben Fox Rubin, *How Amazon's Deal with Apple Puts the Hurt on Small Sellers*, *CNET* (Nov. 19, 2018), <https://www.cnet.com/news/how-amazons-deal-with-apple-puts-the-hurt-on-small-sellers/> (on file with the *Columbia Law Review*).

most independent merchants will no longer be able to sell Apple products on Amazon.⁵⁹

Another policy change Amazon has instituted is requiring certain brands on Marketplace to instead sell wholesale to Amazon—granting Amazon the ability to set the retail price and maintain exclusive access to certain sales and customer data.⁶⁰

In theory, efforts by Amazon to enter exclusive or semiexclusive agreements with brands could be understood as an effort by Amazon to combat counterfeits, which proliferate on Amazon.⁶¹ But in practice, Amazon also seems to use its ability to decide whether or not to police counterfeits as leverage against brands who might otherwise refrain from selling on Amazon.⁶² Nike, for example, for years refused to list its

59. Sam Medley, Amazon Will Prevent Unauthorized Third-Parties from Selling Apple Products Through Its Online Store, Notebook Check (Nov. 11, 2018), <https://www.notebookcheck.net/Amazon-will-prevent-unauthorized-third-parties-from-selling-Apple-products-through-its-online-store.359521.0.html> [<https://perma.cc/2PTQ-LPRQ>].

60. See Jason Del Rey, An Amazon Revolt Could Be Brewing as the Tech Giant Exerts More Control over Brands, Recode (Nov. 29, 2018), <https://www.recode.net/2018/11/29/18023132/amazon-brand-policy-changes-marketplace-control-one-vendor> [<https://perma.cc/9EJ8-ZW9A>] (“Over the past few months, Amazon has applied intense pressure to consumer brands across different product categories—seizing more control over what, where and how they can sell their goods on the so-called everything store, these people say.”). By assuming control over pricing, Amazon can use brands’ products to experiment and determine the optimal price—information it can use when rolling out its own private label version.

For some sellers, however, Amazon’s policy change has gone in the other direction. In March, Amazon abruptly informed thousands of vendors that it would no longer place orders for their items. Some were explicitly told that in order to keep selling on Amazon, they would need to establish merchant accounts and sell on the Marketplace instead. Id. Jason Del Rey, Amazon Ousted Thousands of Merchants with No Notice—Showing the Danger of Relying on the Shopping Platform, Recode (Mar. 8, 2019), <https://www.recode.net/2019/3/8/18252606/amazon-vendors-no-orders-marketplace-counterfeits> [<https://perma.cc/664D-G4DW>]; see also Soper, Amazon Suppliers Panic, *supra* note 36 (“‘If you’re heavily reliant on Amazon, which a lot of these vendors are, you’re in a lot of trouble,’ said Dan Brownsner, Chief Executive Officer of Channel Key, a Las Vegas e-commerce consulting business . . . ‘If this goes on, it can put people out of business.’”).

61. One advocacy group that identifies fake goods has identified around 58,000 counterfeits on Amazon. Edgar Alvarez, Amazon Needs to Get a Handle on Its Counterfeit Problem, EndGadget (May 31, 2018), <https://www.engadget.com/2018/05/31/fulfilled-by-amazon-counterfeit-fake/> [<https://perma.cc/2EN6-JE7H>]. Apple is among the companies that have sued third-party Amazon sellers for selling counterfeit products, and Apple has also criticized Amazon for hosting those products. See Gregg Keizer, Apple Sues Amazon Supplier over Fake iPhone Chargers, Computerworld (Oct. 20, 2016), <https://www.computerworld.com/article/3133627/apple-sues-amazon-supplier-over-fake-iphone-chargers.html> [<https://perma.cc/PD6N-V5G5>].

62. See Laura Stevens & Sara Germano, Nike Thought It Didn’t Need Amazon. Then the Ground Shifted, Wall St. J. (June 28, 2017), <https://www.wsj.com/articles/how-nike-resisted-amazons-dominance-for-years-and-finally-capitulated-1498662435> (on file with the *Columbia Law Review*) (“Nike agreed to start selling some products directly to Amazon in exchange for stricter policing of counterfeits and restrictions on unsanctioned

products on Amazon. Faced with a situation where merchants were selling both authentic and fake Nike goods on Marketplace anyway, Nike ultimately signed an agreement to sell wholesale to Amazon in exchange for stricter policing of counterfeits.⁶³ An executive from Birkenstock—which stopped supplying products to Amazon in 2017—stated that the only way a brand or supplier can get Amazon to fully commit to policing counterfeits is to sell its entire catalogue to Amazon.⁶⁴ Even as Amazon professes a “zero tolerance” policy for counterfeit products,⁶⁵ reports suggest that not only has the company “resisted calls to do more to police its site,” but that it has “thrived” from this practice, given the additional leverage that counterfeiters give Amazon over brands and merchants.⁶⁶ Indeed, sellers confronting any host of difficulties on Amazon’s site—ranging from abrupt account suspensions to sabotage campaigns by rivals—soon learn that “the solution is often to more fully meld with Amazon” in ways that provide Amazon with more revenue, more control, or greater access to a merchant’s sensitive business information.⁶⁷ Earlier

sales . . .”); see also David Pierson, *Extra Inventory. More Sales. Lower Prices. How Counterfeits Benefit Amazon*, L.A. Times (Sept. 28, 2018), <https://www.latimes.com/business/technology/la-fi-tn-amazon-counterfeits-20180928-story.html> [<https://perma.cc/5ETX-UNFJ>] (“Not only has the platform avoided any serious backlash for allowing the sale of fake goods, it’s actually thrived from it, say more than two dozen brand owners, e-commerce consultants, attorneys, investigators and public policy experts.”).

63. Stevens & Germano, *supra* note 62.

64. Ari Levy, *Birkenstock Quits Amazon in US After Counterfeits Surge*, CNBC (July 20, 2016), <https://www.cnbc.com/2016/07/20/birkenstock-quits-amazon-in-us-after-counterfeit-surge.html> [<https://perma.cc/TZ7H-QBFA>] (“The only way to get Amazon’s support in creating a clean environment, according to [Birkenstock CEO David] Kahan, is by selling the entire catalog to Amazon. . . . Plenty of brands have opted to team up with Amazon and hand over full collections instead of engaging in a never-ending fight.”).

65. Amazon’s Anti-Counterfeiting Policy states: “Products offered for sale on Amazon must be authentic. The sale of counterfeit products is strictly prohibited. Failure to abide by this policy may result in loss of selling privileges, funds being withheld, and destruction of inventory in our possession.” Amazon Anti-Counterfeiting Policy, Amazon Seller Cent., <https://sellercentral.amazon.com/gp/help/external/201165970> [<https://perma.cc/F36B-X4SV>] (last visited Mar. 13, 2019). In 2018, Amazon listed counterfeits as a “risk factor” in its 10-K. See 2018 Amazon 10-K, *supra* note 46, at 14.

66. Pierson, *supra* note 62. Sellers note that Amazon’s decision to “openly court Chinese manufacturers, weaving them intimately into the company’s expansive logistics operation” has made the counterfeiting problem worse. Sales by China-based merchants on Amazon more than doubled in 2015. Ari Levy, *Amazon’s Chinese Counterfeit Problem Is Getting Worse*, CNBC (July 8, 2016), <https://www.cnbc.com/2016/07/08/amazons-chinese-counterfeit-problem-is-getting-worse.html> [<https://perma.cc/2V2Q-JNRK>]. Lawsuits by Daimler and Williams-Sonoma have alleged that even products sold directly by Amazon are infringing upon intellectual property. Complaint for Damages and Injunctive Relief at 6–16, *Williams-Sonoma, Inc. v. Amazon.com, Inc.*, No. 18-cv-07548 (N.D. Cal. filed Dec. 14, 2018) (accusing Amazon of improperly displaying the “Williams-Sonoma” trademark on its website and of violating a patent owned by Williams-Sonoma); Complaint for Trademark Infringement at 11–16, *Daimler AG vs. Amazon.com, Inc.*, No. 17-cv-7674 (C.D. Cal. filed Oct. 20, 2017) (alleging that Amazon had infringed on Daimler trademarks by selling wheel center caps with the Mercedes-Benz logo).

67. Dzieza, *supra* note 41.

this year, Amazon announced that sellers looking to fight counterfeiters and manage other problems on its platform could purchase a new service from Amazon for \$30,000 to \$60,000 a year.⁶⁸ The rapid growth of Amazon's digital ad business suggests brands may increasingly need to buy advertising in order to attract more customer clicks.⁶⁹

Separate from policies that explicitly or implicitly require merchants and vendors to buy additional Amazon services, sellers worry about subtler forms of discrimination. There are numerous means by which Amazon can disfavor any particular merchant: It can suspend or shut down accounts overnight, withhold merchant funds, change page displays, and throttle or block favorable reviews.⁷⁰

In addition to implementing Marketplace policies that favor Amazon's direct sales, Amazon appropriates Marketplace merchants' data to shape its own retail strategy. By virtue of hosting a digital marketplace, Amazon's ability to collect and analyze ecommerce data is unrivaled. While even large brick-and-mortar stores can track consumer purchase histories and brand sales, the information Amazon harvests is far more sophisticated and precise.⁷¹ In addition to tracking overall trends, it captures which goods a customer clicked on but did not buy, the exact price change that induced a customer to peruse an item or purchase it, how long a user hovers her mouse over a particular good, how customers are reacting to product images and videos, and a wealth of other microdetails that add up to a formidable—and constantly

68. Eugene Kim, *Amazon Is Inviting Sellers to Private Meetings at CES to Promote a Premium Support Service that Costs Up to \$60,000 a Year*, CNBC (Jan. 9, 2019), <https://www.cnbc.com/2019/01/09/amazon-holds-ces-meetings-with-marketplace-sellers-promoting-support.html> [<https://perma.cc/S78N-X27R>].

69. See O'Reilly & Stevens, *supra* note 41 ("Amazon's ad business now contributes to gross profit and is expected to generate more income than its cloud business—which currently provides the bulk of its profits—as soon as 2021 . . ."). Some Marketplace merchants respond to direct competition with Amazon on Amazon by purchasing hundreds of thousands of dollars of advertisements every year. See Soper, *Bezos Disputes*, *supra* note 40 ("Jason Boyce, having navigated Planet Amazon for 15 years, is selling his business and has started a consulting firm helping other merchants. . . . [H]e says the money he was forced to spend to advertise his products reduced his profits by several hundred thousand dollars a year.").

70. See Andrew Buck, *Is Amazon Deleting or Blocking Your Reviews?*, LandingCube (Jan. 4, 2019), <https://landingcube.com/amazon-deleting-reviews/> [<https://perma.cc/Y4SJ-WN4V>]; Dzieza, *supra* note 41 ("For sellers, Amazon is a quasi-state. They rely on its infrastructure—its warehouses, shipping network, financial systems, and portal to millions of customers—and pay taxes in the form of fees. They also live in terror of its rules, which often change and are harshly enforced.").

71. See Allie Gray Freeland, *Inside Amazon's Approach to Data and People-Based Marketing*, LiveIntent (Apr. 24, 2018), <https://blog.liveintent.com/amazon-data-people-based-marketing/> [<https://perma.cc/2BAU-XDF2>] (describing "Amazon's peerless data bank of search and online purchasing behavior, mined from its hundreds of millions of customers").

evolving—arsenal of market intelligence.⁷² It is as if a shopping mall tracked not only all the foot traffic into a store, but also which items caught a customer’s glance, which products made it into the shopping cart but were never purchased, as well as complete transaction and revenue data and all customer reviews. All of this information is gathered not just on products Amazon sells but also on third-party merchants,⁷³ giving Amazon an unprecedented vantage point over 50% of ecommerce in the United States.⁷⁴

Reports suggest Amazon uses this trove of Marketplace data to inform both its retail business and its private labels. In some cases, Amazon has responded to popular items introduced by third-party merchants by sourcing those same products directly from the manufacturer and demoting the third-party merchants in search results.⁷⁵ One study found that in the case of women’s clothing, Amazon “began selling 25 percent of the top items first sold through marketplace vendors.”⁷⁶ Its private label, meanwhile, has also closely tracked successful Marketplace items. While AmazonBasics—Amazon’s private-label brand—initially focused on generic goods like batteries and blank DVDs, it has since expanded into a much broader array of products.⁷⁷ For a few years “the house brand ‘slept quietly as it retained data about other sellers’ successes.”⁷⁸ As Amazon now rolls out more AmazonBasics products, it is clear that the company has used “insights gleaned from its vast Web store to build a private-label juggernaut that now includes more than 3,000 products.”⁷⁹

72. See *id.* It can identify whether a customer lands on Amazon after visiting a rival website and can track customer behavior through email—whether a customer viewed, clicked, forwarded, or bought an item in a marketing email, or whether she preferred a similar product within that email. *Id.*

73. See George Anderson, *Is Amazon Undercutting Third-Party Sellers Using Their Own Data?*, *Forbes* (Oct. 30, 2014), <http://www.forbes.com/sites/retailwire/2014/10/30/is-amazon-undercutting-third-party-sellers-using-their-own-data> [<https://perma.cc/KK5Q-V78R>].

74. See *supra* notes 36–41 and accompanying text.

75. See Bensinger, *supra* note 9 (“[S]ome sellers say they suspect Amazon uses sales data from outside merchants to make purchasing decisions in order to undercut them on price and give items featured placement under a given search . . .”). For a specific example, take the case of Pillow Pets, “stuffed-animal pillows modeled after NFL mascots” that a third-party merchant sold through Amazon’s site. *Id.* For several months, the merchant sold up to one hundred pillows per day. *Id.* According to one account, “just ahead of the holiday season . . . , [the merchant] noticed Amazon had itself begun offering the same Pillow Pets for the same price while giving [its own] products featured placement on the site.” *Id.* The merchant’s own sales dropped to twenty per day. *Id.*

76. Anderson, *supra* note 73.

77. Spencer Soper, *Got a Hot Seller on Amazon? Prepare for E-Tailer to Make One Too*, *Bloomberg* (Apr. 20, 2016), <https://www.bloomberg.com/news/articles/2016-04-20/got-a-hot-seller-on-amazon-prepare-for-e-tailer-to-make-one-too> (on file with the *Columbia Law Review*).

78. *Id.* (quoting a report provided exclusively to Bloomberg News).

79. *Id.*

Initial empirical work suggests that Amazon's entry into competition with third-party merchants does not affect product price or customer satisfaction but does dissuade third-party sellers from continuing to offer the product.⁸⁰ Merchants, especially small ones, "are discouraged from growing their business on the platform."⁸¹

2. *Alexa/Alexa Devices/Alexa Skills*. — Another area in which Amazon both serves as a primary platform and competes with platform services is the voice computing market. Amazon jump-started the voice assistant market in 2015 when it publicly rolled out the Echo, its smart speaker, embedded with Alexa, the artificial intelligence software that serves as a voice assistant.⁸² An early mover in this market, Amazon remains dominant.⁸³

The applications that power Alexa—that enable it to perform particular tasks—are called "skills."⁸⁴ Skills execute various requests: They can dim your kitchen lights, offer recipe ideas, and provide allergy forecasts with precise pollen counts.⁸⁵ Skills are created by third-party developers, who have built over 80,000 skills for Alexa.⁸⁶ Meanwhile, a host of manufacturers have produced Alexa-compatible devices or appliances.⁸⁷

80. Zhu & Liu, *supra* note 33, at 2634.

81. *Id.*

82. See Farhad Manjoo, *The Echo from Amazon Brims with Groundbreaking Promise*, N.Y. Times (Mar. 9, 2016), <https://www.nytimes.com/2016/03/10/technology/the-echo-from-amazon-brims-with-groundbreaking-promise.html> (on file with the *Columbia Law Review*).

83. The Echo captured close to 67% of the smart speaker market in 2018, Ingrid Lunden, *eMarketer: Amazon Took 2/3 of Smart Speaker Sales in 2018, but Echo Will Face the Squeeze in 2019*, TechCrunch (Dec. 20, 2018), <https://techcrunch.com/2018/12/20/fading-echo/> [<https://perma.cc/MA5P-8VDW>], and as of 2017, Alexa powered 68% of smart speakers in the United States. Rayna Hollander, *Amazon's Alexa Is Dominating the Smart Speaker Landscape*, Bus. Insider (Oct. 13, 2017), <https://www.businessinsider.com/amazon-alexa-smart-speaker-landscape-2017-10> (on file with the *Columbia Law Review*). As of January 2019, Amazon has sold more than 100 million devices with Alexa, more than 150 products have Alexa built in, and more than 28,000 smart-home devices are now compatible with Alexa. Dieter Bohn, *Amazon Says 100 Million Alexa Devices Have Been Sold—What's Next?*, Verge (Jan. 4, 2019), <https://www.theverge.com/2019/1/4/18168565/amazon-alexa-devices-how-many-sold-number-100-million-dave-limp> [<https://perma.cc/972N-EE3J>].

84. See James Stables, *The Best Amazon Alexa Skills for Your Echo Smart Speakers, Ambient* (Mar. 13, 2019), <https://www.the-ambient.com/guides/best-amazon-alexa-skills-187> [<https://perma.cc/6SEM-WHU3>]. To analogize with the smart phone market, imagine Echo as the hardware (iPhone), Alexa as the operating system (iOS), Alexa first domains as built-in apps (Apple Music), and skills as independent apps (Spotify).

85. See *id.*

86. Matt Day, *Amazon's Alexa Has 80,000 Apps—and No Runaway Hit*, Bloomberg (Mar. 11, 2019), <https://www.bloomberg.com/news/articles/2019-03-11/amazon-s-alexa-has-80-000-apps-and-no-runaway-hit> (on file with the *Columbia Law Review*).

87. See Bohn, *supra* note 83 (estimating that 4,500 different manufacturers have produced Alexa-compatible devices).

While third-party skills developers and manufacturers are critical to expanding the Alexa ecosystem, Amazon also actively competes with both.⁸⁸ Amazon has recently introduced dozens of new features and devices, including an Alexa-enabled microwave, security camera, subwoofer, and smart plug—smart devices that existing Amazon partners had already been providing.⁸⁹ Given how Amazon uses Marketplace data,⁹⁰ it seems reasonable to assume that Amazon uses its retail platform for insight into sales of current smart devices, which then informs its production strategy. In 2015, Amazon launched the \$100 million Alexa Fund, which supports voice-technology startups and was designed to help cultivate a “developer ecosystem” around Alexa.⁹¹ Some observers, however, say that Amazon is using the fund to mine product ideas that it then produces itself.⁹² Nucleus, for example—a startup that had received backing from the Alexa Fund to create a voice-controlled video device—went on to watch Amazon release an almost identical product.⁹³ While startups backed by the Alexa Fund sometimes get unique access to Amazon, some investors advise businesses “to be wary of accepting Amazon’s investment, because of the risk of Amazon copying ideas.”⁹⁴ Following allegations that Amazon appropriates from its portfolio companies, Amazon has privately reached out to startups to mitigate those concerns, saying that a “clear ‘firewall’ exists between the Alexa Fund and Amazon’s product development teams.”⁹⁵

Amazon also competes with Alexa-skills developers. From its rollout, Alexa has had some built-in features, such as weather and timers.⁹⁶ It

88. See Ben Fox Rubin, Amazon’s Gadget Battle with Google Could Upend Its Alexa Allies, CNET (Oct. 5, 2018), <https://www.cnet.com/news/amazons-gadget-battle-with-google-could-upend-its-alexa-allies/> (on file with the *Columbia Law Review*) (“These new Amazon devices serve as more examples of Amazon simultaneously cooperating with and competing against its partners as it creates more devices for its Alexa voice assistant.”).

89. *Id.*; Nick Statt, Amazon Wants Alexa to Be the Operating System for Your Life, Verge (Sept. 27, 2018), <https://www.theverge.com/2018/9/27/17911300/amazon-alexa-echo-smart-home-eco-system-competition> [<https://perma.cc/U3RJ-CD9R>].

90. See *supra* notes 75–79 and accompanying text.

91. Patience Haggin, Startups Weigh Pros, Cons of Alexa Fund, Wall St. J. (Aug. 28, 2017), <https://www.wsj.com/articles/startups-weigh-pros-cons-of-alexa-fund-1503919800> (on file with the *Columbia Law Review*).

92. See, e.g., *id.* (expressing a concern held by some venture capitalists that Amazon might copy ideas generated by Alexa Fund startups).

93. Jason Del Rey, Amazon Invested Millions in the Startup Nucleus—Then Cloned Its Product for the New Echo, Recode (May 10, 2017), <https://www.recode.net/2017/5/10/15602814/amazon-invested-startup-nucleus-cloned-alexa-echo-show-voice-control-touchscreen-video> [<https://perma.cc/PUE6-QYKK>] (quoting Alexa Fund representatives).

94. Haggin, *supra* note 91.

95. Eugene Kim, Amazon Wants to Invest in Start-Ups, but Some Are Nervous About Taking the Money, CNBC (Sept. 13, 2017), <https://www.cnbc.com/2017/09/13/amazon-reassured-alexa-fund-start-ups-about-competition.html> [<https://perma.cc/6FK8-RY2T>].

96. See, e.g., Dave Smith, I’ve Owned an Amazon Echo for Nearly a Year Now—Here Are My 19 Favorite Features, Bus. Insider (Oct. 5, 2016), <https://www.businessinsider.com/>

regularly introduces new features, which sometimes offer the same service as an existing skill or tool provided by third parties.⁹⁷ Three areas in which Alexa has entered into direct competition with third-party skill providers are analytics, testing tools, and Blueprints.⁹⁸

The primary advantage that Alexa domains enjoy over third-party skills is that they are set as the default. If a user asks a question that both an Alexa-native and a third-party skill can answer, the default skill activated will be the one native to the Alexa engine.⁹⁹ This default setting can be justified as way to offer users a smoother experience and to solve the technical problem of knowing where to send a request. But the effect is to create a built-in bias to steer users toward Alexa domains over third-party skills. Recent announcements suggest that Amazon is looking to enable the surfacing of skills into the first domain, which would mean Alexa would be able to sort through its abilities to activate the one that best addressed a user's request.¹⁰⁰ While, in theory, this could place a third-party skill on equal footing with an Alexa domain, the transition could also strengthen Alexa's role as a gatekeeper, rendering skills more captive to Amazon's discretion.

Amazon closely tracks usage patterns on Alexa.¹⁰¹ It also enjoys exclusive access to the voice data that Alexa collects—data that capture

amazon-echo-features-2016-10 (on file with the *Columbia Law Review*).

97. See *supra* notes 88–89 and accompanying text.

98. See John Koetsier, Analytics for AI Assistants: VoiceLabs Reveals Vital Stats for Alexa Skills and Google Actions, *VentureBeat* (Dec. 8, 2016), <https://venturebeat.com/2016/12/08/analytics-for-ai-assistants-voicelabs-reveals-vital-stats-for-alexa-skills-and-google-actions/> [<https://perma.cc/8QDG-QGYW>]; see also About Us, *Bespoken*, <https://bespoken.io/about/> [<https://perma.cc/7M27-2U4A>] (last visited Apr. 1, 2019) (describing *Bespoken's* work providing “testing and monitoring for voice apps”); Kaiyin Hu, Unit Testing: Creating Functional Alexa Skills, *Amazon Alexa: Alexa Blogs* (Aug. 7, 2018), <https://developer.amazon.com/blogs/alexa/post/35bdad3d-57c8-4623-88c6-815540697af5/unit-testing-create-functional-alexa-skills> [<https://perma.cc/EC4G-HQFN>] (reporting Amazon's announcement that it is building its own monitoring tools); Sarah Perez, Amazon's 'Alexa Blueprints' Can Now Be Published Publicly on the US Alexa Skills Store, *TechCrunch* (Feb. 13, 2019), <https://techcrunch.com/2019/02/13/amazon-opens-its-us-alexa-skill-store-to-non-developers/> [<https://perma.cc/T62E-Y9KG>].

99. For example, if a user says, “Alexa, tell me the weather,” Alexa will summon its built-in weather feature. In order to access, say, *Big Sky*, a third-party weather skill, a user would need to say, “Alexa, ask *Big Sky* for the weather.” See Taylor Martin, How to Get Better Weather Forecasts on Your Alexa Speaker, *CNET* (July 17, 2017), <https://www.cnet.com/how-to/how-to-get-better-weather-forecasts-on-your-alexa-speaker/> (on file with the *Columbia Law Review*).

100. See Monica Chin, Amazon Is Killing the Skill (as We Know It), *Tom's Guide* (Sept. 13, 2018), <https://www.tomsguide.com/us/amazon-alexa-kills-skills,news-28072.html> [<https://perma.cc/J2HG-4G42>] (“[Y]ou won't need to say ‘Get me an Uber,’ you'll say, ‘Get me a car to the airport.’ Amazon's assistant will use context clues, such as your location, your subscriptions and services you've used in the past, to determine whether to call an Uber, Lyft, or other ride-sharing service.”).

101. Amazon is seeking to dramatically expand the data it collects from third-party gadgets, asking them to report, for example, not just when a television is on but what

the questions consumers ask voice platforms.¹⁰² Alexa maintains access to this data even when the information is collected through third-party skills, and Amazon can use the information to both steer its future moves in the voice-assistant market and enrich other parts of its business, such as advertising.¹⁰³ This unique dataset will also give Amazon a huge advantage in continuing to develop its machine learning.

No empirical work has closely examined what guides Alexa's entry into certain skills or devices or how the threat of direct competition with Alexa affects third-party developers.

B. *Alphabet*

Alphabet, the parent company of Google, is a conglomerate comprised of subsidiaries in digital advertising, internet services, artificial intelligence, biotech, broadband, and venture capital.¹⁰⁴ Google—which encompasses digital advertising, Android, Chrome, Google Cloud, Google Maps, Google Play, Google Search, hardware, search, and YouTube¹⁰⁵—remains the entity's profit center. In 2018, Google pulled in \$36.5 billion in operating income, while the combined total of Alphabet's other segments posted a loss.¹⁰⁶

There are several markets in which Google both serves as a major platform and competes with platform participants. These include generalized search, Android operating system/apps, and its online ad exchange. Although Google's integrations in the smartphone and online advertising markets have also attracted antitrust attention, this section focuses on Google's integration in search.

1. *Google Search/Google Verticals.* — Google is a dominant internet search company, capturing around 88% of the U.S. search engine market¹⁰⁷

channel it is set to. Matt Day, *Your Smart Light Can Tell Amazon and Google When You Go to Bed*, Bloomberg (Feb. 12, 2019), <https://www.bloomberg.com/news/articles/2019-02-12/your-smart-light-can-tell-amazon-and-google-when-you-go-to-bed> (on file with the *Columbia Law Review*).

102. Drew Firment, *Alexa Data Analytics Are a Gold Mine*, A Cloud Guru (Feb. 12, 2017), <https://read.acloud.guru/alexa-data-analytics-are-a-gold-mine-b4ceb02526d2> [<https://perma.cc/D9K3-9WFW>].

103. See *id.* (“For example, if someone asks ‘Alexa, what are the signs of pregnancy’—the customer should also expect to see diapers as an item on their suggested wish-list the next time they go shopping on Amazon.”).

104. See Avery Hartmans, *All the Companies and Divisions Under Google's Parent Company, Alphabet*, Bus. Insider (Dec. 13, 2018), <https://www.businessinsider.com/alphabet-google-company-list-2017-4> (on file with the *Columbia Law Review*).

105. See *id.*

106. Alphabet Inc., Annual Report (Form 10-K) 81 (Feb. 4, 2019) [hereinafter 2018 Alphabet 10-K], <https://www.sec.gov/Archives/edgar/data/1652044/000165204419000004/goog10-kq42018.htm> [<https://perma.cc/C2YS-QXCE>].

107. Search Engine Market Share in United States of America, StatCounter, <http://gs.statcounter.com/search-engine-market-share/all/united-states-of-america> [<https://perma.cc/WQ2M-ZUAY>] (last updated Mar. 2019). The remaining share of the

and 95% of mobile searches.¹⁰⁸ It began as a general search provider, indexing the web and developing algorithms to identify which web content may provide a relevant response to a user's search query. Search users do not pay money for their searches; instead, Google collects and analyzes data about users to sell targeted advertisements. In 2018, ad sales constituted 85% of all Alphabet revenue.¹⁰⁹

The search engine market is comprised of "horizontal" search—a general search engine that offers results regardless of subject area—and "vertical" search, which limits query results to a specific category of content.¹¹⁰ Even as Google became the dominant website for horizontal search, a stable of independent entities launched their own specialized search engines, focused on areas like comparison shopping, local search, flight search, and financial data.¹¹¹ Because Google is the dominant provider of online search, this ecosystem of vertical sites relies on Google to be seen and discovered by users.¹¹²

Although Google introduced its first vertical product around 2002,¹¹³ only in 2005 did it begin strategically investing in and promoting additional vertical properties, including in local search, finance, and

market is split between Bing (6%), Yahoo! (4%), and DuckDuckGo (1%). *Id.* Globally, Google captures 92%, with Bing (2%), Yahoo! (2%), and Baidu (1%) following. Search Engine Market Share Worldwide, StatCounter, <http://gs.statcounter.com/search-engine-market-share> [<https://perma.cc/VHA3-HBH7>] (last updated Mar. 2019).

108. Mobile Search Engine Market Share in United States of America, StatCounter, <http://gs.statcounter.com/search-engine-market-share/mobile/united-states-of-america> [<https://perma.cc/9JT8-DN8J>] (last updated Mar. 2019). Google products also capture 59% of the web browser market. Google Embraces Ad-Blocking via Chrome, *Economist* (Feb. 17, 2018), <https://www.economist.com/business/2018/02/17/google-embraces-ad-blocking-via-chrome> (on file with the *Columbia Law Review*). Google captures 81% of the U.S. online maps market. Google Maps API, Datanyze, <https://www.datanyze.com/market-share/mapping-and-gis/google-maps-api-market-share> (on file with the *Columbia Law Review*) (last visited Apr. 3, 2019). It captures 77% of the internet video market. Online Video Platforms, Datanyze, <https://www.datanyze.com/market-share/online-video> (on file with the *Columbia Law Review*) (last visited Apr. 3, 2019). And it captures 88% of the global market for mobile operating systems. Global Market Share Held by the Leading Smartphone Operating Systems in Sales to End Users from 1st Quarter 2009 to 2nd Quarter 2018, Statista, <https://www.statista.com/statistics/266136/global-market-share-held-by-smartphone-operating-systems/> (on file with the *Columbia Law Review*) (last visited Apr. 3, 2019).

109. See 2018 Alphabet 10-K, *supra* note 106, at 7.

110. See Jim Yu, Search Is More than Google: Mastering Vertical Search Optimization, Search Engine Land (May 15, 2018), <https://searchengineland.com/search-is-more-than-google-mastering-vertical-search-optimization-298123> [<https://perma.cc/FPW4-FL98>].

111. See, e.g., Adam Vincenzini, 30 Specialized Search Engines Focused on Specific Content, Next Web (Apr. 29, 2012), <https://thenextweb.com/lifehacks/2012/04/29/30-specialist-and-super-smart-search-engines/> [<https://perma.cc/83SF-4LV5>].

112. See *supra* notes 107–108 and accompanying text.

113. See Wired Staff, Google Gets Its Groove On, *Wired* (Mar. 29, 2004), <https://www.wired.com/2004/03/google-gets-its-groove-on/> [<https://perma.cc/PL8U-5X5A>].

travel.¹¹⁴ Its foray into these areas rendered standalone vertical properties, such as Yelp and TripAdvisor, dependent on their biggest rival.¹¹⁵

Google took advantage of this dual role in several ways—conduct that the Federal Trade Commission (FTC) investigated as part of an antitrust probe in 2011. As revealed by an FTC staff memorandum that was partially and inadvertently disclosed to the *Wall Street Journal* in 2015, the investigation found that Google used its position in general search both to give its vertical properties preferential treatment and to appropriate content from third-party competitors in vertical search.¹¹⁶

According to FTC staff from the Bureau of Competition (BC), Google rolled out a new interface—“Universal Search”—to privilege Google content and demote third-party content.¹¹⁷ It relied on a host of tactics. For one, Google displayed Universal Search results at or near the top of its search engine ranking page, which had the effect of demoting and resulting in “significant loss of traffic” to many vertical rivals.¹¹⁸ Google also “embellished” its vertical results with “eye-catching interfaces” that helped steer users to Google’s vertical properties—interfaces that Google did not make available to competitor vertical websites.¹¹⁹ Commission staff concluded that Google’s self-privileging had been at least partially motivated by fear that superior vertical competitors would divert search queries—and, subsequently, advertisement dollars—from Google.¹²⁰ The tactic worked: Self-preferential treatment “led to gains in user share for its own properties.”¹²¹

Google also appropriated information from third-party rivals in order to boost the quality of its own offerings. As of 2012, Google primarily obtained its vertical content through “scraping” other websites.¹²²

114. See Duhigg, *supra* note 7 (quoting a 2005 email between members of the Google management team, in which one executive wrote that “the real threat if we don’t execute on verticals” is “[l]oss of traffic from Google.com because folks search elsewhere for some queries” (internal quotation marks omitted)).

115. See *id.* (“‘We still exist,’ says Luther Lowe, a vice president at Yelp, ‘but Google did everything it could to ensure that we’d never present a threat to them.’”).

116. FTC, Memorandum on Google Inc., File No. 111-0163, at 18–30 (Aug. 8, 2012) [hereinafter FTC Memo]. For the version of the memo as it appeared on the *Wall Street Journal’s* website, see The FTC Report on Google’s Business Practices, *Wall St. J.* (Mar. 24, 2015), <http://graphics.wsj.com/google-ftc-report/> (on file with the *Columbia Law Review*). The FTC disclosed only the even pages of the staff memo, which represented the views of the Bureau of Competition (BC). *Id.*

117. FTC Memo, *supra* note 116, at 30; see also Danny Sullivan, Google Launches “Universal Search” & Blended Results, *Search Engine Land* (May 16, 2007), <https://searchengineland.com/google-20-google-universal-search-11232> [<https://perma.cc/6YJ2-HQW2>].

118. FTC Memo, *supra* note 115, at 30.

119. *Id.* at 24.

120. See *id.* at 20 (summarizing Google’s concern that users would “move[] to vertical search websites,” which would, “in turn, become more attractive vehicles for advertisers”).

121. *Id.* at 80.

122. See *id.* at 32.

Google did so through pressuring website publishers to accept a license agreement that gave Google blanket consent to use third parties' data feeds.¹²³ When rivals tried to resist Google's efforts to copy their information, Google gave them an "all-or-nothing choice": They could either allow their content to be appropriated by Google *or* they wouldn't appear within Google web search results at all.¹²⁴ In short, Google "could now force local websites—that needed access to Google's web search to reach users—to accede to Google's use of the large storehouse of reviews that Google's rivals had built in order to develop its own user base."¹²⁵

BC staff concluded that the "natural and probable effect" of Google's scraping was "to diminish the incentives of vertical websites to invest in, and to develop, new and innovative content" and recommended that the FTC condemn this conduct as unlawful.¹²⁶ BC staff also concluded that Google's self-preferential treatment "likely helped to entrench Google's monopoly power." Although the BC recommended bringing an antitrust action against Google on three grounds,¹²⁷ the Commissioners entered a voluntary settlement with the company instead.¹²⁸ The European Commission, by contrast, investigated Google on similar grounds and brought two cases establishing that the corporation had abused its dominance.¹²⁹

Given Google's integration across internet search, services, and desktop and mobile advertising markets, there are numerous other ways in which it competes with businesses dependent on its services. In addition to discriminating against vertical content, Google has been found to discriminate against rival horizontal search engines and browsers and to hobble competitors in the search advertising market.¹³⁰

123. *Id.*

124. *Id.* at 36.

125. *Id.*

126. *Id.* at iii.

127. *Id.* at 86.

128. Press Release, FTC, Google Agrees to Change Its Business Practices to Resolve FTC Competition Concerns in the Markets for Devices Like Smart Phones, Games and Tablets, and in Online Search (Jan. 3, 2013), <https://www.ftc.gov/news-events/press-releases/2013/01/google-agrees-change-its-business-practices-resolve-ftc> [<https://perma.cc/YPF6-43AV>].

129. See Press Release, European Comm'n, Antitrust: Commission Fines Google €2.42 Billion for Abusing Dominance as Search Engine by Giving Illegal Advantage to Own Comparison Shopping Service (June 27, 2017), http://europa.eu/rapid/press-release_IP-17-1784_en.htm [<https://perma.cc/K8D6-EL7X>] (explaining that Google used its platform to favor its own comparison shopping search engine at the expense of competitors).

130. See Press Release, European Comm'n, Antitrust: Commission Fines Google €1.49 Billion for Abusive Practices in Online Advertising (Mar. 1, 2019), http://europa.eu/rapid/press-release_IP-19-1770_en.htm [<https://perma.cc/BGJ6-LGM5>] ("Google has abused its market dominance by imposing a number of restrictive clauses in contracts with third-party websites which prevented Google's rivals from placing their search adverts on these websites.").

C. Facebook

Facebook is a dominant social network. Around two-thirds of Americans use Facebook, three-quarters of them on a daily basis.¹³¹ In the United States, 80% of user time spent across social networks is spent on Facebook.¹³² Through having purchased Instagram and WhatsApp, Facebook now owns the top three, and four of the top eight, social media apps.¹³³ Like Google, Facebook monetizes its service by selling placement to digital advertisers.¹³⁴

There are at least two sets of market participants that both rely on Facebook's network and find themselves in competition with Facebook: app developers and online publishers. In both markets, Facebook has used its dominant position to appropriate from rivals.

1. *Facebook APIs/Facebook Apps.* — Facebook's network of over two billion users gives app developers an opportunity to reach a large audience.¹³⁵ Facebook, meanwhile, has an incentive to cultivate a rich ecosystem of apps built around Facebook's network. To incentivize developers to invest in building this ecosystem, Facebook offers developers access to its application programming interfaces (APIs), which lets apps access data from Facebook's network and grow their number of users.¹³⁶ Facebook also delivers certain apps and features directly, placing it in competition with developers. It has both foreclosed competitors from its platform and appropriated their business information and functionality.

Reports describe how Facebook has denied API access to those firms that it considers direct competitors. In 2013, for example, Facebook cut off API access to Vine, the Twitter-owned feature that let users create six-second videos.¹³⁷ Emails released by the U.K. Parliament revealed that

131. Aaron Smith & Monica Anderson, Pew Research Ctr., Social Media Use in 2018, at 2 (2018), https://www.pewinternet.org/wp-content/uploads/sites/9/2018/02/PI_2018.03.01_Social-Media_FINAL.pdf [<https://perma.cc/J9EP-4TVZ>].

132. Dina Srinivasan, *The Antitrust Case Against Facebook: A Monopolist's Journey Towards Pervasive Surveillance in Spite of Consumers' Preference for Privacy*, 16 *Berkeley Bus. L.J.* 39, 88 (2019) ("Including time spent on these other platforms, approximately 83% of the consumers' time goes to Facebook and Instagram.").

133. Most Popular Mobile Social Networking Apps in the United States as of October 2018, by Reach, Statista, <https://www.statista.com/statistics/579334/most-popular-us-social-networking-apps-ranked-by-reach/> [<https://perma.cc/4YDD-82GQ>] (last visited Apr. 9, 2019).

134. Facebook, Inc., Annual Report (Form 10-K) 5 (Jan. 31, 2019) [hereinafter 2018 Facebook 10-K], <https://www.sec.gov/Archives/edgar/data/1326801/000132680119000009/fb-12312018x10k.htm> [<https://perma.cc/E7PJ-NCMT>].

135. *Id.* at 35.

136. The Graph API, for example, lets developers "read and write to the Facebook social graph." Graph API, Facebook for Developers, <https://developers.facebook.com/docs/graph-api/> [<https://perma.cc/E4XJ-RXEN>] (last visited Apr. 8, 2019).

137. Josh Constine, Facebook Is Done Giving Its Precious Social Graph to Competitors, *TechCrunch* (Jan. 24, 2013), <https://techcrunch.com/2013/01/24/my-precious-social-graph/> [<https://perma.cc/JQ2J-U3KF>].

the decision to block Vine's access came directly from CEO Mark Zuckerberg—presumably because Twitter, which owned Vine, is a Facebook competitor, and Facebook was building out its own video offering.¹³⁸ Facebook similarly shut off API access to MessageMe, a messaging app (and competitor to Facebook Messenger) that had soared in popularity, within a week of its release.¹³⁹ Voxer, another communications app, was also cut off shortly after Facebook introduced a competing product.¹⁴⁰ Explaining its decision, Facebook cited a provision of its platform policy that prohibited developers from using Facebook APIs to promote a product that replicated “a core Facebook product.”¹⁴¹ The firms that saw their API access revoked by Facebook all ended up either exiting the market or shutting down entirely.¹⁴²

In addition to blocking apps that it deemed competitive threats, Facebook has also systematically copied them. Through Onavo, a mobile-analytics company that Facebook purchased in 2013, Facebook tracked rival apps, identifying which competitors were diverting attention and usage from Facebook.¹⁴³ Reports capture how the tool has helped Facebook either imitate rivals or seek to buy them out.¹⁴⁴ Using information captured by Onavo, Facebook has copied the functionality of several apps—including Meerkat, Houseparty, and Snapchat—and bought out WhatsApp and tbh.¹⁴⁵

138. See Note by Damian Collins MP, Chair of the DCMS Committee: Summary of Key Issues from the Six4Three Files and Selected Documents Ordered from Six4Three, Parliament, <https://www.parliament.uk/documents/commons-committees/culture-media-and-sport/Note-by-Chair-and-selected-documents-ordered-from-Six4Three.pdf> [<https://perma.cc/Y5YC-9A44>] (last visited Apr. 10, 2019). The internal documents also reveal that executives kept a “whitelist” of companies that would retain API access. *Id.*

139. Kim-Mai Cutler, Facebook Brings Down the Hammer Again: Cuts Off MessageMe's Access to Its Social Graph, TechCrunch (Mar. 15, 2013), <https://techcrunch.com/2013/03/15/facebook-messagememe/> [<https://perma.cc/A9CS-U35L>].

140. *Id.* (“The move resembles Facebook’s decision last month to shut off Voxer’s access to the graph, even though Voxer connected to Facebook for well over a year. . . . Facebook cut the app off around the same time that it launched competing functionality with free voice calling to other users.”).

141. *Id.* In December, a day before Parliament released the Six4Three documents, Facebook ended this policy. Josh Constine, Facebook Ends Platform Policy Banning Apps that Copy Its Features, TechCrunch (Dec. 4, 2018), <https://techcrunch.com/2018/12/04/facebook-allows-competitors/> [<https://perma.cc/2Q2A-R69Y>].

142. See Josh Constine, Facebook Shouldn’t Block You from Finding Friends on Competitors, TechCrunch (Apr. 13, 2018), <https://techcrunch.com/2018/04/13/free-the-social-graph/facebook-free-the-social-graph/> [<https://perma.cc/U8YS-Q839>] (observing that Voxer exited the market, MessageMe disintegrated, Vine was shut down, and Phhphoto—a competitor to Instagram that Facebook cut off—closed shop).

143. See Morris & Seetharaman, *New Copycats*, *supra* note 10 (describing the internal database that Facebook developed to track rivals through its acquisition of Onavo).

144. See *id.* (noting that Onavo served as “an internal ‘early bird’ warning system,” flagging potential threats).

145. See *id.*; Sarah Perez, Facebook Is Pushing Its Data-Tracking Onavo VPN Within Its Main Mobile App, TechCrunch (Feb. 12, 2018), <https://techcrunch.com/2018/02/12/facebook-starts-pushing-its-data-tracking-onavo-vpn-within-its-main-mobile-app/>

Apps whose functionality Facebook has copied—like Snapchat—went on to see declines in user growth.¹⁴⁶

Like Amazon and Google, Facebook has established a systemic informational advantage (gleaned from competitors) that it can reap to thwart rivals and strengthen its own position, either through introducing replica products or buying out nascent competitors. Strikingly, one of Facebook's more recent acquisition—the burgeoning social network *tbh*—had achieved limited market penetration by the time Facebook purchased it.¹⁴⁷ Analysts speculate that Facebook spotted *tbh*'s rapid pace of growth through Onavo and then bought it out.¹⁴⁸

2. *Facebook's Publishing Network/Facebook Ads.* — For online publishers, Facebook is both a massive communications network on which they've come to depend, as well as a major competitor in selling ad placement. Facebook, meanwhile, has leveraged its dominant position as a communications network to extract sensitive business information from publishers. Collecting this information from publishers has enabled Facebook to significantly enhance the value of its advertising business at publishers' expense.

For publishers, Facebook's network offers a highly attractive distribution channel. Given that most online publishers earn revenue from user clicks and visits, greater exposure to Facebook's 1.52 billion daily users can be a game changer.¹⁴⁹ Citing the promise of greater user visits—and thus greater revenue—Facebook in 2010 started marketing a set of social plug-ins that publishers could add to their websites.¹⁵⁰ Installing the “Like” button, for example, would mean that any user that visited a publisher's website could easily share content from the publisher's website with the user's Facebook network, drawing more readers back to the publisher's site.¹⁵¹

[<https://perma.cc/9GLJ-TF69>].

146. See Michelle Castillo, Here Are All the Ways Facebook Has Copied Snapchat, CNBC (Mar. 9, 2017), <https://www.cnbc.com/2017/03/09/facebook-copies-snapchat-examples.html> [<https://perma.cc/8JLT-VA9X>] (“[I]t seems the copycat items may be having an effect on Snapchat's slowing user growth rate, even Snap acknowledged Instagram Stories could be a direct competitor in its S-1 filing.”).

147. See Josh Constine, Facebook Acquires Anonymous Teen Compliment App *tbh*, Will Let It Run, TechCrunch (Oct. 16, 2017), <https://techcrunch.com/2017/10/16/facebook-acquires-anonymous-teen-compliment-app-tbh-will-let-it-run/> [<https://perma.cc/U6RW-RPNW>].

148. See Perez, *supra* note 145.

149. See 2018 Facebook 10-K, *supra* note 134, at 35.

150. See Facebook for Developers, How to Use the New Facebook Social Plugins for Your Business, Facebook (May 4, 2010), <https://www.facebook.com/notes/facebook-for-developers/how-to-use-the-new-facebook-social-plugins-for-your-business/394310302301/> [<https://perma.cc/M3ZJ-KBER>].

151. As Facebook described, “When a person clicks Like, it (1) publishes a story to their friends with a link back to your site, (2) adds the article to the reader's profile, and (3) makes the article discoverable through search on Facebook.” See Facebook Media, The

In order to add Facebook's plug-ins, publishers had to install Facebook's code onto their websites.¹⁵² In practice, installing this code "opened a backdoor communication between users' devices and Facebook's servers," enabling Facebook to leverage the social plug-ins installed on third-party websites to track the users of those websites.¹⁵³ In other words, Like buttons dramatically expanded the reach of Facebook's tracking: Any time a Facebook user visited a site with the social plug-in, Facebook could use the user's Facebook login cookies to identify the user.¹⁵⁴ Some publishers were wary. The value that online publishers offer advertisers is access to their specific readers; it is this audience relationship that ultimately allows ad-based publishers to monetize their content. If Facebook were able to surveil a publisher's readers, it could sell access to those readers at a fraction of the publisher's price—undercutting the publisher's pricing power in the ad market.¹⁵⁵ For Facebook, meanwhile, access to this data would enable it to more precisely target Facebook users when selling ads, increasing ad revenue.

To assuage publishers' concerns, Facebook maintained the perception that it would not use these plug-ins to monitor users for the purpose of selling advertising.¹⁵⁶ Keen to harness Facebook's expansive network to increase clicks, publishers flocked to the plug-ins. Within the first week of the rollout, over 50,000 websites installed Facebook's social plug-ins,¹⁵⁷ helping Facebook embed its code across the internet.¹⁵⁸ Contrary to Facebook's representations, researchers later exposed that Facebook was using the Like button code to track what users were reading or buying—even if a user hadn't clicked the Like button and even if the user had logged out of Facebook.¹⁵⁹ Despite facing public backlash for both its apparent deception and its pervasive surveillance, Facebook did not change course—perhaps because it no longer faced serious competition in the social network market.¹⁶⁰ In 2014, it officially codified its policy of using Facebook code embedded across third-party websites to track users.¹⁶¹

Value of a Liker, Facebook (Sept. 29, 2010), <https://www.facebook.com/notes/facebook-media/value-of-a-liker/150630338305797> [<https://perma.cc/D2RR-3LSX>].

152. Srinivasan, *supra* note 132, at 63.

153. *Id.* at 63–64.

154. *Id.* at 65.

155. *Id.* at 64.

156. *Id.* at 64 (“For many years, Facebook perpetuated the belief it would not leverage backdoor access, the way it had with Beacon, to conduct surveillance for commercial purposes.”).

157. Facebook for Developers, *supra* note 150.

158. Srinivasan, *supra* note 132, at 64.

159. *Id.* at 65–66.

160. *Id.* at 66–69.

161. *Id.* at 70 (“In June of 2014, Facebook announced it would leverage its code presence on third-party applications to track consumers, enabling it to surveil the specific online behavior of this country's citizens despite widespread preference to the contrary.”).

The new policy admitted that Facebook would now use this surveillance data to boost Facebook's advertising business.¹⁶²

It is reasonable to consider this policy change a bait and switch. Facebook induced websites to install Facebook plug-ins by representing that the company would not use this installed code to channel user data to its advertising business. Thirty percent of the top million most-visited websites—including major news publishers—added Facebook's plug-ins, becoming dependent on Facebook's network for greater distribution.¹⁶³ Facebook's decision to switch course has meant that online publishers—and any third-party website that both sells ads and uses Facebook plug-ins—are now feeding valuable business data to a major competitor at their own expense.

Unlike the case of Amazon or Google, Facebook's appropriation of publishers' business information is not a feature of Facebook being vertically integrated. Instead, it derives from the fact that Facebook is both a major communications network and a major advertiser, and the price it charges publishers for using its platform as a distribution network is the right to surveil publishers' users—information that it uses to enrich its advertising business. In other words, collecting publishers' business information is not a functional necessity of allowing publishers to use Facebook; it is instead the condition Facebook has set.

There are aspects of Facebook's business in which it is integrated, such as in content. Through Facebook Instant Articles, for example, Facebook has vertically integrated into publishing media content on its own platform.¹⁶⁴ Reports suggest that Facebook has used its integrated structure to preference its own offerings.¹⁶⁵

D. *Apple*

Apple is a major provider of consumer electronics and digital services, spanning smartphone and smartwatch devices, desktop and laptop computers, digital assistants, a music store, and set-top boxes. The

162. *Id.* at 71 (“But now Facebook changed course and announced that the data derived from tracking consumers would augment Facebook ad targeting, attribution, and measurement.”).

163. Steven Englehardt & Arvind Narayanan, Online Tracking: A 1-Million-Site Measurement and Analysis, 2016 Proc. ACM SIGSAC Conf. on Computer & Comm. Security 1388, 1395 fig.2.

164. Facebook: By Prioritizing Natively Published Articles in Its News Feed, Facebook Risks Antitrust Enforcement, Cuts Off Traffic and Data to Publishers, The Capitol Forum (Nov. 14, 2016), <https://thecapitolforum.com/wp-content/uploads/2016/07/Facebook-2016.11.04.pdf> (on file with the *Columbia Law Review*).

165. See *id.* (“Facebook pulls a number of levers to keep users on its own platform rather than going to the websites of publishers who fuel Facebook with free content. Such tactics mirror conduct that has landed Google in antitrust trouble in Europe.”).

first publicly traded corporation in history to reach \$1 trillion valuation,¹⁶⁶ Apple is a major provider of mobile devices and operating systems in the United States.¹⁶⁷

Across its products, Apple has long championed a vertically integrated model that combines hardware, software, services, and retail.¹⁶⁸ Unlike the Android operating system—which users operate on non-Alphabet devices—Apple iOS functions only on Apple devices.¹⁶⁹ Like Android, Apple both operates an app marketplace, offering third-party app developers the opportunity to reach Apple customers, and directly markets its own apps in its app marketplace.¹⁷⁰ Since it opened in 2008, the App Store has generated more than \$120 billion in total sales for app developers.¹⁷¹

1. *Apple iOS/App Store/Apple Apps*. — App developers claim that Apple uses its integrated model to privilege its own apps by setting unfavorable terms for third parties.¹⁷² A recent complaint filed by Spotify

166. Thomas Heath, *Apple Is the First \$1 Trillion Company in History*, Wash. Post (Aug. 2, 2018), https://www.washingtonpost.com/business/economy/apple-is-the-first-1-trillion-company-in-history/2018/08/02/ea3e7a02-9599-11e8-a679-b09212fb69c2_story.html (on file with the *Columbia Law Review*).

167. Mobile Operating System Market Share in United States of America, StatCounter, <http://gs.statcounter.com/os-market-share/mobile/united-states-of-america> [<https://perma.cc/VT92JE9M>] (last updated Mar. 2019) (documenting that, as of March 2019, iOS captured 55% of the mobile operating system market); US Smartphone Market Share: By Quarter, Counterpoint (Feb. 19, 2019), <https://www.counterpointresearch.com/us-market-smartphone-share/> [<https://perma.cc/Y7KT-3A2C>] (documenting that, at the end of 2018, Apple captured 47% of the U.S. smartphone market).

168. Apple has been designing more and more of the technologies inside its products, including chips. Mark Gurman, *How Apple Built a Chip Powerhouse to Threaten Qualcomm and Intel*, Bloomberg (Jan. 29, 2018), <https://www.bloomberg.com/graphics/2018-apple-custom-chips/> (on file with the *Columbia Law Review*). In the last couple of years, however, Apple has broken from its original model by been making Apple services available on non-Apple devices. See Michael Simon, *Apple Will Launch iTunes Video App on Samsung Smart TVs This Spring—and It'll Support Bixby*, Macworld (Jan. 6, 2019), <https://www.macworld.com/article/3331183/itunes-app-samsung-smart-tv.html> [<https://perma.cc/K7XU-4MHS>] (noting that Apple is placing a TV app on hardware produced by Samsung and is placing Apple Music on smart speakers produced by Amazon).

169. See *iOS 11 Is Compatible with These Devices*, Apple, <https://support.apple.com/en-us/HT209574> [<https://perma.cc/P6BR-4TG8>] (last visited Apr. 2, 2019).

170. See Stephen Silver, *The Revolution Steve Jobs Resisted: Apple's App Store Marks 10 Years of Third-Party Innovation*, Apple Insider (July 10, 2018), <https://appleinsider.com/articles/18/07/10/the-revolution-steve-jobs-resisted-apples-app-store-marks-10-years-of-third-party-innovation> [<https://perma.cc/FG8G-VDMC>].

171. Tripp Mickle, *With iPhone Sputtering, Apple Bets Future on TV and News*, Wall St. J. (Mar. 25, 2019), <https://www.wsj.com/articles/with-the-iphone-sputtering-apple-bets-its-future-on-tv-and-news-11553437018> (on file with the *Columbia Law Review*).

172. Few developers have publicly reported discrimination by Apple, so this section will necessarily focus on and draw from Spotify, which recently filed a complaint in the European Commission, claiming that Apple has engaged in anticompetitive conduct by abusing its control over the App store. For Spotify's summary of its claims against Apple, see *The Case, Time to Play Fair*, <https://timetoplayfair.com/the-case/> [<https://perma.cc/>

in the European Union summarizes these allegations.¹⁷³ First, Apple charges Spotify and certain other apps a 30% fee on in-app purchases—a fee that, Spotify points out, Apple enforces selectively.¹⁷⁴ Apple’s own apps do not pay the fee, and neither do many apps, like Uber, that are not in direct competition with a comparable Apple service.¹⁷⁵ Second, Apple prevents Spotify from communicating directly with Apple-based users or marketing certain services to them—potentially inhibiting Spotify’s sales.¹⁷⁶ And third, Spotify alleges that Apple “routinely reject[ed]” Spotify’s app enhancements and bug fixes—degrading the product quality it could market through Apple, as Apple ramped up its competitor service, Apple Music.¹⁷⁷

This is not the first time that developers have alleged discrimination by Apple. Around 2008, Apple explicitly rejected apps on the basis that they “duplicate[d] the functionality” of built-in iPhone apps.¹⁷⁸ More recently, Apple was reported to have removed a digital wellness app shortly after releasing its own rival product (Screen Time)¹⁷⁹ and to have rejected a social location planning app that competes with its own “Find My Friends” app.¹⁸⁰

Faced with slowdown of iPhone sales, Apple is expanding its service offerings, introducing new services in TV, news, payments, and video games.¹⁸¹ It has also “intensified monitoring of apps that benefit and

444C-BPFV] [hereinafter Spotify Case] (last visited Apr. 1, 2019). For Apple’s response to Spotify’s claims, see Addressing Spotify’s Claims, Apple (Mar. 14, 2019), <https://www.apple.com/newsroom/2019/03/addressing-spotifys-claims/> [<https://perma.cc/85YP-T7LD>] [hereinafter Apple Response].

173. See Spotify Case, supra note 172 (claiming that “Apple’s actions violate the law” by selectively discriminating against competitors on the Apple platform); see also Joan E. Solsman, Spotify: Apple’s App Store Abuses Its Power to ‘Stifle’ Rivals, CNET (Mar. 14, 2019), <https://www.cnet.com/news/spotify-apple-app-store-abuses-power-to-stifle-competition/> (on file with the *Columbia Law Review*) (paraphrasing Spotify CEO David Ek of saying that “Apple wields its powerful App Store as a cudgel to stifle innovation, weaken competition and unfairly tax its rivals”).

174. Five Fast Facts, Time to Play Fair, <https://timetoplayfair.com/facts/> [<https://perma.cc/37VV-JMTW>] [hereinafter Spotify Facts] (last visited Apr. 2, 2019).

175. *Id.* In its response, Apple noted that in-app fees are the only source of revenue for the Apple app store. See Apple Response, supra note 172.

176. Spotify Facts, supra note 174.

177. *Id.*

178. Chris Foresman, Apple Rejects Another App for “Duplicating Functionality,” *Ars Technica* (Sept. 22, 2008), <https://arstechnica.com/gadgets/2008/09/apple-rejects-another-app-for-duplicating-functionality/> [<https://perma.cc/2Y8G-UETK>] (internal quotation marks omitted) (quoting Apple).

179. Mark Wolgemuth, RescueTime for iOS Update: Apple Has Removed Us from the App Store, *RescueTime: Blog* (Nov. 8, 2018), <https://blog.rescuetime.com/rescuetime-for-ios-removed/> [<https://perma.cc/KJQ2-JF78>].

180. See Michael McClain, Apple Rejecting “Find My Location” Competitor Apps?, *Medium* (Aug. 13, 2018), <https://medium.com/@michael.c.mcclain/apple-rejecting-find-my-location-competitor-apps-68c12b4c4aae> [<https://perma.cc/9JNK-8MNQ>].

181. See Mickle, supra note 171.

threaten Apple,” in part by creating a “release radar” through which Apple tracks apps that pose competitive threats to Apple’s own services.¹⁸² It is unclear whether Apple’s monitoring efforts are drawing on data on rivals collected through its platform.

E. *Effects of Discrimination and Appropriation on Investment and Innovation*

There are several reasons why permitting dominant digital platforms to discriminate against and appropriate sensitive business information from producers that depend on them to reach market might be harmful. Drawing on a Progressive Era framework, one could argue that allowing a firm that controls an essential service or form of infrastructure to exploit that control in ways that enrich the firm and harm third-party dependents amounts to a problematic exercise of private coercion.¹⁸³ Seen through this lens, this conduct represents the accumulation of “arbitrary authority unchecked by the ordinary mechanisms of political accountability,” amounting to a “political problem of domination.”¹⁸⁴

As Part II of this Article traces, in recent decades this expansive framework for understanding and regulating private power has been abandoned in favor of a paradigm that focuses primarily on welfare costs. Yet, as this section outlines, platform discrimination and appropriation also risk undermining innovation, raising dynamic efficiency concerns. Therefore, even under a framework primarily focused on efficiency harms, discrimination and appropriation by dominant platforms merits serious concern.

1. *Are Dominant Digital Platforms Stifling Innovation?* — One risk associated with foreclosure and value appropriation by dominant digital platforms is that this conduct could deter entry and chill innovation. If independent developers or producers rely on a dominant platform to reach customers and also face the constant risk that the platform will foreclose access, appropriate their business value, or both, producers may be less likely to secure funding and develop their product in the first place. In *Microsoft*, the district court found that Microsoft’s exclusionary conduct not only had hobbled innovation in middleware and applications software but had discouraged competition throughout the computer industry as a whole.¹⁸⁵ The long-term effect of its conduct was

182. *Id.*

183. See Rahman, *New Utilities*, *supra* note 26, at 1628 (“The challenge for law and public policy, then, was not just to promote economic efficiency and well-functioning markets. Rather, the challenge was a broader *political* one, of ensuring the accountability of private actors to the public good . . .”).

184. *Id.* at 1629.

185. See *United States v. Microsoft Corp.*, 65 F. Supp. 2d 1, 103 (D.D.C. 1999) (“Most harmful of all is the message that Microsoft’s actions have conveyed to every enterprise with the potential to innovate in the computer industry.”).

to “deter[] investment in technologies and businesses that exhibit[ed] the potential to threaten Microsoft.”¹⁸⁶

Anecdotal evidence suggests that both actual entry and the threat of entry by digital platforms into platform-adjacent markets is dampening investment in complementary segments, now known as a “kill-zone.”¹⁸⁷ For example, a survey of more than two dozen Silicon Valley investors revealed that Facebook’s willingness to appropriate information from and mimic the functionality of apps has created “a strong disincentive for investors” to fund services that Facebook might copy.¹⁸⁸ One founder observed, “People are not getting funded because Amazon might one day compete with them.”¹⁸⁹ “We don’t touch anything that comes too close to Facebook, Google or Amazon,” said a managing partner at New Enterprise Associates.¹⁹⁰ Another venture capital investor noted that the impact of dominant digital platforms on “what can be funded, and what can succeed, is massive.”¹⁹¹ This concern raised by venture capitalists makes sense: A potential innovator (or a potential funder of a potential innovator) decides whether to invest based on the anticipated risk and reward of realizing the innovation. Anticipating platform discrimination or appropriation will lower expected rewards, depressing the incentive to invest. Even the uncertainty of discrimination can dissuade entry by heightening risk.

Data on investment trends do not offer a decisive answer but generally seem consistent with the story told by surveyed investors. Venture capital funding as a whole appears to be booming: In 2018, the total annual venture capital invested surpassed \$100 billion for the first time since the dot-com period.¹⁹² The number of angel and seed

186. *Id.*

187. See American Tech Giants Are Making Life Tough for Startups, *Economist* (June 2, 2018), <https://www.economist.com/business/2018/06/02/american-tech-giants-are-making-life-tough-for-startups> (on file with the *Columbia Law Review*).

188. Dwoskin, *supra* note 10. For a counterperspective, see Oliver Wyman, Assessing the Impact of Big Tech on Venture Investment 5 (2018), <https://www.oliverwyman.com/content/dam/oliverwyman/v2/publications/2018/july/assessing-impact.pdf> [<https://perma.cc/9CM8-CC9T>] (concluding that there has been “no negative impact of [Facebook, Google, and Amazon] presence on venture capital deal value”). The report was commissioned by Facebook. *Id.* at 1. For a useful critique of the Wyman study, see Ian Hathaway, Platform Giants and Venture-Backed Startups (Oct. 12, 2018), <http://www.ianhathaway.org/blog/2018/10/12/platform-giants-and-venture-backed-startups> [<https://perma.cc/SZ8U-QLKS>] (arguing that the category fields used by Wyman are too broad to be meaningful).

189. Solon, *supra* note 11 (internal quotation marks omitted).

190. Dwoskin, *supra* note 10 (internal quotation marks omitted).

191. Schechter, *supra* note 11. One can imagine investors holding back from funding services that strive to go head-to-head with a digital platform in its primary market, or from withholding funding from services that seek to operate in a complementary market. These quotations are not entirely clear as to which of the two is occurring.

192. PitchBook Data, Inc. et al., *Venture Monitor: 4Q 2018*, at 4 (2018), https://files.pitchbook.com/website/files/pdf/4Q_2018_PitchBook_NVCA_Venture_Monitor.pdf [<https://perma.cc/Q9FE-NYHM>] (“The 2018 VC headline is, understandably, that

investments, meanwhile, has been declining since 2015, signaling that it has become harder for startups to secure an initial round of financing.¹⁹³ Indeed, it is late-stage deals with mature companies that account for an “outsized proportion” of total capital today,¹⁹⁴ while startups see fewer first financings, even as the deal value for startups has increased.¹⁹⁵ In other words, venture capital markets seem to be following a winner-take-most model: Fewer firms receive funding, but those that do are raising more capital.¹⁹⁶ These trends come against a backdrop of falling entrepreneurship: Startup formation is at a thirty-year low, contributing to a loss of business dynamism.¹⁹⁷

These overall numbers, however, offer limited insight into whether—and in what way—dominant platforms are affecting venture capital funding. Even sector-specific figures compiled by the industry database are based on industry classifications that are too generalized for a precise analysis of this question. Establishing high-level causality between platform conduct and investment decisions would prove extremely challenging; there are a significant number of variables at play, and demonstrating but-for causality is tough. Achieving clarity on this question would require granular case-by-case analysis.¹⁹⁸

The theoretical literature examining how third-party producers and providers (also called “complementors”) manage or respond to head-to-head competition with platforms is vast.¹⁹⁹ Empirical work, by contrast, is more limited.

One study found that Amazon is more likely to enter product spaces that have higher sales, better reviews, and that do not require significant

annual capital invested eclipsed \$100 billion for the first time since the dot-com era.”). Investors note that the current abundance of capital at least partly reflects “investor demand for growth assets during a time of historically low interest rates.” *Id.* at 14.

193. See *id.* at 8. Although the total deal value for angel- and seed-stage deals in 2018 approached a decade high, the relatively strong activity helped “stymie a downward trend.” *Id.*

194. *Id.* at 5.

195. See *id.* at 10.

196. *Id.* (“Startups see fewer, but larger first financings[.]”).

197. See Ryan A. Decker et al., *Declining Business Dynamism: What We Know and the Way Forward*, 106 *Am. Econ. Rev. (Papers & Proc.)* 203, 203 (2016); see also Germán Gutiérrez & Thomas Philippon, *Declining Competition and Investment in the U.S.* 1 (Nat’l Bureau of Econ. Research, Working Paper No. 23,583, 2017) (“[T]here has been a broad decrease in turnover and a broad increase in concentration across most U.S. industries.”).

198. See Hathaway, *supra* note 188.

199. For literature that identifies this entry strategy as enabling a platform to strengthen its market power, see, for example, Dennis W. Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 *RAND J. Econ.* 194, 194 (2002); Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 *Am. Econ. Rev.* 837, 850–56 (1990). For literature that focuses on how this strategy can discourage third parties from innovating, see, for example, Joseph Farrell & Michael L. Katz, *Innovation, Rent Extraction, and Integration in Systems Markets*, 48 *J. Indus. Econ.* 413, 414 (2000) (“[I]ntegration can inefficiently reduce incentives to innovate when consumers differ in their valuations of the innovation.”). See also *infra* Appendix.

effort by sellers to grow.²⁰⁰ The effect of Amazon's entry, meanwhile, is to reduce shipping costs for consumers and increase sales—but its self-preferential treatment can also foreclose consumers' access to competing products.²⁰¹ Overall, Amazon's entry has not yet affected customer perceptions of product quality,²⁰² but it does “discourage[] third-party sellers from continuing to offer the products.”²⁰³ The authors of that study note that existing merchants discouraged by Amazon's entry “may bring fewer innovative products to the platform.”²⁰⁴

A study assessing how app developers reacted to perceived or actual entry by Google, meanwhile, found that developers are “discouraged from innovating in the affected market.”²⁰⁵ Indeed, even the *threat* of direct competition by Google spurs developers to “significantly reduce[]” updates on affected apps—and to reallocate their efforts to markets unaffected by Google's entry.²⁰⁶ Notably, the average small firm also responds by pivoting to a focus on short-term profits, leading to higher prices.²⁰⁷

200. See Zhu & Liu, *supra* note 33, at 2620.

201. *Id.* at 2632.

202. *Id.* (“[W]e do not find differences between the average product ratings of affected and unaffected products, suggesting that Amazon's entry does not seem to increase consumer satisfaction with the products.”).

203. *Id.*

204. *Id.* at 2638. Although Amazon's conduct deters entry, Professors Feng Zhu and Qihong Liu speculate that there could be a countervailing effect. Insofar as Amazon's lower prices could expand its consumer base, this could in theory spur new merchants to join Amazon. *Id.* (“How Amazon's direct competition against its complementors affects platform growth thus remains an open question.”); see also Feng Zhu, *Friends or Foes? Examining Platform Owners' Entry into Complementors' Spaces*, 28 *J. Econ. & Mgmt. Strategy* 23, 26 (2019) (“[I]f Amazon's entries attract more consumers, the expanded customer base could incentivize more third-party sellers to join the platform. As a result, the long-term effects for consumers of Amazon's entry are not clear.”).

205. Wen Wen & Feng Zhu, *Threat of Platform-Owner Entry and Complementor Responses: Evidence from the Mobile App Market* 16 (NET Inst., Working Paper No. 16-10, 2018). Specifically, the study found that when a developer is faced with the threat of Google's entry, the developer “significantly reduces its updates on the affected app by 5 percent relative to an unaffected developer's app,” while *actual* entry by Google leads the developer to reduce updates on the affected app by eight percent. *Id.* Notably, Google's threat of entering a particular app market drives the affected developer to “significantly increase[]” updates on unaffected apps. *Id.*

206. *Id.* Notably, Google's threat of entering a particular app market drives the affected developer to “significantly increase” updates on unaffected apps. *Id.* The authors conclude that “[o]verall, these figures suggest that after Google becomes a credible threat in certain markets, developers become less interested in offering new products in those markets.” *Id.* at 23.

207. *Id.* at 5 (“Further, in contrast to other studies that find that entry threat reduces prices, we show that the average small firm increases prices because, faced with the entry threat of a powerful firm, it may decide to focus on short-term profits.”). The finding that platform entry redirects innovation rather than stifles it altogether could be seen as reducing “product redundancy” and “wasteful effort.” But one cost to this approach is that it risks replacing the competitive process with Google as the arbiter of what products fail or survive. *Id.* at 26.

Empirical studies assessing how actual or potential entry by a dominant platform affects complementors are still limited. Investors acknowledge unequivocally that the dominance of digital platforms deters investment in certain markets, and data suggest that firms looking to compete with a core functionality of Google, Facebook, or Amazon have seen funding dry up.²⁰⁸ The few available case studies confirm that the risk of appropriation chills or at least diverts certain forms of investment and innovation. More empirical work on this issue would help deepen public understanding of how funders assess the risk of platform foreclosure and appropriation, and what impact platform expansion into adjacent markets may have on innovation.

At first glance, the idea that dominant digital platforms may be using their integrated structure to undermine dynamic efficiency appears in tension with standard economic theory. The Appendix to this Article reviews leading theories on when integrated firms can be expected to discriminate against or exclude rivals in adjacent markets, identifies the set of conditions under which this is likely to happen, and explains why digital platform markets fit these conditions.

2. *Innovation and Platform Design Principles.* — While initial evidence suggests that platform discrimination and appropriation is stifling innovation, definitively determining the net effects on innovation—which involves significant uncertainty, lengthy time horizons, and interdependencies²⁰⁹—is complex. Indeed, the debate over what type of market structure and forms of business organization best promote innovation is longstanding and extensive.²¹⁰ While contributing to this debate is

208. See Hathaway, *supra* note 188 (“[T]he expansion of venture capital first financings grew more slowly or contracted more rapidly in each detailed FGA industry than it did for comparable sub-sectors (Software, Retail), sectors (IT, B2C), and for the rest of venture capital as a whole.”).

209. See Melissa A. Schilling, *Towards Dynamic Efficiency: Innovation and Its Implications for Antitrust*, 60 *Antitrust Bull.* 191, 199 (2015).

210. The rich and complex literature on this topic is often described in shorthand as a debate between Kenneth Arrow and Joseph Schumpeter. See, e.g., Jonathan B. Baker, *Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation*, 74 *Antitrust L.J.* 575, 575 (2007) (describing the debate over the best way to foster innovation as pitting the view of Arrow against that of Schumpeter). At the risk of oversimplification, Arrow argued that competition spurs innovation, while Schumpeter argued that oligopolistic markets do. Compare Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources to Invention*, in *The Rate and Direction of Inventive Activity: Economic and Social Factors* 609, 620 (Nat’l Bureau of Econ. Research ed., 1962) (“The preinvention monopoly power acts as a strong disincentive to further innovation.”), with Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy* 106 (1942) (“The firm of the type that is compatible with perfect competition is in many cases inferior in internal, especially technological, efficiency.”). For a high-level review of this debate, see generally Carl Shapiro, *Competition and Innovation: Did Arrow Hit the Bull’s Eye?*, in *The Rate and Direction of Inventive Activity Revisited* (Josh Lerner & Scott Stern eds., 2012). See also Mark A. Lemley, *Industry-Specific Antitrust Policy for Innovation*, 2011 *Colum. Bus. L. Rev.* 637, 651–52 (arguing that the “relationship between market structure and innovation is industry-specific” and demanding a more industry-specific innovation policy).

beyond the scope of this Article, this section will briefly offer that (1) promoting innovation in platform-adjacent markets should be a key goal of platform policy, and (2) innovation architecture literature offers useful principles for thinking through how to create digital platform ecosystems conducive to innovation.

There is broad consensus that, over the long run, promoting dynamic efficiency is more important to well-being than static efficiency.²¹¹ For this reason, scholars have devoted a wealth of research to identifying how to cultivate and promote instrumentalities of innovation.²¹² Commonly recognized innovation catalysts include patents, standard-setting processes, and platforms.²¹³

Because platforms have the potential to lower the cost of entry for firms looking to market new products or services, platforms have the potential to “increase the rate at which product innovation can happen.”²¹⁴ The Windows platform had the potential to ease entry for Netscape, which could access millions of consumers without having to create its own operating system—just as Android has the potential to ease entry for thousands of app developers. Given the critical role that platforms can play in spurring innovation, protecting the integrity of platforms as innovation catalysts should be a key goal of competition policy in digital markets.²¹⁵ This would include preventing platforms from engaging in forms of discrimination, exclusion, appropriation, and self-privileging, conduct that can lead to “the corruption of the entire system of platform-based innovation.”²¹⁶

211. Herbert Hovenkamp, *Antitrust and Innovation: Where We Are and Where We Should Be Going*, 77 *Antitrust L.J.* 749, 751 (2011) (“[T]here seems to be broad consensus that the gains to be had from innovation are larger than the gains from simple production and trading under constant technology.”).

212. See generally *Innovation Clusters and Interregional Competition* (Johannes Bröcker, Dirk Dohse & Rüdiger Soltwedel eds., 2003) (collecting essays that discuss how the spatial clustering of firms impacts regional productivity and innovation levels); *Innovation Networks and Clusters: The Knowledge Backbone* (Blandine Laperche, Paul Sommers & Dimitri Uzunidis eds., 2010) (collecting essays that explain how promoting collaboration and networks among firms, which can be used to share knowledge about innovation, can produce new and useful forms of knowledge); Steven Johnson, *Where Good Ideas Come From: The Natural History of Innovation* (2010) (discussing and analyzing the environments and conditions that are most conducive to innovation and identifying seven factors that are most likely to lead to innovation in any context).

213. Tim Wu, *Taking Innovation Seriously: Antitrust Enforcement if Innovation Mattered Most*, 78 *Antitrust L.J.* 313, 321 (2012) [hereinafter Wu, *Taking Innovation Seriously*] (“[T]here are some instrumentalities that do lie within the domain of competition enforcement. Here I want to focus on three: Standard Setting, Platforms, and Patents.”).

214. *Id.*

215. *Id.* at 322 (“Given the importance of platforms and standard setting to innovation, an innovation-centered law would make a major goal the protection of the integrity of these instrumentalities.”).

216. *Id.* at 323; see also *id.* at 324 (noting that, were antitrust enforcement purely innovation-focused, “the treatment of applications by platform owners would be the subject of continuing oversight.”).

Separate from policing conduct that risks undermining innovation, policy can also draw from innovation architecture principles.²¹⁷ This approach was central to designing the internet, whose original architecture was based on the “end-to-end” principle.²¹⁸ In general, end-to-end stipulates that “the ‘intelligence’ in a network should be located at the top of a layered system—at its ‘ends,’ where users put information and applications onto the network[,]” while the “communications protocols themselves (the ‘pipes’ through which information flows) should be as simple and as general as possible.”²¹⁹ Professors Mark Lemley and Lawrence Lessig observe that designing the Internet around end-to-end has had social significance, most notably in “the competition in innovation the Internet enables.”²²⁰ As they explain, because “there is no single strategic actor who can tilt the competitive environment (the network) in favor of itself, or no hierarchical entity that can favor some applications over others, an e2e network creates a maximally competitive environment for innovation.”²²¹

The end-to-end principle was embedded partly through the Internet Protocol, an open-standard networking protocol that empowered “developers at the network’s edge to design and deploy new services and applications without having to rely on network operators to build any new functionality into the physical core of the network.”²²² This principle, in turn, traces to the concept of common carriage, which required common carriers to grant equal treatment to equally situated parties.²²³ The key attributes of common carriage are “nondiscriminatory public access and indifference to the nature of the goods carried.”²²⁴

217. Barbara van Schewick, *Internet Architecture and Innovation* 4 (2010) [hereinafter *van Schewick, Internet Architecture*] (“Different architectures may impose different constraints, which may result in different decisions by economic actors, which in turn may result in different firm and market structures and different levels of economic activity.”).

218. Lemley & Lessig, *supra* note 16, at 931 (describing the end-to-end principle as a fundamental design feature of the Internet). As Professor Barbara van Schewick notes, there is a “broad” and “narrow” version of the end-to-end principle. Van Schewick, *Internet Architecture*, *supra* note 217, at 37–38 (“As will become apparent, some of the confusion can be attributed to the silent coexistence of two different design principles under the same name: the narrow version and the broad version of the end-to-end arguments.”); *id.* at 60–79 (contrasting the two versions).

219. Lemley & Lessig, *supra* note 16, at 930–31.

220. *Id.* at 930.

221. *Id.* at 931.

222. Annemarie Bridy, *Remediating Social Media: A Layer-Conscious Approach*, 24 *B.U. J. Sci. & Tech. L.* 193, 200–01 (2018) (“IP is the open-standard networking protocol that allows heterogeneously configured local area networks from all over the world to interconnect with one another.”).

223. See *id.* at 201.

224. *Id.*

Digital platforms exist in a different “layer” from the physical network providers governed by end-to-end.²²⁵ As scholars have noted, regulations at the “application” layer—which includes digital platforms—have encouraged “content awareness,” in part due to the role some of these services play in intermediating speech and expression.²²⁶ Still, these architecture design principles offer a fruitful way of thinking through what set of constraints should apply to dominant digital platforms in order to best promote innovation.

II. LEGAL SCRUTINY OF VERTICAL INTEGRATION BY DOMINANT NETWORKS

Confronting the risks of integration by dominant intermediaries is not new. Up until around the 1970s, a basic regulatory principle held that dominant gatekeepers should not be permitted to compete with third parties for access to the gatekeeper’s facilities. Limits on business entry for network monopolies, gatekeeper intermediaries, and other businesses deemed to have outsized control over key services were a mainstay of economic regulation.

This Part traces the evolution in both the institutional mechanisms and the substantive considerations by which government actors have imposed limits on business entry. It closes by sketching out how current antitrust law neglects to address harms from vertical integration that should trigger scrutiny even under the current framework.

Notably, state and federal governments have issued line-of-business restrictions through a variety of legal tools: corporate charters, regulatory regimes, and antitrust law.²²⁷ In some cases, these limits prohibited firms from expanding into *any* distinct market; in others, they prohibited firms from entering only *adjacent* markets—namely, those markets that involve a successive stage of production or distribution. A categorical prohibition would, for example, ban a movie distributor from entering any nondistributor market, whereas a ban on integration would prohibit it from entering only the movie-production market or the movie-theater market. Since this Article examines the dual role that digital platforms play—as both marketplace operators and merchants in the marketplace—this Part primarily focuses on limits on entry into adjacent markets.

A. *Evolving Approaches to Restricting Business Lines*

Early American corporations had their activities restricted by their charters. States issued corporate charters as a special grant of limited

225. Kevin Werbach, A Layered Model for Internet Policy, 1 J. on Telecomm. & High Tech. L. 37, 59 (2002) (distinguishing between four layers that comprise the Internet: physical, logical, applications or services, and content).

226. Bridy, *supra* note 222, at 205; see also Brett M. Frischmann, Infrastructure: The Social Value of Shared Resources 319–23 (2012) (describing a five-layer model of internet infrastructure).

227. See *infra* section II.A.

liability in exchange for the performance of specific duties and functions.²²⁸ Corporate charters generally limited the size, scope, and duration of operations and steered business activity toward serving community purposes.²²⁹ This effort to use charters to impose “some degree of social control” on firms lasted into the late nineteenth century, by which point most state legislatures had passed general incorporation laws—with the expectation that companies would now be regulated by competition.²³⁰ With this shift from special to general incorporation, the corporation largely ceased being viewed as an instrument of state policy and instead became seen as a “private institution” that had authority “to carry on virtually any kind of business.”²³¹

Following this shift, restricting the lines of business in which a firm could engage mostly fell to regulatory regimes that Congress introduced to govern specific sectors. Typically overseen by an administrative agency, these regulatory regimes spanned industries including railroads, banking, airlines, trucks, telecommunications, electricity, and natural gas—sectors considered both critical to the economy and, in some cases, susceptible to monopolistic market structures.²³² In some instances, the statute creating the regulatory regime specifically prohibited regulated firms from entering certain markets.²³³ In other cases, these limits on entry (and exit) were instituted by the administrative agency.²³⁴

While each regime had its own specific policy goals and regulatory tools, government oversight of these “regulated industries” shared a

228. This notion of the corporate form stemmed from early English law, where corporations were

in form, in fact, and in legal cognizance a device by which the political state got something done. They were far more like the bodies corporate we call ‘public authorities’ today Few in the seventeenth or eighteenth centuries would have disputed that a corporation was an agency of the state—probably not before the early nineteenth century, either in England or in the United States.

Adolf A. Berle, Jr., *Constitutional Limitations on Corporate Activity—Protection of Personal Rights from Invasion Through Economic Power*, 100 U. Pa. L. Rev. 933, 944 (1952).

229. *Id.* at 935 (describing “attempts to limit by charter the size or the scope of operations, or to guide into, or hold operations in, some specific field of activity, . . . or [to] direct[] corporate action for community purposes,” which carried forward into nineteenth-century state incorporation statutes but were then abandoned).

230. *Id.* at 935, 946.

231. *Id.* at 946. Of course, this view of corporations as private actors did not override the recognition that the corporate form derived its legal protections from the state. Indeed, “[c]ourts continued to insist that ultimate control over and responsibility for the administration and functioning of the corporation remained with the state because the corporation’s existence and functioning was an exercise of the sovereign political power of the state itself.” *Id.*

232. See Joseph D. Kearney & Thomas W. Merrill, *The Great Transformation of Regulated Industries Law*, 98 Colum. L. Rev. 1323, 1325–27 (1998).

233. See *infra* sections III.A–B.

234. See *infra* sections III.C–D.

general aim of ensuring reliability and nondiscrimination.²³⁵ Agencies applied restrictions on market entry and exit to promote both of these goals.²³⁶ In some cases, regulated firms were permitted to enter multiple markets so that they could cross-subsidize: Long-distance service, for example, could subsidize local service, enabling the provision of universal service.²³⁷ In other instances, regulated firms were prohibited from entering certain lines of business in order to further the goal of nondiscrimination.²³⁸ While common carriage regimes would require a firm to offer equal service on equal terms, prohibiting a firm from competing with its business customers would eliminate one source of the incentive to discriminate. In this way, common carriage and structural separations often functioned as complements in the service of nondiscrimination. In addition to limiting entry and exit, standard agency interventions included regulating rates, requiring standard packages of services at uniform prices, and mandating universal service.²³⁹

No precise set of criteria determined the sectors that Congress decided to oversee through regulatory regimes. Several of the regulated industries exhibited natural monopoly characteristics—including high fixed costs and low marginal costs—but these economic characteristics offer only a partial explanation.²⁴⁰ Direct government oversight tended to hinge more on the degree to which an industry was, as the Supreme Court termed it, “affected with a public interest.”²⁴¹ In some cases, the “public-ness” of an industry correlated to the degree to which it was a

235. Kearney & Merrill, *supra* note 232, at 1325.

236. See *id.* at 1359 (“[T]he regulatory agency would make the initial and central determination of whether companies would be permitted to enter the industry.”).

237. *Id.* at 1340.

238. See *id.* at 1359.

239. See *id.* at 1334 (arguing that, in the 1930s, it was “generally accepted that an administrative system based on filed tariffs” was an effective way of regulating public utilities and common carriers).

240. See *id.* (noting that some traditionally regulated industries were natural monopolies, while “others were highly competitive”); see also Thomas B. Nachbar, *The Public Network*, 17 *CommLaw Conspectus* 67, 97 (2008) (“The early history of common carrier regulation is devoid of any mention of monopoly, nor is market power an element of modern common carrier regulation of many industries. For instance, inns have traditionally been subject to the same liability in the presence or absence of competition.” (footnote omitted)).

241. *Munn v. Illinois*, 94 U.S. 113, 130 (1876) (internal quotation marks omitted) (quoting Sir Matthew Hale, *De Portibus Maris*, in 1 *A Collection of Tracts Relative to the Law of England* 45, 78 (Francis Hargrave ed., 1787)); see also Nachbar, *supra* note 240, at 106 (“The object of the business, not the number of competitors in the market, renders one’s work public.”); Tim Wu, *Why Have a Telecommunications Law? Anti-Discrimination Norms in Communications*, 5 *J. on Telecomm. & High Tech. L.* 15, 31 (2006) (“[I]t is the role the carrier plays in the economy that necessitates duties of common carriage, not necessarily the potential for abuse of market power.”).

public necessity, as was the case, for example, with electricity.²⁴² Nondiscriminatory access requirements, however, were generally tied to physical distribution networks, which the government has a long history of overseeing.²⁴³ All regulated industries were related in some way to transportation and communication networks, even as “different economic and social facts seem to carry different weight” depending on the context.²⁴⁴

As Professors Joseph Kearney and Thomas Merrill have described, starting in the 1970s this legal regime gave way to a different regulatory paradigm.²⁴⁵ Instead of promoting equal treatment and reliable service, the new framework sought to encourage competition both among providers and within their forms of service, the idea being that maximizing consumer choice would minimize the need for regulatory involvement.²⁴⁶ The specific way lawmakers applied this new framework varied by industry. The Airline Deregulation Act of 1978, for example, ended the public utility approach to regulating airlines, while the Telecommunications Act of 1996 loosened some restrictions and introduced a new set of requirements oriented around the goal of promoting competition.²⁴⁷ Across industries, tariffed services, integrated service packages, and regulatory control were abandoned in favor of individually negotiated contracts, unbundled services, and an abridged role for administrative agencies.²⁴⁸

The transition away from the traditional regulatory paradigm took place against a background assumption that antitrust laws would robustly police formerly regulated dominant firms. Both Alfred Kahn and then-Professor Stephen Breyer, strong advocates of the shift in regulatory paradigm, described the new regime as a distinct form of regulation.²⁴⁹

242. See Nachbar, *supra* note 240, at 85 (“Society’s willingness to engineer markets in order to provide access to certain articles of commerce depends in some measure on the necessity of those items.”).

243. *Id.* at 102.

244. *Id.* at 109.

245. See Kearney & Merrill, *supra* note 232, at 1325 (“This legal regime has been giving way over the last quarter-century to a very different paradigm.”).

246. *Id.* at 1361.

247. See *id.* at 1325–26, 1335.

248. *Id.* at 1326.

249. This view was captured by Alfred Kahn, a primary architect of airline deregulation. In an interview he reflected on the thinking at the time: “[The Airline Deregulation Act] provided for eventual total deregulation on route, entry and exit . . . and total freedom of pricing. It did not eliminate antitrust scrutiny. . . . [O]f course we continued to regulate with intensified application of the antitrust laws.” Alfred E. Kahn Interview, PBS: The First Measured Century, <http://www.pbs.org/fmc/interviews/kahn.htm> [<https://perma.cc/GN6Q-SX5E>] (last visited Oct. 19, 2018); see also Stephen Breyer, *Analyzing Regulatory Failure: Mismatches, Less Restrictive Alternatives, and Reform*, 92 *Harv. L. Rev.* 547, 578 (1979) [hereinafter Breyer, *Analyzing Regulatory Failure*] (“[O]ne should recognize that ‘unregulated’ markets are subject to the antitrust laws—a form of government intervention designed to maintain a workably competitive marketplace.”).

And while most tools of the first regulatory paradigm (rate-setting, for example, or mandated universal service) were largely eliminated in favor of the new competition-based paradigm, structural restrictions on business have remained a feature of both. This is because even as the new model was less directly interventionist, it still relied on the antitrust laws to police markets—and structural limits have been a key remedy in antitrust.²⁵⁰

The antitrust laws broadly prohibit anticompetitive conduct and anticompetitive mergers. Structural prohibitions can apply in both contexts. When a company is found to be monopolizing or attempting to monopolize a market in violation of Section 2 of the Sherman Act, breakup of the company is an available remedy.²⁵¹ Separately, when a court determines that the effect of a particular merger or acquisition “may be substantially to lessen competition, or to tend to create a monopoly” in violation of Section 7 of the Clayton Act, it can enjoin the merger.²⁵² Compared to separations implemented through regulations, antitrust separations are less likely to categorically deny market entry, although consent decrees that govern a significant market segment may achieve that effect.²⁵³ In

250. As then-Chief Judge Breyer put it, “[e]conomic regulators seek to achieve [the goals of low prices, innovation, and efficient production methods] *directly* by controlling prices through rules and regulations; antitrust seeks to achieve them *indirectly* by promoting and preserving a [competitive] process that tends to bring [these goals] about.” *Town of Concord v. Bos. Edison Co.*, 915 F.2d 17, 22 (1st Cir. 1990).

251. See, e.g., *Standard Oil Co. of N.J. v. United States*, 221 U.S. 1, 78 (1911) (“The court below . . . adjudged that the New Jersey corporation . . . was a combination in violation of the 1st section of the [Sherman Act], and an attempt to monopolize or a monopolization contrary to the 2d section of the act. It commanded the dissolution of the combination . . .”); *United States v. Microsoft Corp.*, 253 F.3d 34, 99–100 (D.C. Cir. 2001) (en banc) (per curiam) (summarizing the district court’s remedy, which mandated a structural separation between Microsoft’s operating system and browser).

252. See *Mergers*, FTC, <https://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws/mergers> [<https://perma.cc/B4FE-N3Q4>] (last visited Mar. 17, 2019) (“Merger law is generally forward-looking: it bars mergers that *may* lead to harmful effects.”).

253. For example, in *United States v. Paramount Pictures, Inc.*, 334 U.S. 131 (1948), the Justice Department entered into consent decrees with five major motion picture companies and three minor ones. See *id.* at 141 n.3. Each decree mandated a separation between film distribution and exhibition, requiring those defendants that then owned theatres to divest either their distribution operations or their movie theatres. Barry J. Brett & Michael D. Friedman, *A Fresh Look at the Paramount Decrees*, *Ent. & Sports Law.*, Fall 1991, at 1, 3 (“[S]ome of the majors were required to ‘divorce’ themselves from their theatre interests and were prohibited from engaging in the exhibition business except upon . . . permission by the court. Similarly, some of the divorced exhibition companies were prohibited from engaging in production and distribution activities without court approval.” (footnote omitted)); see also *infra* section III.D. Meanwhile, in earlier enforcement eras the FTC would routinely enter consent orders prohibiting subsequent acquisitions in particular lines of business. As of 1975, the FTC had at least fifty-four orders with provisions barring acquisitions. See *United States v. ITT Cont’l Baking Co.*, 420 U.S. 223, 250 n.7 (1975) (Stewart, J., dissenting).

either case, the separation intervenes at the level of business structure rather than conduct.²⁵⁴

Unknown at the time of the shift away from regulated industries was how drastically antitrust law, too, would be transformed. Through the 1960s, antitrust courts and enforcers assessed business expansion into adjacent markets through “economic structuralism,” an approach that analyzed competition primarily through examining the structure of markets.²⁵⁵ Although the government was light on bringing antitrust actions in vertical merger cases up until the 1930s, scrutiny of vertical expansion picked up after the Great Depression, which wiped out thousands of small unintegrated businesses and catalyzed a political movement against integrated chain stores.²⁵⁶

Skeptics of vertical integration offered two primary theories of harm: leverage and foreclosure. The concern with leverage was that a dominant firm would use its market power in one line of business to establish an outsized advantage in an adjacent market.²⁵⁷ The risk posed by

254. Separate from government-mandated separations, sometimes firms break themselves up. For example, in recent years General Electric has spun off its transportation business and its healthcare unit, and—in a breakup partially reflecting the separations principle—is separating its natural gas unit from its unit producing equipment and distributing electricity. Thomas Gryta, *GE Slashes Dividend, Discloses Criminal Probe; Shares Sink*, *Wall St. J.* (Oct. 30, 2018), <https://www.wsj.com/articles/general-electric-slashes-quarterly-dividend-to-1-cent-1540896132> (on file with the *Columbia Law Review*). Corporate spinoffs became popular in the 1980s, when improvements in available data and analysis helped investors realize that specialist firms attract higher valuations than rivals within diversified groups. This “conglomerate discount” gave rise to a strategy whereby corporate raiders would buy firms with short-term “junk” debt that they would repay by selling business units off individually. Stephen Wilmot, *Break Up And Die: Why Spinoff Fever Can't Last Forever*, *Wall St. J.* (Nov. 13, 2017), <https://www.wsj.com/articles/break-up-and-die-why-spinoff-fever-cant-last-forever-1510580248> (on file with the *Columbia Law Review*). Indeed, corporate spinoffs can generate significant value; one study found that companies divested from parents between 2001 and 2012 “generated a return 17.1 percent in excess of the benchmark over the 22 months following the split.” *Id.* But the spinoffs fared worse than the benchmark during the financial crisis and the Eurozone debt crisis, suggesting that “[i]nvesting in spin offs is essentially a high-risk, high-return strategy.” *Id.* In 2015, the value of corporate spinoffs totaled over \$175 billion. *Id.*

255. See Lina M. Khan, *Amazon's Antitrust Paradox*, 126 *Yale L.J.* 710, 717–22 (2017) [hereinafter Khan, *Antitrust Paradox*] (“One of the most significant changes in antitrust law and interpretation over the last century has been the move away from economic structuralism.”).

256. Herbert Hovenkamp, Robert Bork and Vertical Integration, 79 *Antitrust L.J.* 983, 985–88 (2014) [hereinafter Hovenkamp, *Vertical Integration*] (noting that, before the 1930s, “the Supreme Court wholeheartedly approved vertical integration that was not found to be part of a monopolization scheme”); see also *id.* at 986 (“[V]ertical integration leads to production cost savings and, to a lesser extent, savings in transaction costs. The belief that vertical integration had much to do with economy and little to do with monopoly dominated the thought of both the classical political economists and early neoclassical economics.”).

257. See, e.g., Friedrich Kessler & Richard H. Stern, *Competition, Contract, and Vertical Integration*, 69 *Yale L.J.* 1, 16 (1959) (explaining that “horizontal power in one

foreclosure meanwhile was that a vertically integrated firm would compel its subsidiary to deal exclusively with the parent, depriving unintegrated rivals of access to the firm's good or service.²⁵⁸ At a minimum, critics worried that vertical integration increased barriers to entry by necessitating potential entrants to compete in both lines of business.

In 1950, Congress amended Section 7 of the Clayton Act to make it expressly applicable to vertical acquisitions.²⁵⁹ Through the 1970s, the Justice Department successfully challenged vertical deals, resulting in divestitures.²⁶⁰ Ruling that a merger between a major producer and leading retailer of shoes would undermine competition, the Supreme Court explained that

[t]he primary vice of a vertical merger or other arrangement tying a customer to a supplier is that, by foreclosing the competitors of either party from a segment of the market otherwise open to them, the arrangement may act as a 'clog on competition,' which deprive(s) rivals of a fair opportunity to compete.²⁶¹

And in holding that the second largest auto manufacturer's acquisition of a leading auto parts dealer would foreclose market access for independent dealers, the Court concluded that "only divestiture would correct the condition caused by the unlawful acquisition."²⁶² Though enforcers' analysis of vertical control—through ownership or contract—was case-specific, it was integration by *dominant* firms that was most commonly held to be anticompetitive, given that exclusionary conduct by dominant companies could, in practice, entirely close off markets to unintegrated rivals.²⁶³ In *United States v. E.I. du Pont de Nemours & Co.*, the Court held that internal transfers within a vertically integrated firm could

market or stage of production creates 'leverage' for the extension of the power to bar entry at another level," such that a vertically integrated dominant firm could "impair competition to a greater extent than could the exercise of horizontal power alone").

258. See *id.* at 14 ("Vertical integration, whether by contract or ownership, necessarily forecloses access to a segment of the market, since competitors of the integrating firm often can no longer deal with the integrated enterprise.").

259. Clayton Act, ch. 1184, § 7, 64 Stat. 1125, 1125–26 (1950) (codified as amended at 15 U.S.C. § 18 (2012)).

260. See, e.g., *Ford Motor Co. v. United States*, 405 U.S. 562, 578 (1972) (requiring the dissolution of a vertical acquisition by Ford, a major automobile manufacturer, of assets from an automotive parts manufacturer).

261. *Brown Shoe Co. v. United States*, 370 U.S. 294, 323–24 (1962) (citation omitted) (quoting *Standard Oil Co. of Cal. v. United States*, 337 U.S. 293 (1949)).

262. *Ford Motor Co. v. United States*, 405 U.S. 562, 575 (1972); see also *id.* at 571 ("Every extended vertical arrangement by its very nature, for at least a time, denies to competitors of the supplier the opportunity to compete for part or all of the trade of the customer-party to the vertical arrangement." (quoting *Brown Shoe*, 370 U.S. at 323–24)).

263. Reflecting this view, Professors Carl Kaysen and Donald Turner—two influential antitrust thinkers—criticized vertical integration in concentrated markets, connecting integration to monopolistic outcomes. See Carl Kaysen & Donald F. Turner, *Antitrust Policy: An Economic and Legal Analysis* 120–21 (1959).

be anticompetitive if they denied competitors market access.²⁶⁴ And in the 1968 Merger Guidelines, the Justice Department stated that integration achieved through a large vertical merger “will usually raise entry barriers or disadvantage competitors to an extent not accounted for by, and wholly disproportionate to, such economies as may result from the merger.”²⁶⁵

This approach to vertical integration underwent a sea change during the 1980s. Though some economists had for decades maintained a benign view of vertical integration, it was work by Robert Bork, Ward Bowman, and Richard Posner, among others, that helped drive an overhaul in policy.²⁶⁶ Bork’s scholarship challenged both the leverage and foreclosure theories of harm as logical fallacies,²⁶⁷ while Bowman argued

264. See 353 U.S. 586, 605–07 (1957) (“The statutory policy of fostering free competition is obviously furthered when no supplier has an advantage over his competitors from an acquisition of his customer’s stock likely to have the effects condemned by [Section 7 of the Clayton Act].”).

265. U.S. Dep’t of Justice, 1968 Merger Guidelines 9–10 (1968), <https://www.justice.gov/sites/default/files/atr/legacy/2007/07/11/11247.pdf> [<https://perma.cc/B6HW-4Q8L>].

266. Earlier in the century, prominent economists including John Maurice Clark and Ronald Coase had stressed that vertical integration can produce significant cost savings. See John Maurice Clark, *Studies in the Economics of Overhead Costs* 81, 136–41 (1923) (noting that vertical integration yields “important economies to be had, distinct from the other economies of large-scale production”); R.H. Coase, *The Problem of Social Cost*, 3 *J.L. & Econ.* 1, 16–19 (1960) (explaining that one of the benefits of vertical integration is that “individual bargains between the various cooperating factors of production are eliminated”). Economists who instead emphasized the harmful effects of vertical integration included Joe Bain, Arthur Burns, Edward Chamberlain, and Henry Simons. See Joe S. Bain, *Industrial Organization* 514–17 (1959) (“Potentially inherent in almost any structure of vertically integrated firms are some implicitly exclusionary effects, or some virtual disadvantages to actual or potential competitors of the integrated firms.”); Arthur R. Burns, *The Decline of Competition: A Study of the Evolution of American Industry* 431–45 (1936) (discussing the consequences of vertical integration, chief among them that vertical integration “diminishes the effectiveness of the market as a stimulus to the improvement of methods of production”); Edward Chamberlain, *The Theory of Monopolistic Competition* 122–23 (1933) (arguing that one firm’s decision to vertically integrate incentivizes other firms to do the same, resulting in “duplication of distributive machinery” and “still more waste”); Henry C. Simons, *A Positive Program for Laissez Faire* 20–21 (Harry D. Gideonse ed., *Public Policy Pamphlets* No. 15, 1934) (“[V]ertical combinations (integration) should be permitted only so far as clearly compatible with the maintenance of real competition. Few of our gigantic corporations can be defended on the ground that their present size is necessary to reasonably full exploitation of production economies . . .”). For a general overview of economic attitudes toward vertical integration through the Great Depression, see Herbert Hovenkamp, *Enterprise and American Law, 1836–1937*, at 331–48 (1991).

267. See Robert H. Bork, *The Antitrust Paradox: A Policy at War with Itself* 231–38 (1978) [hereinafter Bork, *Antitrust Paradox*] (claiming that the “sole merit” of the foreclosure theory of harm “is that it establishes a new high in preposterousness”); Robert H. Bork, *Vertical Integration and the Sherman Act: The Legal History of an Economic Misconception*, 22 *U. Chi. L. Rev.* 157, 195–201 (1954) (arguing against the leverage theory of harm because “it is always horizontal market power, and not integration into other levels” that determines a firm’s ability to earn monopoly profits).

that the jurisprudence around tying agreements was deeply flawed.²⁶⁸

These scholars, associated with the Chicago School, argued that, contrary to prevailing economic theory and antitrust policy, vertical integration was almost always procompetitive. This view was premised primarily on three arguments. First, they maintained, firms could not extract additional profits from extending a dominant position into a distinct market, because—assuming that a firm was already selling a combination of goods at its profit-maximizing price—increasing the price of one would result in a corresponding offset in the other.²⁶⁹ Second, the Chicago School held that an integrated firm would be able to foreclose rivals only to the degree that the firm had generated cost savings, outdoing less efficient competitors—an outcome that antitrust should encourage.²⁷⁰ Insofar as a vertically integrated entity did cut off both upstream sellers and downstream customers, those firms now had an opportunity to transact with one another. And third, they argued, vertical mergers would invariably generate significant efficiencies.²⁷¹ Because the upstream division would transfer its input to the downstream entity at marginal cost rather than at a sales price, vertical mergers eliminated double marginalization, leading the downstream partner to lower prices for consumers.

With the election of President Reagan, these theories were stamped into policy through both the antitrust agencies and federal judiciary. For the next decade, antitrust officials did not challenge a single vertical merger and relaxed scrutiny of vertical restraints more generally.²⁷² The transformation in how antitrust authorities approached vertical structures and conduct was part of a broader revolution in antitrust law, which embraced “consumer welfare” as the lodestar of antitrust and adopted

268. See Ward S. Bowman, Jr., *Tying Arrangements and the Leverage Problem*, 67 *Yale L.J.* 19, 19–20 (1957) (“Present legal methods of treating tying contracts are based upon a false notion of leverage.”).

269. See *supra* section I.E.2; see also, Bork, *Antitrust Paradox*, *supra* note 267, at 229; Bowman, *supra* note 268, at 25.

270. See Bork, *Antitrust Paradox*, *supra* note 267, at 236–37.

271. See *id.* at 219; Joseph J. Spengler, *Vertical Integration and Antitrust Policy*, 58 *J. Pol. Econ.* 347, 347–52 (1950) (“Vertical integration, on the contrary, does not, as such, serve to reduce competition and may, if the economy is already ridden by deviations from competition, operate to intensify competition.”).

272. See Steven C. Salop, *Reinvigorating Vertical Merger Enforcement*, 127 *Yale L.J.* 1962, 1964 (2018) (noting that the last vertical merger case litigated to completion by the FTC occurred in 1979). This shift in policy was also reflected in the 1982 Merger Guidelines. Compare U.S. Dep’t of Justice, 1968 Merger Guidelines (1968), <https://www.justice.gov/sites/default/files/atr/legacy/2007/07/11/11247.pdf> [<https://perma.cc/XTB6-E92K>] (emphasizing market structure), with U.S. Dep’t of Justice, 1982 Merger Guidelines (1982), <https://www.justice.gov/sites/default/files/atr/legacy/2007/07/11/11248.pdf> [<https://perma.cc/YV94-HPH7>] (emphasizing price).

price theory as the proper methodology for analyzing competition.²⁷³ As courts incorporated this new learning into their analysis, they shifted from rules to standards, narrowing the range of dominant firm conduct treated as anticompetitive.²⁷⁴ Although the Chicago School's influence drove these changes at the level of policy, the Harvard School—whose prominent members included Phil Areeda and Stephen Breyer—also played a critical role in setting the intellectual foundation for narrowing the zone of liability for dominant firms.²⁷⁵

Since the Chicago School's "resounding victory," scholars have critiqued some of its excesses and moderated its theories, delivering the "Post-Chicago School."²⁷⁶ Today's approach to antitrust law largely follows in this Post-Chicago tradition, where Chicago's influence has been tempered even as it remains indelible.²⁷⁷ The following section reviews the current antitrust approach to vertical integration and why it risks neglecting potentially anticompetitive vertical conduct by dominant platforms.

B. *Contemporary Antitrust's Treatment of Vertical Integration*

Most forms of vertical integration today are "viewed as economically beneficial and competitively benign."²⁷⁸ Antitrust scrutiny of vertical integration has two legal hooks: (1) Section 7 of the Clayton Act, which states that mergers that may "substantially lessen competition" are unlawful,²⁷⁹ and (2) Section 2 of the Sherman Act, which prohibits monopolization or attempted monopolization.²⁸⁰ An unlawful vertical merger could be challenged under Section 7, and vertical conduct that constitutes monopolization or attempted monopolization could be targeted

273. See William E. Kovacic, *The Intellectual DNA of Modern U.S. Competition Law for Dominant Firm Conduct: The Chicago/Harvard Double Helix*, 2007 *Colum. Bus. L. Rev.* 1, 8 (describing modern antitrust law as evincing a "wariness of rules that might discourage dominant firms from pursuing price-cutting, product development, or other strategies that generally serve to improve consumer welfare").

274. See, e.g., *id.* at 64 (noting that recent antitrust jurisprudence has led to "more permissive substantive liability rules" and has created "non-intervention presumptions of liability standards that constrain the prosecution of private antitrust cases").

275. *Id.* at 14.

276. See Daniel A. Crane, *Chicago, Post-Chicago, and Neo-Chicago*, 76 *U. Chi. L. Rev.* 1911, 1911 (2009) ("Of all of Chicago's law and economics conquests, antitrust was the most complete and resounding victory. . . . [N]ever did Chicago trounce its ideological opponents as plainly and lastingly as it did in the field of its early conquests—antitrust.").

277. For a high-level review of post-Chicago theory on vertical integration, see *infra* Appendix.

278. Hovenkamp, *Vertical Integration*, *supra* note 256, at 996.

279. 15 U.S.C. § 18 (2012).

280. *Id.* § 2.

under Section 2. Given the dearth of cases challenging vertical mergers, the law governing vertical mergers has remained “undeveloped.”²⁸¹

Two factors that inform whether a vertical merger or vertical conduct is held to be anticompetitive are the competitiveness of a market and the presence of entry barriers. Economic analysis holds that foreclosure is a viable antitrust strategy in monopolistic and oligopolistic markets protected by entry barriers.²⁸² Similarly, establishing monopolization generally requires showing both the existence of monopoly power and the existence of entry barriers.²⁸³

In digital platform markets, two potential entry barriers worth assessing are network effects and unequal access to data. In markets characterized by network effects, the value of the relevant good or service increases with greater use of that good or service.²⁸⁴ Whereas supply-side economies of scale reflect declining average and marginal costs of production, network effects are a *demand*-side feature. Depending on the type and strength of the network effects, these externalities can serve as barrier to entry—a finding that formed the basis of the *Microsoft* decision.²⁸⁵ Scholarship analyzing the conditions under which unequal access to data serves as an entry barriers is still developing, but initial work suggests that the self-reinforcing advantages of data may give incumbents a sufficiently significant lead that potential competitors struggle to enter.²⁸⁶

281. Salop, *supra* note 272, at 1964–65; see also *United States v. AT&T*, 310 F. Supp. 3d 161, 192 (D.D.C. 2018) (identifying a lack of clear precedent in the application of antitrust principles to vertical merger cases).

282. See Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals’ Costs to Achieve Power over Price*, 96 *Yale L.J.* 209, 224–38 (1986).

283. *United States v. Microsoft Corp.*, 253 F.3d 34, 51, 82 (D.C. Cir. 2001) (*en banc*) (per curiam). Strikingly, vertical tying by a firm with market power is still *per se* illegal. *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 9–10 (1984).

284. Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 *Am. Econ. Rev.* 424, 424 (1985); see also Carl Shapiro & Hal R. Varian, *Information Rules: A Strategic Guide to the Network Economy* 173–74 (1998) (providing an example of positive feedback in network effects by describing how the value of Microsoft and Intel computing systems outpaced the value of Apple computing systems in the late 1990s, given the large share of the market captured by Microsoft and Intel).

285. See *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30, 36 (D.D.C. 2000) (“The plaintiffs proved at trial that Microsoft possesses a dominant, persistent, and increasing share of the relevant market. . . . This barrier ensures that no Intel-compatible PC operating system other than Windows can attract significant consumer demand. . . .”); see also *Microsoft*, 253 F.3d at 83.

286. See, e.g., Stucke & Grunes, *supra* note 26, at 7 (arguing that, although data-driven industries do not necessarily have high barriers to entry in every instance, “[d]ata-driven markets ‘can lead to a “winner takes all” result where concentration is a likely outcome of market success’” (quoting Org. for Econ. Cooperation & Dev., *Data-Driven Innovation for Growth and Well-Being: Interim Synthesis Report 7* (2014) [hereinafter *Data-Driven Innovation*], <https://www.oecd.org/sti/inno/data-driven-innovation-interim-synthesis.pdf> [<https://perma.cc/6LW9-3WX6>])); Daniel L. Rubinfeld & Michal S. Gal, *Access Barriers to Big Data*, 59 *Ariz. L. Rev.* 339, 370 (2017) (“[F]irms enjoying data-based

Given the turn away from structuralism, contemporary antitrust law generally requires that the allegedly anticompetitive merger or conduct have an anticompetitive *effect*, defined as harm to consumer welfare.²⁸⁷ This welfare-based framework is understood to include not just static concerns about price and output but also dynamic concerns about innovation.²⁸⁸

Notably, discrimination and appropriation by dominant tech platforms seem to generate antitrust harms cognizable even within this welfare-based framework. Insofar as platform conduct reduces investment and entrepreneurial activity by independent parties, any subsequent loss in innovation would—in a dynamic efficiency framework—constitute a harm to competition.²⁸⁹ These dynamics are an echo of *Microsoft*, insofar as it was Microsoft's conduct against Netscape that prompted the Justice Department to bring its antitrust suit alleging that Microsoft's activity "adversely affect[ed] innovation," by "impairing the incentive[s]" of rivals to "undertake research and development" and "impairing the ability" of "competitors to obtain financing."²⁹⁰

Some former state enforcers and lawyers have argued that dominant platforms are engaging in exclusionary conduct to acquire and maintain monopoly power in ways reminiscent of Microsoft—but that enforcers have yet to rectify these marketplace harms, due to unfavorable case law in the United States and inadequate remedies by the European Commission.²⁹¹

advantages will be motivated to engage in exclusionary conduct and erect artificial barriers to entry in order to maintain or strengthen their advantage . . . [T]he unique characteristics of big-data markets . . . affect the nature, scale, and scope of such competitive effects."); see also Nathan Newman, Search, Antitrust, and the Economics of the Control of User Data, 31 *Yale J. on Reg.* 401, 418–19 (2014) [hereinafter Newman, Control of User Data] (discussing the barriers to entry, including an up-front investment in data networks, that Bing faces in competing with Google in the online search market).

287. See *supra* note 273 and accompanying text.

288. Joshua D. Wright, Antitrust, Multi-Dimensional Competition, and Innovation: Do We Have an Antitrust-Relevant Theory of Competition Now?, in *Competition Policy and Patent Law Under Uncertainty: Regulating Innovation* 228, 230 (Geoffrey A. Manne & Joshua D. Wright eds., 2011) ("The emerging consensus appears to be that . . . antitrust should incorporate dynamic efficiencies into the current framework by accounting for the impact of competition to engage in research and development for new or improved goods, services, or processes.").

289. See Baker, *supra* note 210, at 576; Michael L. Katz & Howard A. Shelanski, Mergers and Innovation, 74 *Antitrust L.J.* 1, 3–5 (2007); Wright, *supra* note 288, at 230. For a high-level overview of existing research on whether platform conduct is suppressing innovation, see Noah Smith, Big Tech Sets Up a 'Kill Zone' for Industry Upstarts, *Bloomberg* (Nov. 7, 2018), <https://www.bloomberg.com/opinion/articles/2018-11-07/big-tech-sets-up-a-kill-zone-for-industry-upstarts> (on file with the *Columbia Law Review*).

290. Complaint at 12–13, *Microsoft*, 87 F. Supp. 2d 30 (No. 98-1232), 1998 WL 35241886.

291. See, e.g., Martin Giles, Gary Reback: Technology's Trustbuster, *MIT Tech. Rev.* (June 27, 2018), <https://www.technologyreview.com/s/611488/gary-reback-technologys-trustbuster/> [<https://perma.cc/3CLC-QKF3>] ("Why is it that we were able to go after Microsoft in the 1990s, and now we're facing almost identical conduct by Google and

Platform discrimination and appropriation also risk going unaddressed by contemporary antitrust. This is because of both specific doctrinal changes that have significantly narrowed the range of instances in which single-firm conduct rises to an antitrust offense as well as general blind spots of a consumer welfare approach primarily focused on price and output effects.²⁹² To appreciate the likely neglect of antitrust to these competition harms, it's worth briefly reviewing the doctrinal obstacles to bringing an antitrust case against a dominant tech platform for discrimination or appropriation.

1. *Denial of Access and the Essential Facilities Doctrine.* — Prior to 2004, a dominant tech platform that blocked independent parties in favor of its own goods or services might have been liable under the “essential facilities” doctrine.²⁹³ Under essential facilities, dominant firms that deny other businesses nondiscriminatory access to their unique facilities may incur antitrust liability.²⁹⁴

This doctrine traces to the early years of the federal antitrust law, when the Supreme Court interpreted Section 1 of the Sherman Act to impose obligations of equal and nondiscriminatory access.²⁹⁵ In subsequent decades, the Court interpreted the Sherman Act to require that the only railroad bridge across the Mississippi river grant open and equal access to all rivals;²⁹⁶ that the Associated Press grant nondiscriminatory membership to publishers that competed with its existing members;²⁹⁷

we can't manage to do anything about it in the US?” (quoting attorney Gary Reback)); Sally Hubbard, *The Case for Why Big Tech Is Violating Antitrust Laws*, CNN (Jan. 2, 2019), <https://www.cnn.com/2019/01/02/perspectives/big-tech-facebook-google-amazon-microsoft-antitrust/index.html> [<https://perma.cc/G7T8-U935>] (“The nearly 20-year-old case of *US v. Microsoft* illustrates how today’s tech giants are breaking the law. . . . Google, Amazon and Facebook are following the same playbook.”).

292. Kevin Caves & Hal Singer, *When the Econometrician Shrugged: Identifying and Plugging Gaps in the Consumer Welfare Standard*, 26 *Geo. Mason L. Rev.* (forthcoming 2019) (manuscript at 3–5) (on file with the *Columbia Law Review*) (“The first potential blind spot identified here concerns innovation harms. These harms, which might not manifest until future periods, are not readily quantifiable or relatable to a platform’s discrimination; thus, exclusionary conduct that generated such harms may not be cognizable under current the rigorous antitrust injury standard.”).

293. Notably, the essential facilities doctrine would be available to independent parties only in instances when the dominant platform was a competitor. Denial of access to parties that could not be characterized as competitors would not be cognizable as an essential facilities claim. See, e.g., *Olde Monmouth Stock Transfer Co. v. Depository Trust & Clearing Corp.*, 485 F. Supp. 2d 387, 395 (S.D.N.Y. 2007) (“[T]he essential facility doctrine is intended to prevent a *competitor* from obtaining an unfair advantage in a market by denying to its actual or potential *competitors* access to a facility essential for use of that market.”).

294. See, e.g., *id.*

295. While the Supreme Court has applied the principles underlying the essential facilities doctrine, it has never mentioned it by name. Brett Frischman & Spencer Weber Waller, *Revitalizing Essential Facilities*, 75 *Antitrust L.J.* 1, 6–7 (2008).

296. *United States v. Terminal R.R. Ass’n of St. Louis*, 224 U.S. 383, 411 (1912).

297. *Associated Press v. United States*, 326 U.S. 1, 21 (1945).

and that the sole power company in a region must transmit power generated by rival firms to customers that sought to buy cheaper power from those rivals.²⁹⁸

In 1983, the Seventh Circuit formalized essential facilities into a doctrinal test, requiring plaintiffs to establish four elements: (1) the monopolist controls access to an essential facility; (2) the facility cannot be practically or reasonably duplicated by a competitor; (3) the monopolist denies access to a competitor; and (4) it is feasible for the monopolist to provide access.²⁹⁹ In this way, essential facilities could be seen as “a means of protecting or injecting competition into a market susceptible to monopolization due to structural factors.”³⁰⁰

Insofar as independent producers or developers could prove these elements, the dominant platform would have been liable.³⁰¹ The essential facilities doctrine, however, has died a “death by a thousand cuts,”³⁰² having drawn academic criticism since the 1980s.³⁰³ As of 2004, the essential facilities doctrine lives in “near extinction.”³⁰⁴ That year, in

298. *Otter Tail Power Co. v. United States*, 410 U.S. 366, 378 (1973).

299. *MCI Commc'ns Corp. v. AT&T Co.*, 708 F.2d 1081, 1132–33 (7th Cir. 1983).

300. Maxwell Meadows, *The Essential Facilities Doctrine in Information Economies: Illustrating Why the Antitrust Duty to Deal Is Still Necessary in the New Economy*, 25 *Ford. Intell. Prop. Media & Ent. L.J.* 795, 809 (2015).

301. The first element has two sub-elements that plaintiffs must prove: (1) a defined market in which the defendant has a monopoly over the facility or resource, and (2) the defined market in which the facility is essential. Meadows, *supra* note 300, at 805. Plaintiffs' success will vary by market, but—given, for example, that Android captures over 85% of the mobile operating systems market and that Amazon captures over 70% of the online book market, see *supra* note 4—at least some producers would likely prove successful. See, e.g., *MCI*, 708 F.2d at 1133 (finding that the plaintiff had cleared the threshold requirement of showing that the telephone infrastructure at issue constituted “essential facilities” because the plaintiff “could not duplicate [the defendant’s] local facilities”). For ideas on how to conceptualize dominant tech platforms and their control over data as “essential facilities,” see Meadows, *supra* note 300, at 813–20 (“The ability to restrict access to either information or means of distribution in their entirety would demonstrate control adequate for the essential facilities doctrine.”); see also Zachary Abrahamson, *Comment, Essential Data*, 124 *Yale L.J.* 867, 870–72 (2014) (arguing that “a claim to essential data—data essential to competition—should require the same elements as a claim to an essential facility”).

302. Frischmann & Waller, *supra* note 295, at 9.

303. 3B Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* § 771c, at 205 (4th ed. 2015) (“Lest there be any doubt, we state our belief that the essential facility doctrine is both harmful and unnecessary and should be abandoned.”). But see James R. Ratner, *Should There Be an Essential Facility Doctrine?*, 21 *U.C. Davis L. Rev.* 327, 367–68 (1988) (discussing how the essential facilities doctrine could be “restructured” in response to criticism and arguing that such a restructuring would “contribute meaningfully to the competitive functioning of the downstream market”); Glenn O. Robinson, *On Refusing to Deal with Rivals*, 87 *Cornell L. Rev.* 1177, 1183 (2002) (endorsing essential facilities doctrine in lieu of broader general duty to deal for monopolists).

304. *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko LLP*, 540 U.S. 398, 410–11 (2004). Professors Brett Frischmann and Spencer Waller note that a narrow view of the Court’s skepticism could preserve a version of the essential facilities doctrine for joint

Trinko, the Court ruled on whether a customer of a local phone monopolist could bring an antitrust class action challenging discrimination by a monopolist against a rival.³⁰⁵ Although the Court's holding did not involve essential facilities, in dicta the Court all but rejected the viability of the doctrine.³⁰⁶ While courts continue to review essential facilities claims, in the wake of *Trinko* no plaintiff has successfully litigated one to judgment.³⁰⁷

2. *Discriminatory Refusal to Deal*. — A dominant tech platform that discriminates against those independent parties that provide competing goods or services could, in theory, be liable for discriminatory refusal to deal in violation of Section 2 of the Sherman Act.³⁰⁸ The key precedent is *Aspen Skiing*, in which the defendant's refusal to sell lift tickets to a rival resort was held to constitute unlawful monopolization.³⁰⁹ What distinguishes a legitimate refusal to deal from an illegitimate one is whether the dominant firm's actions *discriminate* between rivals and non-rivals.³¹⁰ For example, if Android demoted from the Google Play Store apps that competed with Google-owned apps but did not demote non-rivals, the demoted competitors would likely be able to allege a discriminatory refusal to deal claim against Android.

Here, too, the Supreme Court has thrown into doubt the practical viability of unilateral refusal to deal claims. In *Trinko*, the Court denied

refusals to deal under Section 1 of the Sherman Act. Frischmann & Waller, *supra* note 295, at 9 n.24. Notably, the essential facilities doctrine was criticized by prominent antitrust scholars for decades before *Trinko*. See, e.g., Herbert Hovenkamp, *Federal Antitrust Policy: The Law of Competition and Its Practice* § 7.7, at 410 (5th ed. 2016) (“The so-called ‘essential facility’ doctrine is one of the most troublesome, incoherent, and unmanageable bases for Sherman § 2 liability. The antitrust world would almost certainly be a better place if it were jettisoned, with a little fine tuning of the general doctrine . . . to fill any gaps.”); Philip J. Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 *Antitrust L.J.* 841, 852 (1989) (providing “six principles that should limit application of the essential facilities concept”).

305. See *Trinko*, 540 U.S. at 410–11 (holding that the monopolist’s “alleged insufficient assistance” did not create a cognizable antitrust claim).

306. Frischmann & Waller, *supra* note 295, at 9.

307. Courts have, however, allowed essential facilities claims to proceed beyond summary judgment. See, e.g., *Am. Home Healthcare Servs., Inc. v. Floyd Memorial Hosp. & Health Servs.*, No. 4:17-cv-00089, 2018 WL 1172995, at *7 (S.D. Ind. Mar. 5, 2018).

308. Whereas the essential facilities doctrine only covered instances of denying access, discriminatory refusal to deal covers instances of discriminatory access. See, e.g., *Trinko*, 540 U.S. at 411 (“[W]here access exists, the doctrine serves no purpose.”); *Aerotech Int’l, Inc. v. Honeywell Int’l, Inc.*, 836 F.3d 1171, 1185 (9th Cir. 2016) (“Honeywell’s ordering process may very well be ‘Kafkaesque,’ . . . and Honeywell may even provide priority access to certain customers, [but] Honeywell does not deny Aerotech access to APUs or their component parts.”).

309. *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 610 (1985).

310. Einer Elhauge, *Defining Better Monopolization Standards*, 56 *Stan. L. Rev.* 253, 308–09 (2003) (“[W]hile the ex ante efficiencies created by property rights do justify virtually all refusals to deal on terms other than the price set by the property owner, they do not justify discriminatory refusals to deal with those buyers who are (or deal with) rivals.”).

the existence of any duty to deal and characterized *Aspen Skiing* as “at or near the outer boundary of § 2 liability.”³¹¹ Stopping short of foreclosing refusal to deal claims entirely, the Court distinguished *Trinko* from *Aspen Skiing* on the grounds that (1) *Aspen* involved a defendant that had stopped participating in an existing venture, and (2) the existence of a regulatory structure that already governed the defendant’s duty to deal couldn’t be reconciled with a separate *antitrust* duty to deal.³¹²

The blow of *Trinko* is softened slightly in the context of the dominant tech platforms, which presently are not governed by a separate regulatory regime. But the Court also codified a heightened requirement, establishing that discriminatory refusals to deal will only be actionable if the conduct is likely to create a new monopoly or entrench an existing one.³¹³ In other words, the dominant platform must have a “dangerous probability of success” in monopolizing the adjacent market. Discrimination by Android against independent apps, for example, would constitute a viable claim only if that discrimination were enabling Google to capture a monopolistic share of the relevant app market.³¹⁴ Although some commentators have read this requirement as “squeeze[ing] much of the remaining vitality out of Section 2 claims challenging unilateral refusals to deal,”³¹⁵ it is possible that platform conduct in certain adjacent markets could be shown to meet even this heightened standard.³¹⁶

3. *Information Appropriation.* — Antitrust enforcers recognize that appropriation of sensitive competitor information can undermine competition. When reviewing vertical mergers, the antitrust agencies assess whether the deal would enable the merging firm to use rivals’

311. 540 U.S. at 409.

312. See *id.* at 409–12.

313. *Id.* at 415 n.4; see also Ellen Meriwether, Putting the “Squeeze” on Refusal to Deal Cases: Lessons from *Trinko* and *linkLine*, *Antitrust*, Spring 2010, at 65, 67.

314. No firm with a market share of less than 50% is a monopolist. Compare *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 424 (2d Cir. 1945) (opining that “it is doubtful whether sixty or sixty-four percent [market share] would be enough” to constitute a monopoly), and *Cliff Food Stores, Inc. v. Kroger, Inc.*, 417 F.2d 203, 207 n.2 (5th Cir. 1969) (observing that more than a 50% market share is a “prerequisite for a finding of monopoly”), with *Broadway Delivery Corp. v. United Parcel Serv. of Am., Inc.*, 651 F.2d 122, 127–29 (2d Cir. 1981) (holding that a 50% market share is not a prerequisite for being a monopolist).

315. Meriwether, *supra* note 313, at 70 (internal quotation marks omitted).

316. For example, in addition to being a dominant platform in search and mobile operating systems, Google is dominant in several adjacent markets, capturing 59% of the browser market (through Chrome), 81% of the internet maps market (through Google Maps), and 78% of the internet video market (through YouTube). See *supra* notes 107–108 and accompanying text. Courts generally require a showing of 50% or more market share to establish a “dangerous probability” of success. See, e.g., *Actividentity Corp. v. Intercede Grp. PLC*, No. 08–cv–04577 VRW, 2009 WL 8674284, at *4 (N.D. Cal. Sept. 11, 2009) (finding that defendant adequately stated an attempted monopolization claim by alleging that plaintiff had more than 50% of the market).

information in anticompetitive ways.³¹⁷ Enforcers recognize that positioning a dominant firm to collect and analyze a rival-customer's business information could "reduce the incentives of the rivals even to attempt . . . procompetitive moves," resulting in longer-term harm.³¹⁸

Outside of the merger context, appropriation of sensitive business information by a rival is more difficult to cognize as an antitrust harm. Exclusionary conduct cases are generally governed by the rule of reason.³¹⁹ The standard follows a burden-shifting approach: In the first stage, the plaintiff must show a significant anticompetitive effect.³²⁰ If the plaintiff succeeds, then the defendant must demonstrate a legitimate procompetitive justification.³²¹ If the defendant succeeds in doing so, then the plaintiff can show that the restraint is not reasonably necessary or that the objectives could be achieved by less restrictive alternatives.³²² An empirical study of rule of reason cases found that courts dispose of 97% of cases at the first stage on the ground that there is no anticompetitive effect; courts balance the pro- and anticompetitive effects in only 2% of cases.³²³

An exclusionary conduct case based on information appropriation is especially unlikely to succeed under the current antitrust framework because establishing anticompetitive effects purely on innovation-based harms is extremely challenging under the consumer welfare standard.³²⁴ In part this is because static harms are easier to measure than innovation harms, a fact that tends to bias antitrust analysis towards a focus on price and output effects.³²⁵ In part this is also because dynamic harms can involve

317. Steven C. Salop & Daniel P. Culley, Potential Competitive Effects of Vertical Mergers: A How-To Guide for Practitioners 22–23 (Dec. 8, 2014) (unpublished manuscript) (on file with the *Columbia Law Review*).

318. *Id.* at 22. Empirical studies suggest that appropriation by dominant platforms is having this effect. See *supra* section I.E.

319. See, e.g., *United States v. Microsoft Corp.*, 253 F.3d 34, 58–59 (D.C. Cir. 2001) (en banc) (per curiam) (adopting a burden-shifting balancing test for the exclusionary conduct claims at issue that the court described as being "similar [to the] balancing approach under the rubric of the 'rule of reason'").

320. *Id.*

321. *Id.*

322. *Id.*

323. Michael A. Carrier, The Rule of Reason: An Empirical Update for the 21st Century, 16 *Geo. Mason L. Rev.* 827, 828 (2009).

324. See Tim Wu, After Consumer Welfare, Now What? The "Protection of Competition" Standard in Practice, *Antitrust Chron.*, Apr. 2018, at 1, 5 [hereinafter Wu, Consumer Welfare], <https://www.competitionpolicyinternational.com/wp-content/uploads/2018/04/CPI-Wu.pdf> [<https://perma.cc/S5FY-QBDS>] ("Despite the often brilliant ability of economists to make consumer welfare arguments, the emphasis on measurable harms to consumers still tends to bias the law toward a focus on static harms and, especially, on prices. . . . [This] inevitably tends to marginalize parts of the antitrust law concerned with dynamic harms . . .").

325. This is more likely to be true in the context of Section 2 enforcement than merger enforcement. Indeed, the antitrust agencies have focused on innovation harms in

significantly greater indeterminacy, such that conduct that yields short-term price reductions might also lead to long-term losses in innovation.

It is true that the Justice Department prevailed in *United States v. Microsoft* by focusing on innovation-based harms.³²⁶ Since *Microsoft*, however, the antitrust agencies have not brought a single case involving a pure-innovation theory of harm in a monopolization case. In the twenty years since, courts have raised evidentiary standards for plaintiffs, demanding “empirical proof of antitrust impact or injury for consumers that can be directly tied to the conduct.”³²⁷ Given both doctrinal hurdles imposed by courts since *Microsoft* as well as the general challenges of concretizing innovation-based harms, a growing set of scholars is concluding that “antitrust generally, and the antitrust agencies specifically, are currently ill-equipped to effectively pursue a platform owner that commands sufficient market power to stifle innovation.”³²⁸

Indeed, the Supreme Court recently made it even more difficult for plaintiffs to successfully allege even price-based anticompetitive effects in certain cases. In *Ohio v. American Express Co.* last term, the Court introduced a special rule for analyzing the conduct of companies operating in “two-sided transaction platforms,” requiring that plaintiffs alleging anticompetitive harm on one side of the market must—as part of establishing a *prima facie* case—also show that the purported harm was not offset by benefits on the other side.³²⁹ A drastic departure from traditional forms of antitrust analysis, this “netting” requirement redefines what constitutes anticompetitive conduct in the context of

merger cases. In *United States v. Bazaarvoice, Inc.*, for example, the Department of Justice challenged Bazaarvoice’s consummated acquisition of PowerReviews on the theory that the transaction “significantly reduced incentives to . . . invest in innovation.” Complaint at 19, *United States v. Bazaarvoice, Inc.*, No. C13-0133 (N.D. Cal. Jan. 8, 2014), 2013 WL 127168.

326. See *Microsoft*, 253 F.3d at 75–76; *United States v. Microsoft*, 87 F. Supp. 2d 30, 44 (D.D.C. 2000) (“More broadly, Microsoft’s anticompetitive actions trammelled the competitive process through which the computer software industry generally stimulates innovation and conduces to the optimum benefit of consumers.”).

327. Caves & Singer, *supra* note 292, at 13.

328. *Id.* at 10; see also Newman, Control of User Data, *supra* note 286, at 411–12 (arguing that “earlier and more systematic regulation in new online markets is necessary”); Frank Pasquale, Privacy, Antitrust, and Power, 20 *Geo. Mason. L. Rev.* 1009, 1010 (2013) (“Antitrust law has been slow to recognize privacy as a dimension of product quality, and the competition that antitrust promotes can do as much to trample privacy as to protect it.”); Wu, Consumer Welfare, *supra* note 324, at 4–5 (questioning whether the consumer welfare standard that is now prevalent in antitrust is “inherently too restrictive and static” to effectively protect competition in the modern world).

329. See 138 S. Ct. 2274, 2287 (2018) (finding that the plaintiffs had failed to meet their burden of demonstrating anticompetitive effects in the credit card market because they based their theory of harm solely on anticompetitive effects on the merchant side of the market without showing any anticompetitive effects in the cardholders’ side of the market). The Court held that this novel approach to market definition is warranted when analyzing “transaction platforms,” whose key feature, the Court noted, is that “they cannot make a sale to one side of the platform without simultaneously making a sale to the other.” *Id.* at 2277.

platforms that facilitate a “simultaneous transaction,” effectively creating an insurmountable hurdle for plaintiffs.³³⁰ While several commentators—including the Assistant Attorney General for Antitrust—have said they interpret the holding as applying only to a small number of tech platform markets,³³¹ it is too early to tell whether antitrust defendants will successfully expand its reach to cover exclusionary conduct by non-simultaneous transaction platforms.³³²

4. *The Shift Away from Structural Remedies.* — A final trend in antitrust worth identifying is the shift away from structural remedies in vertical merger cases. The 2004 merger guidelines strongly disfavored behavioral remedies.³³³ The 2011 guidelines, by contrast, established a preference for a combination of structural and conduct remedies.³³⁴ In practice, the Obama Administration proved reluctant to issue strong structural remedies in vertical cases; it approved two major vertical deals—both described by critics as raising significant anticompetitive concerns—by issuing primarily conduct remedies.³³⁵

These conduct remedies—in the Ticketmaster–Live Nation and Comcast–NBC mergers—have proved difficult to oversee and enforce.³³⁶

330. See Tim Wu, *The American Express Opinion, the Rule of Reason, and Tech Platforms*, 7 J. Antitrust Enforcement 117, 127 (2019) [hereinafter Wu, *American Express*] (“*American Express* suggests that a judge can keep demanding more proof, in concentric lines, until the government’s lawsuit collapses”); Lina Khan, *America Has a Major Market Power Problem & SCOTUS Just Made It Worse*, Take Care Blog (July 5, 2018), <https://takecareblog.com/blog/america-has-a-major-market-power-problem-and-scotus-just-made-it-worse> [https://perma.cc/VGS3-HYBZ].

331. See Wu, *American Express*, supra note 330, at 118 (“The Supreme Court’s opinion does have one great merit as compared to the Second Circuit’s: it is narrow, indeed far narrower than some have suggested.”); Ina Fried & David McCabe, DOJ Antitrust Official: Supreme Court Ruling Won’t Shield Big Tech, *Axios* (June 26, 2018), <https://www.axios.com/makan-delrahim-in-aspen-1530038874-a289ad1a-012b-4ccb-9cb7-69658ee78c33.html> [https://perma.cc/6N7K-N5UR] (“[Justice Department Antitrust Chief Makan Delrahim] said that he doesn’t think the Supreme Court’s *American Express* ruling would make it more difficult to take on the biggest online platforms over competition concerns.”).

332. Already, defendants have cited *American Express* in cases not involving simultaneous-transaction platforms. See, e.g., Reply Memorandum of Points and Authorities in Support of Defendant Google LLC’s Motion to Dismiss the Complaint Pursuant to Fed. R. Civ. P. 12(b)(6) at 3 n.2, *Dreamstime.com, LLC v. Google LLC*, No. 3:18-cv-01910 (N.D. Cal. Jan. 28, 2019), 2018 WL 6587482 (“Like the credit card markets discussed in *American Express*, search and search advertising are two-sided in that users are essential to advertisers while ads are essential to finance the system.”).

333. Kwoka & Moss, supra note 27, at 980.

334. *Id.*

335. See Christine Wilson & Keith Klovers, *Competition Policy Int’l, Yes We Can, But Should We? Merger Remedies During the First Obama Administration 2* (2014), <https://www.competitionpolicyinternational.com/assets/Uploads/WilsonKloverDec-14.pdf> [https://perma.cc/DK3M-2RDQ] (“[T]he Agencies revived a number of previously disfavored remedies during the first Obama Administration, including what the Justice Department now characterizes as a ‘panoply’ of conduct remedies.”).

336. Kwoka & Moss, supra note 27, at 1004–07.

Concerns that Live Nation has failed to abide by the remedies in any meaningful sense have prompted the Justice Department to open a Section 2 investigation, examining whether Live Nation is indeed using its control over concert facilities to pressure customers to also use its ticketing service and retaliating against those who decline its ticket service but still seek access to the concert facility.³³⁷ Comcast, too, has violated the conduct remedies that enforcers imposed when permitting the merger.³³⁸

These incidents raise broader questions about the relative efficacy and administrative costs of imposing conduct remedies over structural ones.³³⁹ As Professor Spencer Weber Waller has noted, the retreat from structural remedies has led the antitrust agencies to adopt highly complex remedies that typically “exceed the resources and strengths” of the Justice Department and FTC.³⁴⁰ Another way to understand the trend is that the agencies have shifted away from structural remedies in favor of remedies that do more regulatory work³⁴¹—even as the agencies are institutionally structured to serve as enforcers rather than regulators.

Stark information asymmetries between enforcers and platforms suggest that enforcing conduct remedies in digital markets will prove even more challenging.³⁴² Given that rebalancing away from an exclusive reliance on conduct remedies in favor of structural remedies could mitigate these administrability costs and challenges, the case for structural separations in digital markets is worth assessing.

337. Ben Sisario & Graham Bowley, *Live Nation Rules Music Ticketing, Some Say with Threats*, N.Y. Times (Apr. 1, 2018), <https://www.nytimes.com/2018/04/01/arts/music/live-nation-ticketmaster.html> (on file with the *Columbia Law Review*).

338. Cecilia Kang, *FCC: Comcast to Pay \$800,000 for Violating NBCU Venture Conditions*, Wash. Post (June 27, 2012), https://www.washingtonpost.com/blogs/post-tech/post/fcc-comcast-to-pay-800000-for-violating-nbcu-venture-conditions/2012/06/27/gJQA8MZU7V_blog.html (on file with the *Columbia Law Review*).

339. See generally Kevin J. O’Connor, *The Divestiture Remedy in Sherman Act § 2 Cases*, 13 Harv. J. Legis. 687, 730–32 (1976) (“Conduct remedies, whether directed primarily at performance results or indirectly at market structure changes, tend to be ineffective.”).

340. Waller, *supra* note 20, at 577 (“Many of these remedies would not be needed if the United States focused on policies of vertical separation or structural remedies in monopolization cases, but this has not been the emphasis of either competition or regulatory policy in the United States for decades.”).

341. These include: obligations to provide competitors and customers with critical inputs and access to networks on fair and nondiscriminatory terms, the disclosure of necessary intellectual property, the creation of firewalls to discourage the misappropriation of sensitive business information, and the use of special masters and technical committees to oversee dispute resolution. *Id.* at 576.

342. One facet of this shortcoming is the disadvantage agencies face in policing how firms share and use data. See, e.g., Peter Maass, *How a Lone Grad Student Scooped the Government and What It Means for Your Online Privacy*, ProPublica (June 28, 2012), <https://www.propublica.org/article/how-a-grad-student-scooped-the-ftc-and-what-it-means-for-your-online-privac> [<https://perma.cc/XGV8-EDAN>].

5. *Adjusting Competition to Regulation?* — These trends can be summarized as follows: In the wake of deregulation of network industries and dominant intermediaries, lawmakers expected antitrust to police dominant intermediaries. But in the decades since, courts and enforcers have drastically contracted the basis for antitrust liability in cases involving dominant firms.³⁴³ The result is a highly enfeebled and impoverished set of tools for confronting dominant intermediaries in network industries.

Meanwhile, even innovation harms seem to go unaddressed under the consumer welfare framework, although innovation is central to dynamic efficiency and long-term welfare.³⁴⁴ In instances when vertical mergers are scrutinized, moreover, growing reliance on conduct remedies has stretched the antitrust agencies beyond their institutional capacities, enabling exclusionary conduct.³⁴⁵ Notably, the Court has suggested in recent antitrust cases that remedies for injuries that result from dominant firm conduct may be better pursued through a regulatory paradigm rather than through antitrust law—further suggesting that judicial aversion to antitrust will make addressing platform integration through current law extremely challenging.³⁴⁶

In light of these trends, the question of whether structural separations should be recovered as a tool of competition policy is salient because digital platform markets seem to favor monopolistic market structures. Growing empirical research shows that dominant tech platforms enjoy uniquely durable market power.³⁴⁷ Network effects and the self-reinforcing advantages can lead to winner-take-all dynamics, where markets tip early and potential entrants face significant barriers.³⁴⁸ Expectations that the tech sector would be sufficiently fast-moving and rapidly innovating so as to justify a relatively hands-off approach to antitrust were too rosy.³⁴⁹

343. See *supra* notes 272–274 and accompanying text.

344. See *supra* notes 324–325 and accompanying text.

345. See *supra* notes 339–341 and accompanying text.

346. See *Credit Suisse Sec. (USA) LLC v. Billing*, 551 U.S. 264, 283–84 (2007) (“[W]here securities regulators proceed with great care to distinguish the encouraged and permissible from the forbidden [and] where the threat of antitrust lawsuits . . . could seriously alter underwriter conduct in undesirable ways, to allow an antitrust lawsuit would threaten serious harm to the efficient functioning of the securities markets.”); *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko*, 540 U.S. 398, 411–12 (2004) (“One factor of particular importance is the existence of a regulatory structure designed to deter and remedy anticompetitive harm. Where such a structure exists, the additional benefit to competition provided by antitrust enforcement will tend to be small . . .”).

347. See *infra* Part V.

348. See, e.g., *Data-Driven Innovation*, *supra* note 286, at 7.

349. Richard A. Posner, *Antitrust in the New Economy*, 68 *Antitrust L.J.* 925, 939 (2001) [hereinafter Posner, *New Economy*] (“The gale of creative destruction that Schumpeter described, in which . . . temporary monopolies operates to maximize innovation

The question of how to adjust expectations of competition to the reality of its absence has an analogue. As formerly monopolistic sectors were opened up to competition, a wave of scholarship in the 1990s and 2000s explored how the legal regime governing these markets should adjust accordingly.³⁵⁰ Specifically, these scholars asked: When should an increasingly competitive market lead us to abandon regulations whose justifications depend on monopoly market structure?

What we lack is an understanding of the inverse question: When do we decide that what was perceived as a competitive market in fact is monopolistic or oligopolistic, warranting the application of rules traditionally applied to dominant firms? And which traditional tools should apply?

These questions animate this Article, with a focus on one of these tools: structural separations. As Part III will discuss, structural separations have been a mainstay tool applied to network industries and dominant intermediaries. While much of the focus—and criticism—of the public utility regime has centered on rate regulation, vertical separations have been less closely studied.³⁵¹ Separations differ from rate regulation and several other regulatory tools in that separations are *ex ante* rules whose application does not require continuous government intervention or constant monitoring. Insofar as a primary criticism of the public utility era is that many of the regulations proved too unwieldy for courts and enforcers to implement, structural separations appear far more appealing.³⁵² Contrasted with other public utility tools, separations reduce regulatory burden and reflect humility about the capacity of public officials to manage business conduct.

that confers social benefits far in excess of the social costs of the short-lived monopoly prices that the process also gives rise to, may be the reality of the new economy.”).

350. See, e.g., Howard A. Shelanski, *Adjusting Regulation to Competition: Toward a New Model for U.S. Telecommunications Policy*, 24 *Yale J. on Reg.* 55, 57 (2007) [hereinafter Shelanski, *Adjusting Regulation*] (“The question to be addressed is whether, in the light of changes in telecommunications markets over the past decade, *ex ante*, dominant-firm restraints remain an appropriate mode of telecommunications regulation.”); Daniel F. Spulber & Christopher S. Yoo, *Toward a Unified Theory of Access to Local Telephone Networks*, 61 *Fed. Comm. L.J.* 43, 45 (2008) (“This approach taken by Congress and the FCC suffers from several conceptual shortcomings. It overlooks the fact that the emergence of competition undermines many of the basic rationales for regulation.”); Kevin Werbach, *No Dialtone: The End of the Public Switched Telephone Network*, 66 *Fed. Comm. L.J.* 203, 205 (2014) (arguing that the Public Switched Telephone Network (PSTN) had been “undermined [by] . . . the rise of the Internet; customers and providers abandoning wireline voice telephony; and the collapse of the regulatory theory for data services,” and providing “a framework for moving beyond the PSTN”).

351. Rahman, *New Utilities*, *supra* note 26, at 1638 (discussing how the perceived failures of the public utility approach have been rooted partly in an “overly narrow focus on regulatory rate setting”).

352. See Delrahim, *supra* note 27 (describing non-structural regulatory interventions as requiring the government to serve as “a roving ombudsman into the affairs of business” and noting that “we often don’t have the skills or the tools to do so effectively”).

III. SEPARATIONS REGIMES

This Part provides an overview of five separations regimes, as applied to railroads, bank holding companies, television networks, and telecommunication carriers. Two of these separations were implemented through statute,³⁵³ two through agency regulations,³⁵⁴ and one as an antitrust remedy.³⁵⁵

To be sure, this list is not exhaustive; lawmakers and enforcers have implemented structural prohibitions in a variety of other contexts.³⁵⁶ This section seeks to offer a representative sample across a few network industries to identify the range of concerns that arise when companies that play an infrastructure role in distribution networks integrate into lines of business that rely on those networks.

A. *Railroads*

By 1900, a handful of railroads had captured the market for anthracite coal. Six firms owned 90% of the total anthracite resources, resulting in high, uniform prices and yielding massive profits for the railroads.³⁵⁷ Through controlling both the tracks and the coal, railroads came to engage in the same kinds of discriminatory conduct that Congress had outlawed through the Interstate Commerce Act.³⁵⁸ Independent coal companies found, for example, that the railroads refused to provide them with sufficient cars to transport their coal to market,³⁵⁹ giving the railroad-owned coal superior access to markets.³⁶⁰

353. See *infra* sections III.A–B.

354. See *infra* sections III.C–D.

355. See *infra* section III.E.

356. Separations regimes not examined here include provisions of the Glass–Steagall Act, 12 U.S.C. §§ 24, 378 (2012), the Public Utility Holding Company Act, 15 U.S.C. § 79 (2000) (repealed by the Energy Policy Act of 2005, 42 U.S.C. §§ 16451–16463 (2012)), the consent decree in *United States v. Paramount Pictures, Inc.*, 334 U.S. 131 (1948), and section 619 of the Dodd–Frank Act, 12 U.S.C. § 1851, known as the “Volcker Rule.”

357. Comment, *The Judicial History of the Anthracite Monopoly*, 41 *Yale L.J.* 439, 439 (1932).

358. As the Court described,

[T]he great purpose of the act to regulate commerce, whilst seeking to prevent unjust and unreasonable rates, was to secure equality of rates as to all and to destroy favoritism, these last being accomplished by requiring the publication of tariffs and by prohibiting secret departures from such tariffs, and forbidding rebates, preferences and all other forms of undue discrimination.

N.Y., New Haven, & Hartford R.R. Co. v. Interstate Commerce Comm’n, 200 U.S. 361, 391 (1906).

359. Note, *Present Status of the Commodities Clause of the Hepburn Act*, 1 *St. Louis L. Rev.* 59, 59 (1915) [hereinafter Note on Commodities Clause].

360. See, e.g., *Hartford R.R.*, 200 U.S. at 382.

Seeking to rectify this runaround, Congress included in the 1906 Hepburn Act a provision separating the function of transportation from the function of ownership over goods.³⁶¹ While this specific prohibition was introduced last-minute in the Senate and therefore did not generate extensive debate,³⁶² the concept was not new; a congressional committee in 1892 had undertaken an investigation of the railroad sector and concluded that “the public interest demanded that the business of a common carrier should be absolutely separated from any other.”³⁶³

Known as the “commodities clause,” this provision forbade a railroad from carrying “any article or commodity” that it had “manufactured, mined, or produced,” or in which it “may have any interest[,] direct or indirect.”³⁶⁴ Under the original version of the bill, this rule would have applied to all “common carriers,” including pipelines for oil, natural gas, and other commodities.³⁶⁵ But business interests in the oil and gas sector managed to narrow the provision so that the final language emerging from conference covered not common carriers in general but only railroads.³⁶⁶ Several senators also successfully pushed to exclude timber and lumber from the general prohibition, arguing that a whole group of railroads that had invested in tracks for the sole purpose of transporting lumber would otherwise go bankrupt.³⁶⁷ More extensive debate and discussion might have yielded a more sweeping ban,³⁶⁸ had Congress not

361. See Hepburn Act, Pub. L. No. 59-337, sec. 1, § 1, 34 Stat. 584, 585 (1906).

362. See 40 Cong. Rec. 6455–61, 6493–500, 6551–70, 7011–17 (1906). Discussions from May 7th to May 9th were conducted under the fifteen-minute rule with the Senate in the Committee of the Whole. This was by no means the first time that the separation of transportation and industry had been proposed. This separation had been advocated by an 1834 Pennsylvania legislative report. See Francis Walker, *The Development of the Anthracite Combination*, 111 *Annals Am. Acad. Pol. & Soc. Sci.* 234, 236 (1924). The House of Representatives made the same recommendation in 1893. See H.R. Rep. No. 52-2278, at viii (1893).

363. Eliot Jones, *The Commodity Clause Legislation and the Anthracite Railroads*, 27 *Q.J. Econ.* 579, 587 (1913).

364. Sec. 1, § 1, 34 Stat. at 585. The full text of the commodities clause reads:

From and after May first, nineteen hundred and eight, it shall be unlawful for any railroad company to transport from any State, Territory, or the District of Columbia to any other State, Territory, or the District of Columbia, or to any foreign country, any article or commodity, other than timber and the manufactured products thereof, manufactured, mined, or produced by it, or under its authority, or which it may own in whole, or in part, or in which it may have any interest direct or indirect except such articles or commodities as may be necessary and intended for its use in the conduct of its business as a common carrier.

Id.

365. Jones, *supra* note 363, at 582–83.

366. *Id.* at 583; see also sec. 1, § 1, 34 Stat. at 585.

367. See Jones, *supra* note 363, at 582–83.

368. At least one critic argued for extending “the principle of dissociation” to “any two industries that are complementary in their nature” and maintained that the failure of the United States to “divorce transportation altogether from other enterprises” led to

been “anxious to secure the speedy passage of the bill.”³⁶⁹ The Hepburn Act passed the Senate by 71-3, with fifteen senators not voting.³⁷⁰

The backlash from the railroads against the law was almost immediate. States in the anthracite region—including New Jersey, New York, and Pennsylvania—had been encouraging railroads to purchase coal lands in order to develop those states’ natural resources.³⁷¹ In some cases the states had embedded the right to own coal mines in corporate charters.³⁷² Following state guidance and incentives, the railroads had invested heavily to purchase coal mines—only to see the Hepburn Act penalize them for it.³⁷³

Shortly after the bill was enacted, the Attorney General filed suits against six railroad companies that had not divested their coal interests.³⁷⁴ One firm responded with a constitutional challenge, alleging that the act fell outside congressional authority to regulate interstate commerce and that the commodities clause would constitute an impermissible “taking” under the Fifth Amendment.³⁷⁵ The Court rejected this view and clarified that, contrary to the government’s position, a carrier may transport goods that it had produced, *so long as* the carrier had clearly divested its ownership of those goods prior to commencing transport.³⁷⁶ The Court also construed the statute to permit railroads to carry goods produced by a bona fide distinct company in which the railroad was a stockholder.³⁷⁷

Three subsequent cases at the Supreme Court would further test the boundaries of the commodities clause. In 1911, the Court held that a railroad using direct stock ownership in a coal company to wield “complete power over the affairs of the coal company, just as if the coal company were a mere department of the railroad,” violated the Hepburn

continued monopolization by railroads of other industries. Thurlow M. Gordon, *Book Review*, 29 *Harv. L. Rev.* 797, 797–98 (1916) (quoting Thomas Latimer Kibler, *The Commodities Clause* 147, 162 (1916)).

369. Jones, *supra* note 363, at 586.

370. *Id.* at 583.

371. See Note on Commodities Clause, *supra* note 359. Pennsylvania had even passed a bill entitled, “An act to authorize railroad and canal companies to aid in the development of coal, iron, lumber, and other material interests of the Commonwealth.” *United States v. Del. & Hudson Co.*, 213 U.S. 366, 396 n.1 (1909).

372. See Edwin C. Goddard, Comment, *The Commodity Clause of the Hepburn Act*, 14 *Mich. L. Rev.* 49, 51 (1915) (noting that railroads “owned coal properties of great value” and that some had been “organized largely to market this coal,” operating under charters granted by Pennsylvania).

373. Not all states had been so permissive. Even before the Hepburn Act, a West Virginia statute had made it unlawful for any railroad to engage in the business of buying and selling coal. *Id.* at 50.

374. Note on Commodities Clause, *supra* note 359, at 60.

375. *Del. & Hudson Co.*, 213 U.S. at 386.

376. *Id.* at 413–15.

377. *Id.*

Act.³⁷⁸ Critically, the problem was not stock ownership per se but “the ‘commingling of the affairs . . . ,’ so as to make both corporations virtually one.”³⁷⁹ Four years later the Court confronted a coal operation that had been spun off as a separate organization yet remained beholden to its former parent railroad.³⁸⁰ The vice president of the railroad company also served as the president of the coal company, the two firms shared directors and an office building, and the railroad corporation dictated contractual terms to the coal company, effectively prohibiting it from doing business with other entities.³⁸¹ The Court held that no single factor was decisive, but ruled that—taken together—the facts proved that “the relation between the parties was so friendly that they were not trading at arm’s length.”³⁸² The key question was whether one company had been “converted into a mere agent or instrumentality of the other.”³⁸³ Lastly, the Court reviewed a case in which a single holding company owned both a railroad and a coal company, and the railroad company, in turn, was a majority shareholder in the mining company.³⁸⁴ Upon examining the circumstances, the Court found that the owners had sought the “abdication of all independent corporate action,” surrendering to the holding company the “entire conduct of their affairs.”³⁸⁵ Explaining that courts would “look through the forms to the realities of the relation between the companies,”³⁸⁶ the Court required that the businesses separate to establish “entire independence.”³⁸⁷ In doing so, the Court explained that it was “using the antitrust laws to close a gap” in the Hepburn Act,³⁸⁸ which had banned railroads from owning commodities but not from entering contractual agreements.³⁸⁹ The Court recognized that railroads could achieve through exclusive contracting what the law forbade them from achieving through integration.³⁸⁹

By the 1920s, any unity of control—through stock ownership or by means of a holding company—was recognized as a violation of the Hepburn Act. Rejecting the view that the statute outright prohibited railroads from having *any* ownership interest in the firms whose goods they transported, the Court adopted an approach that assessed the

378. *United States v. Lehigh Valley R.R. Co.*, 220 U.S. 257, 273 (1911).

379. John G. Love, Note, Interpretation of the Commodities Clause of the Act of Congress Regulating Railroads, 69 U. Pa. L. Rev. 66, 67–68 (1920) (quoting *Lehigh Valley R.R.*, 220 U.S. at 274).

380. See *United States v. Del., Lackawanna & W. R.R. Co.*, 238 U.S. 516, 518–19 (1915).

381. See *id.*

382. *Id.* at 529–30.

383. *Id.* at 529.

384. *United States v. Reading Co.*, 253 U.S. 26, 45–47 (1920).

385. *Id.* at 61–62.

386. *Id.* at 63.

387. *Id.* at 64.

388. Hovenkamp, Vertical Integration, *supra* note 256, at 986.

389. *Id.*; see also *Reading*, 253 U.S. at 60–62.

degree of control between the two firms. Any association of management between railway companies and commodity companies was prohibited.³⁹⁰

B. *Banking*

A core principle at the heart of banking regulation in the United States is the separation of banking and commerce. This policy of separation traces back to the charter for the Bank of England³⁹¹—an example that the United States looked to when forming its own banks, and a principle that many state banking regimes also adopted.³⁹² Between 1870 and 1910, the Supreme Court four times upheld rules enjoining banks from owning commercial businesses.³⁹³

In 1956, the United States codified this separation principle in the Bank Holding Company Act (BHCA).³⁹⁴ The Act applied to all firms controlling multibank holding companies (i.e., two or more banks).³⁹⁵ Specifically, § 4(a) prohibited banks from acquiring nonbanking companies and required banks covered by the Act to divest any nonbanking subsidiaries within two years of becoming subject to the law.³⁹⁶ The Act granted banks some latitude: They could own nonbanking subsidiaries whose activities were deemed by the Federal Reserve to be “so closely related to the business of banking or of managing or controlling banks as to be a proper incident thereto.”³⁹⁷

390. Some questioned whether the Hepburn Act was ultimately successful given that railroads continued to dominate the coal sector. But this was partly attributed to schemes by J.P. Morgan and other large banks to control multiple interests. See Jules I. Bogen, *The Anthracite Railroads: A Study in American Railroad Enterprise* 240 (1927).

391. See Bernard Shull, *The Separation of Banking and Commerce: Origin, Development, and Implications for Antitrust*, 28 *Antitrust Bull.* 255, 259 (1983) (“Separation was initiated, for all practical purposes, with the establishment of the Bank of England in 1694.”).

392. See Arthur E. Wilmarth, Jr., *Wal-Mart and the Separation of Banking and Commerce*, 39 *Conn. L. Rev.* 1541, 1554–55 (2007). The New York Free Banking Act of 1838, for example, served as a model when Congress amended the National Bank Act in 1864 to limit the scope of power available to banks and specifically to prohibit national banks from acquiring ownership interests in commercial enterprises. *Id.* at 1558.

393. See *Merchs. Nat’l Bank of Cincinnati v. Wehrmann*, 202 U.S. 295, 301 (1906) (affirming that national banks do not have the power to take stock in corporations); *First Nat’l Bank of Ottawa v. Converse*, 200 U.S. 425, 439 (1906) (same); *Cal. Bank v. Kennedy*, 167 U.S. 362, 366–67 (1897) (same); *First Nat’l Bank of Charlotte v. Nat’l Exch. Bank of Balt.*, 92 U.S. 122, 128 (1875) (same).

394. See S. Rep. No. 91-1084, at 2 (1970) (stating that the 1956 Act was adopted to prevent “a departure from the established policy of separating banking from other commercial enterprises”).

395. See *Bank Holding Company Act of 1956*, Pub. L. No. 84-511, § 2(a), 70 Stat. 133, 133 (codified as amended at 12 U.S.C. § 1841(a) (2012)).

396. *Id.* § 4(a), 70 Stat. at 135 (codified as amended at 12 U.S.C. § 1843(a)).

397. *Id.* § 4(c)(6), 70 Stat. at 137 (codified as amended at 12 U.S.C. § 1843(c)(8)).

But in practice, the Federal Reserve granted this exception extremely rarely.³⁹⁸

Because the BHCA had applied only to *multi*-bank firms, it had created a loophole. By 1970, the six largest banks in the United States had formed one-bank holding companies in order to engage in commercial activities.³⁹⁹ Responding to this runaround, Congress amended the BHCA to extend its prohibitions to one-bank holding companies.⁴⁰⁰ Lawmakers described the revision as a way to “continue our long-standing policy of separating banking from commerce.”⁴⁰¹

Lawmakers and policymakers have appeared willing to also apply the separation to commercial entities. Starting in 2005, Walmart, Home Depot, Target, and several other commercial firms made moves to acquire FDIC-insured industrial loan companies (ILCs), a type of financial entity.⁴⁰² Had the FDIC approved the acquisitions, Walmart’s financial arm, for example, would have become the primary processor of payments for Walmart.⁴⁰³ Critics of the deals worried that Walmart would be able to pressure Walmart Bank to ignore credit problems⁴⁰⁴ and that Target and Home Depot would make loans to finance exclusive purchases of their own goods.⁴⁰⁵ In the face of opposition from business groups, labor unions, community activists, public interest groups, and members of Congress, Walmart withdrew its application.⁴⁰⁶ Applications by the other firms were stalled by FDIC’s moratorium.⁴⁰⁷

While the Federal Reserve moved to erode the legal wall between banking and commerce in the late 1990s and early 2000s, renewed publicity around 2013 thrust the issue back into the center of policy

398. See Carl Felsenfeld, *The Bank Holding Company Act: Has It Lived Its Life?*, 38 *Vill. L. Rev.* 1, 83–84 (1993) (“The burden of meeting these conditions . . . has weighed heavily upon the banking community.”).

399. See Note, *Regulating the One-Bank Holding Companies—Precluding Zaibatsu?*, 46 *St. John’s L. Rev.* 320, 322 (2012) (describing the trend in the late 1960s for the nation’s largest banks to form one-bank holding companies).

400. See 12 U.S.C. § 1841(a)(1) (“[B]ank holding company’ means any company which has control over *any* bank or over *any* company that is or becomes a bank holding company by virtue of this chapter.” (emphasis added)).

401. S. Rep. No. 91-1084, at 3 (1970).

402. See Joe Adler, *Flashback: When Walmart Wanted a Bank*, *Am. Banker* (Aug. 23, 2017), <https://www.americanbanker.com/opinion/when-walmart-wanted-a-bank> [<https://perma.cc/AD26-9NNA>].

403. See Wilmarth, *supra* note 392, at 1545 (explaining how the proposed Walmart bank would have limited functions, primarily processing customers’ payments and converting checks electronically).

404. *Id.* at 1545–46.

405. *Id.* at 1595–96.

406. Eric Dash, *Wal-Mart Abandons Bank Plans*, *N.Y. Times* (Mar. 17, 2007), <https://www.nytimes.com/2007/03/17/business/17bank.html> (on file with the *Columbia Law Review*).

407. See Wilmarth, *supra* note 392, at 1552–53 (detailing the FDIC’s decision in January 2007 to extend its moratorium on commercial firms acquiring ILCs).

debate,⁴⁰⁸ prompting congressional hearings and a Senate investigation.⁴⁰⁹ Scholarship and reporting newly identified the original hazards of permitting our biggest banks to serve as merchants of essential raw materials.⁴¹⁰ In 2016, the Federal Reserve proposed a rule to rein in banks' nonbanking activities and largely return to the earlier regime.⁴¹¹ Although many of the biggest banks significantly divested their commodities holdings in the wake of public attention,⁴¹² the Federal Reserve rule has yet to be finalized.

408. See, e.g., Editorial, Goldman Sachs's Aluminum Pile, *N.Y. Times* (July 26, 2013), <https://www.nytimes.com/2013/07/27/opinion/goldman-sachs-aluminum-pile.html> (on file with the *Columbia Law Review*) (expressing concern that "American lawmakers and regulators have removed many of the barriers that historically separated banking and commerce").

409. See Christian Berthelsen & Ryan Tracy, Senate Report: Banks Had Unfair Commodity-Market Advantages, *Wall St. J.* (Nov. 19, 2014), <https://www.wsj.com/articles/senate-report-says-banks-gained-unfair-advantages-in-commodity-markets-1416434539> (on file with the *Columbia Law Review*) ("A U.S. Senate report on commodity-market activities at big Wall Street banks accuses the firms of being so powerful they were able to influence prices, gain trading advantages and put the broader financial system at risk by entering volatile businesses such as uranium trading and coal production."); Examining Financial Holding Companies: Should Banks Control Power Plants, Warehouses, and Oil Refineries?, U.S. Senate Comm. on Banking, Hous., & Urban Affairs (July 23, 2013), <https://www.banking.senate.gov/hearings/examining-financial-holding-companies-should-banks-control-power-plants-warehouses-and-oil-refineriesd> [<https://perma.cc/JWP8-VS67>].

410. See Saul T. Omarova, *The Merchants of Wall Street: Banking, Commerce, and Commodities*, 98 *Minn. L. Rev.* 265, 297 (2013) (discussing the risks associated with banks' foray into physical commodities markets and noting a "near-absence of reliable, detailed data on the precise nature and full scope of U.S. banking organizations' physical commodity operations"); David Kocieniewski, *A Shuffle of Aluminum, but to Banks, Pure Gold*, *N.Y. Times* (July 20, 2013), <https://www.nytimes.com/2013/07/21/business/a-shuffle-of-aluminum-but-to-banks-pure-gold.html> (on file with the *Columbia Law Review*) ("Wall Street is flexing its financial muscle and capitalizing on loosened federal regulations to sway a variety of commodities markets . . ."). But at least one scholar has argued for loosening the separation and allowing commercial firms to own banks, in order to "reduce systemic risk" and create a "more diverse and secure banking structure." See Mehrsa Baradaran, *Reconsidering the Separation of Banking and Commerce*, 80 *Geo. Wash. L. Rev.* 385, 402 (2012).

411. See Regulations Q and Y; Risk-Based Capital and Other Regulatory Requirements for Activities of Financial Holding Companies Related to Physical Commodities and Risk-Based Capital Requirements for Merchant Banking Investments, 81 *Fed. Reg.* 67,220, 67,225 (Sept. 30, 2016) (codified at 12 C.F.R. pts. 217, 225); see also *The Federal Reserve's Commodities Proposal: Safety and Soundness Regulation, or an Indirect Prohibition?*, Gibson Dunn (Sept. 29, 2016), <https://www.gibsondunn.com/the-federal-reserves-commodities-proposal-safety-and-soundness-regulation-or-an-indirect-prohibition/> [<https://perma.cc/P99B-H9AL>] (providing commentary on the Federal Reserve's proposed rule).

412. See Dan Fitzpatrick & Christian Berthelsen, *J.P. Morgan to Sell Commodities Business*, *Wall St. J.* (July 26, 2013), <https://www.wsj.com/articles/SB10001424127887323610704578630170912921006> (on file with the *Columbia Law Review*) ("J.P. Morgan joins rivals Goldman Sachs Group Inc. and Morgan Stanley, which also are seeking buyers for [their physical commodities operations]").

C. *Television Networks*

As the television industry grew in the 1950s, the sector consolidated around three networks: ABC, CBS, and NBC. These networks owned and operated the majority of television stations and affiliated stations, controlling the distribution of television programs for a majority of the country.⁴¹³ They also produced their own programs. Through an investigation into the networks' programming practices, the Federal Communications Commission (FCC) determined that the networks had acquired significant power over the financing, development, and syndication of television programming.⁴¹⁴ The top three networks controlled all aspects of programming, from creating programs to deciding which programs got aired and syndicated.

The FCC reached two main conclusions. First, by virtue of being the only program providers that could reach almost all Americans, the networks enjoyed monopsony power, which they could wield to acquire programming at terms highly unfavorable to producers.⁴¹⁵ Second, the networks also possessed monopoly power, which they could use to withhold programs from independent stations and to grant favorable syndication rights to their network affiliates.⁴¹⁶ The networks were powerful vertically integrated entities that used their heft against both independent programmers and independent stations. The problem, as the FCC saw it, was that the networks' power would have "the effect of limiting the number and variety of programs available to the public, thereby limiting program diversity, contrary to the FCC's much sought after goal."⁴¹⁷

The FCC followed its investigation with an order that structurally disallowed networks from entering the production and syndication markets.⁴¹⁸ Specifically, the rule prohibited networks from both syndicating any of their own programs and obtaining financial interests in programs created by independent producers that the networks aired.⁴¹⁹ By separating production and distribution, these structural rules sought to curb the conflicts of interest created through integration.

Almost from inception, these "fin-syn" rules faced pushback from industry, which lobbied the FCC to revise its order. In a follow-up inquiry

413. Christopher J. Pepe, Comment, *The Rise and Fall of the FCC's Financial Interest and Syndicate Rules*, 1 *Vill. Sports & Ent. L.F.* 67, 71-72 (1994).

414. *Id.*

415. Tamber Christian, *The Financial Interest and Syndication Rules—Take Two*, 3 *CommLaw Conspectus* 107, 107 (1995).

416. *Id.*

417. *Id.* at 108.

418. See *Competition & Responsibility in Network Television Broad.*, 23 *F.C.C.2d* 382, 398, para. 30 (1970) (report and order).

419. *Id.*; see also Marc L. Herskovitz, Note, *The Repeal of the Financial Interest and Syndication Rules: The Demise of Program Diversity and Television Network Competition?*, 15 *Cardozo Arts & Ent. L.J.* 177, 183 n.43 (1997).

in 1978, the FCC observed that the rise of satellite technology had opened up the market to new networks, potentially rendering the 1970 prohibitions obsolete.⁴²⁰ News that the FCC was considering modifying its order prompted a major advocacy effort by the major motion picture studios, which benefited from limits placed on the networks' activities.⁴²¹ Hollywood's interests found a friend in the Reagan Administration, and the FCC kept the 1970 rules in place for another decade. In the early 1990s, the FCC once again moved to review the fin-syn regime, this time issuing revised rules that loosened restrictions on networks' ability to own and syndicate programming.⁴²² After the Seventh Circuit struck down the rules for being arbitrary and capricious,⁴²³ the FCC responded by issuing rules that imposed on the networks minimal structural restrictions that would phase out in two years.⁴²⁴ In 1995, the FCC released an order observing that the advent of cable, VCR, and direct broadcasting had opened up the market and loosened the networks' gatekeeper power, resolving concerns about their ability to undermine diversity.⁴²⁵ Its 1995 order effectuated the end of the fin-syn rules.

D. *Telecommunications: Maximum Separation*

By the 1960s, advances in computing had given rise to a new industry: data processing. Data-processing services relied on communications lines run by telephone monopolies.⁴²⁶ As telecom carriers began to enter data processing, officials worried that the carriers would use their control over the pipes to squash nascent rivals.⁴²⁷ To examine the issue, the FCC launched a series of proceedings called the "Computer Inquiries."

In the first proceeding (*Computer I*),⁴²⁸ the FCC focused on whether to regulate the data-processing industry and whether to limit common

420. Herskovitz, *supra* note 419, at 184.

421. See *id.* at 192.

422. 47 C.F.R. §§ 73.658(k), 73.659–73.662, 73.3526(a)(11) (1991).

423. *Schurz Commc'ns, Inc. v. FCC*, 982 F.2d 1043, 1055 (7th Cir. 1992).

424. *Evaluation of the Syndication and Financial Interest Rules*, 8 FCC Rcd. 3282, 3282–84, para. 1 (1993) (second report and order).

425. *Network Financial Interest and Syndication Rules*, 60 Fed. Reg. 48,907, 48,907–08 (Sept. 21, 1995) (codified at 47 C.F.R. pt. 73).

426. Robert Cannon, *The Legacy of the Federal Communication Commission's Computer Inquiries*, 55 Fed. Comm. L.J. 167, 168–69 (2003) ("[T]hese computer network services were dependent upon the underlying communications network. Thus, the unregulated computer services were simultaneously substitute services for the traditional regulated communications network and also dependent upon them.").

427. *Id.* at 170 ("These enhancements, however, also threatened to be a substitute for regulated services, and regulated services threatened to be a bottleneck in the way of the growth of these services.").

428. *Interdependence of Comput. & Commc'ns Servs. & Facilities (Computer I)*, 28 F.C.C.2d 267 (1971) (final decision and order).

carriers from expanding into the new market.⁴²⁹ The FCC concluded that the data-processing market was highly competitive, innovative, and characterized by low entry barriers, therefore demonstrating no need for regulation.⁴³⁰ The reliance of data processing on incumbent carriers, however, posed a risk.

Concerned that carriers would stifle data processing, the FCC adopted a policy of “maximum separation,” under which regulated communication carriers could enter the unregulated data-processing market only through a fully separate subsidiary.⁴³¹ Carriers *could* do business with their data-processing affiliates but were prohibited from discriminating among affiliates “in the offering of facilities or services, in the timing of the installation of facilities, in the quality of service offered or in the charges for like services.”⁴³² The rule also prohibited carriers from promoting the data-processing services offered by their subsidiaries or from using any excess network capacity to provide data-processing services.⁴³³ Affiliated subsidiaries, meanwhile, were not allowed to own transmission services and instead had to acquire them on a service basis.⁴³⁴ These structural safeguards sought to create “an open communications platform available to all users on a nondiscriminatory basis.”⁴³⁵ Recognizing that discrimination by the largest firms posed the most

429. Note, *The FCC Computer Inquiry: Interfaces of Competitive and Regulated Markets*, 71 Mich. L. Rev. 172, 172 (1972) [hereinafter Note on FCC Computer Inquiry].

430. See *id.* at 172–73 (describing the FCC’s decision not to regulate the data-processing industry).

431. In the order outlining the new policy, Commissioner Bartley wrote separately that he believed the proposal should require a complete separation of the companies and not permit independent affiliation: “I would go further and require . . . a complete separation of companies making public offerings of regulated common carrier communication services and non-regulated data processing services.” *Computer I*, 28 F.C.C.2d at 290 (final decision and order) (Bartley, Comm’r, concurring). This policy did not apply to Bell System, which the FCC felt was already prohibited by the 1956 Consent Decree from entering any unregulated activity (including data processing). *Id.* at 281–82, paras. 39–40 (majority opinion). Specifically, the FCC mandated that a carrier looking to offer data-processing services: “[(1)] establish a separate data processing corporation, [(2)] have separate accounting books, [(3)] have separate officers, [(4)] have separate personnel, and [(5)] have separate equipment and facilities.” Cannon, *supra* note 426, at 178.

432. *Computer I*, 28 F.C.C.2d at 274, para. 22 (final decision and order). Notably, the FCC’s “maximum separation” regime partially mirrors the consent decree imposed on IBM by the Justice Department in 1956. See *United States v. Int’l Bus. Mach.*, 1956 Trade Cas. (CCH) ¶ 68,245 (S.D.N.Y. 1956). That decree required IBM to sell data-processing services through a subsidiary that could be treated no differently than an independent data processor. See Peter Passell, *I.B.M. and the Limits of a Consent Decree*, N.Y. Times (June 9, 1994), <https://www.nytimes.com/1994/06/09/business/ibm-and-the-limits-of-a-consent-decree.html> (on file with the *Columbia Law Review*). As part of its compliance, IBM created a separate division. *Id.*

433. *Computer I*, 28 F.C.C.2d at 274–75, paras. 21, 24 (final decision and order).

434. See *id.* at 271, para. 16; *Computer I*, 28 F.C.C.2d 291, 303, para. 42 (1970) (tentative decision).

435. Cannon, *supra* note 426, at 180.

serious risk to competition, the “maximum separation” regime applied only to carriers with annual operating revenues exceeding one million dollars.⁴³⁶

Through basing the separation on the distinction between data processors and carriers, the FCC created a loophole for hybrid services that provided both the processing and transportation of data.⁴³⁷ Initially the FCC held that, so long as the data processing was “incidental” to the communications service, the entire activity would be treated as communications.⁴³⁸ But the hybrid category continued to pose problems for the FCC, prompting the agency to revisit its rules.⁴³⁹

In the late 1970s the FCC undertook a second round of inquiries (*Computer II*).⁴⁴⁰ This time the FCC created a new distinction between “basic service” (which referred to pure transmission) and “enhanced service” (which rode the pipes of the “basic service” and included email, voice mail, the internet, newsgroups, interactive voice response, and protocol processing).⁴⁴¹ The FCC maintained its basic conclusion: that “enhanced services” should remain unregulated and that permitting “basic services” into the new market for enhanced services would risk stifling competition in this adjacent market.⁴⁴² In response to claims that structural separations on *all* carriers were “inefficient,” the FCC raised the size threshold requirement, leaving only AT&T and GTE subject to the ban.⁴⁴³ All other carriers had to comply with unbundling rules—separating basic from enhanced services—but were otherwise allowed to maintain joint operations.⁴⁴⁴

436. *Id.* at 179. Notably, the FCC did not adopt a separations regime across the board; it cared about understanding the industry dynamics and ensuring that the Commission tailored remedies that actually addressed the problem. In the case of “hybrid services”—service offerings that integrated data processing and message transmission, *Computer I*, 28 F.C.C.2d at 287 (final decision and order)—the FCC decided to take a more case-by-case approach, explaining that “we have insufficient experience with such offerings to enable us to adopt rules of general applicability sufficiently definitive to accommodate the variety of further service offerings.” *Id.* at 276, para. 27.

437. *Computer I*, 28 F.C.C.2d at 287 (final decision and order).

438. *Computer I*, 28 F.C.C.2d at 305, para. 42 (tentative decision).

439. See Susan P. Crawford, *Transporting Communications*, 89 B.U. L. Rev. 871, 892–94 (2009) (describing how, in *Computer II*, the FCC used a broader definition of “enhanced services” to avoid the definitional problems that plagued the “hybrid” services regime).

440. Amendment of Section 64.702 of the Comm’n’s Rules and Regulations (*Computer II*), 77 F.C.C.2d 384 (1980) (final decision).

441. Cannon, *supra* note 426, at 183–88 (quoting *Computer II*, 77 F.C.C.2d at 420, para. 96).

442. *Computer II*, 77 F.C.C.2d at 387, paras. 5–7; see also *id.* at 463, para. 208 (discussing costs and benefits to separating regulated basic services from unregulated enhanced services).

443. See *id.* at 482, para. 251 (“[W]e have determined that AT&T’s and GTE’s dominant position in the terminal equipment market requires some special treatment . . . [A] separation requirement might be unduly costly, but we do not contemplate applying the requirement to the small carriers.”).

444. See *id.* at 388–89, para. 12.

The Commission undertook a third round of investigations (*Computer III*) in 1985.⁴⁴⁵ The inquiry was prompted by the FCC's determination that the second round of inquiries had imposed "significant costs on the public in decreased efficiency and innovation."⁴⁴⁶ In 1986, the Commission issued its new plan: require carriers to ensure that their network remain open to all users of the basic services, by permitting users to interconnect to certain network functions and interfaces on an "unbundled and equal access basis."⁴⁴⁷ In other words, the new rule allowed common carriers to enter computing, so long as they offered unbundled basic service, adopted interconnection, and adhered to special accounting practices to prevent subsidization across lines of business.⁴⁴⁸ Over the course of the Computer Inquiries, the FCC switched from structural separation to an unbundling and equal-access regime.⁴⁴⁹

Twice the Ninth Circuit struck down the FCC's move, finding that the Commission "had not adequately explained its apparent 'retreat' from requiring 'fundamental unbundling.'"⁴⁵⁰ Absent compelling justification, the court worried that this halfway unbundling regime would fail to prevent the Bell Operating Companies (BOCs) from engaging in discrimination.⁴⁵¹ Meanwhile, the FCC passed an Interim Order that allowed BOCs to provide some computing services without a separate subsidiary.⁴⁵² The regime remained in place until the Telecommunications Act of 1996, which undid some of the restrictions on dominant networks in favor of competition.⁴⁵³

445. Amendment of Section 64.702 of the Comm'n's Rules and Regulations (*Computer III*), 104 F.C.C.2d 958, 962, para. 1 (1986) (report and order).

446. *Id.* at 964, para. 3.

447. *Id.* at 1019, para. 113.

448. *Id.*; see also *id.* at paras. 113–114 (requiring firms to also submit an "Open Architecture" plan, allowing its telephone network to be known to other companies); *id.* at 1068–69, paras. 223–224 (requiring firms to protect customers' proprietary network information).

449. See Cannon, *supra* note 426, at 201–02.

450. *Computer III* Further Remand Proceedings, 13 FCC Rcd. 6040, 6051–52, para. 15 (1998) (further notice of proposed rulemaking) (quoting *California v. FCC* (*California III*), 39 F.3d 919, 928 (9th Cir. 1994)); see also *California v. FCC* (*California II*), 4 F.3d 1505, 1512 (9th Cir. 1993).

451. See *California III*, 39 F.3d at 928 ("[W]e must consider whether it adequately explains why fully implemented [open network architecture] is no longer regarded as a necessary safeguard against access discrimination after removal of structural separation.").

452. See *Computer III* Further Remand Proceedings, 13 FCC Rcd. at 6044–45, para. 4.

453. See Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified as amended in scattered sections of 47 U.S.C. (2012)). In summary, the Act sought to create competition between telecom companies by requiring that services be unbundled and that providers be interconnected. BOCs were permitted to offer long-distance telephone service to their local customers upon FCC approval. The Act also imposed common carrier requirements on telecom service and empowered the FCC with broad authority to oversee the industry. Shelanski, *Adjusting Regulation*, *supra* note 350, at 62–69.

Competition, however, “never arrived.”⁴⁵⁴ Enforcers permitted waves of consolidation, leading to highly concentrated cable and telecommunications markets.⁴⁵⁵ For this reason, policymakers have continued to examine ways to manage the bottleneck power of dominant actors in these markets, most recently in the form of net neutrality.

Notably, the net neutrality policy discussion has occurred within a framework partly established by the Computer Inquiries, which introduced into communications law the conceptual distinction between information and telecommunications. The question of which category internet services fall into has been at the center of the net neutrality debate.

E. *Telecommunications: The Breakup of AT&T*

For much of the twentieth century, the telecommunications industry was intensely regulated through requirements that carrier services, prices, and entry be approved by the FCC and state regulators. The Communications Act of 1934 served as the basic statutory framework guiding the FCC’s regulation, which held universal service as a central goal.⁴⁵⁶

In the 1970s AT&T provided local and long-distance phone service, owned a major producer of telephone equipment (Western Electric), and ran a leading research facility (Bell Labs).⁴⁵⁷ The Justice Department filed an action against the Bell Systems empire in 1949, alleging that Western Electric had monopolized the manufacturing, sale, and distribution of telephones and other equipment material.⁴⁵⁸ In 1974, the government filed a separate action, arguing that AT&T had abused its dominant position in three markets—local exchange, long distance, and equipment—in order to monopolize the entire telecommunications industry, a strategy described as the “‘triple-bottleneck’ theory.”⁴⁵⁹ The government’s complaint alleged that AT&T had illegally refused to provide competitors with local interconnection services, furnished rivals

454. Gene Kimmelman et al., *The Failure of Competition Under the 1996 Telecommunications Act*, 58 Fed. Comm. L.J. 511, 511 (2006).

455. Specifically, the government’s approval of the SBC–AT&T and Verizon–MCI mergers marked “the abandonment of the competition model envisioned by the 1996 Act.” *Id.* at 513.

456. Communications Act of 1934, Pub. L. No. 73-416, § 1, 48 Stat. 1064 (codified as amended in scattered sections of 47 U.S.C.).

457. Paul W. MacAvoy & Kenneth Robinson, *Winning by Losing: The AT&T Settlement and Its Impact on Telecommunications*, 1 Yale J. on Reg. 1, 3–4 (1983).

458. *United States v. W. Elec. Co.*, 1956 Trade Cas. (CCH) ¶ 68,246 (D.N.J. 1956).

459. MacAvoy & Robinson, *supra* note 457, at 14 (quoting *The Communications Act of 1978: Hearings on H.R. 13015 Before the Subcomm. on Commc’ns of the H. Comm. on Interstate & Foreign Commerce*, 95th Cong. 748 (1978) (statement of John H. Shenfield, Assistant Att’y Gen. for Antitrust)).

with inferior maintenance services, and imposed requirements that thwarted the reach of competing local networks.⁴⁶⁰

In lieu of going to trial, the parties reached a settlement. The agreement required AT&T to divest ownership and control of the BOCs.⁴⁶¹ Premised on the idea that regulators would be unable to stop an integrated monopoly from engaging in predatory anticompetitive conduct in adjacent markets,⁴⁶² the settlement was designed to prohibit the companies from combining monopoly and competitive lines of business after divestiture. The Justice Department argued that prohibiting the act of discrimination would be insufficient—the government had to target the underlying incentive to discriminate outright.⁴⁶³

Notably, the consent decree combined the breakup requirement with an “equal access” obligation imposed on the independent BOCs. Under this provision, the divested BOCs had to provide unaffiliated long-distance carriers access to the local exchanges that was “equal in type, quality, and price” to that given to AT&T.⁴⁶⁴ This obligation was eventually extended to all local-exchange carriers.⁴⁶⁵

The consent decree was administered by Judge Harold Greene for twelve years.⁴⁶⁶ Over this time, Judge Greene responded to the parties’ requests for modification of the decree, assessing whether the market had sufficiently changed to justify loosening the line-of-business

460. See *United States v. AT&T Co.*, 524 F. Supp. 1336, 1354–57 (D.D.C. 1981).

461. Joseph D. Kearney, *From the Fall of the Bell System to the Telecommunications Act: Regulation Telecommunications Under Judge Greene*, 50 *Hastings L.J.* 1395, 1412 (1999).

462. This premise came to be known as the “Bell Doctrine” or “Baxter’s Law.” See, e.g., Tim Wu, *Intellectual Property, Innovation, and Decentralized Decisions*, 92 *Va. L. Rev.* 123, 139 n.49 (2006) (noting that although Professor William Baxter referred to the premise as the “Bell Doctrine,” others refer to it as “Baxter’s Law”). In short, Baxter’s Law held that:

[R]egulated monopolies have the incentive and opportunity to monopolize related markets in which their monopolized service is an input, and . . . the most effective solution to this problem is to “quarantine” the regulated monopoly segment of the industry by separating its ownership and control from the ownership and control of firms that operate in potentially competitive segments of the industry.

Paul L. Joskow & Roger G. Noll, *The Bell Doctrine: Applications in Telecommunications, Electricity, and Other Network Industries*, 51 *Stan. L. Rev.* 1249, 1249–50 (1999). Notably, Baxter’s Law is applicable only in the context of regulated industries.

463. See *United States v. AT&T Co.*, 552 F. Supp. 131, 187 (D.D.C. 1982) (“The restrictions are based upon the assumption that the [BOCs], were they allowed to enter the forbidden markets, would use their monopoly power in an anticompetitive manner.”).

464. *AT&T Co.*, 552 F. Supp. at 142.

465. See Kearney & Merrill, *supra* note 232, at 1351.

466. See Kearney, *supra* note 461, at 1398–99.

restrictions.⁴⁶⁷ The decree remained in place until the passage of the Telecommunications Act.⁴⁶⁸

F. *Common Threads*

Drawing from these separations regimes, a few observations stand out. First, policymakers have applied separations regimes to three sectors: transportation, communications, and banking. Broadly all three have involved particular markets and services where a bottleneck facility served as infrastructure or a critical intermediary.⁴⁶⁹ Within these categories, we can further distinguish between bottleneck services that are or were essential for the functioning of our economy—such as railroads or banking—and those that constitute an important distribution channel but have not been viewed as essential in the same way.

Second, a majority of the separations were coupled with common carriage rules requiring equal access on equal terms. This was the case with railroads, data processing, and telecommunications, further capturing how structural separations and nondiscrimination rules can function as critical complements in the service of nondiscrimination.

Third, defining the separation may not always be straightforward, especially when dealing with new technologies. With time, the FCC came to see that the initial distinction it had drawn—between data processors and common carriers—was unworkable, prompting the agency to redesign the rule around a distinction between basic and enhanced services instead. This form of learning and reworking is bound to be a part of implementing separations regimes.

Fourth, the efficacy of a separations regime rests intimately on the timing of its implementation. This is true both with regard to its introduction and its repeal. Insofar as it is the existence of a bottleneck that invites the separation, identifying when market conditions have changed such that discrimination or appropriation by the firm is no longer likely to have market-wide effects can help inform if and when a separation should be revoked. The separations implemented through the Computer Inquiries and the *AT&T* remedy both underwent continuous

467. See *id.* at 1417.

468. *Id.* at 1459.

469. See *supra* sections II.A–E. Banks may appear to be the exception. But Professor Morgan Ricks notes that recent academic scholarship on banks has improperly focused on their intermediary role of facilitating private transactions, instead of on their monetary role as issuers of funds—a role that gives them “a unique relationship with the state.” Morgan Ricks, *Money as Infrastructure*, 2018 *Colum. Bus. L. Rev.* 757, 758–59. When one focuses on banks’ monetary role, bank regulation “becomes a subfield of public utility and common carrier regulation.” *Id.* at 768–69. Ricks, therefore, argues that “bank regulation might instead embrace infrastructure regulation’s logic and follow through on its implications.” *Id.* at 770; see also Rahman, *New Utilities*, *supra* note 26, at 1657 (“Finance represents another kind of infrastructural good, a critical service upon which the entire economy depends.”).

scrutiny by regulators and the judiciary, who regularly evaluated whether the market had become more competitive.⁴⁷⁰ And with the exception of banking, the separations regimes discussed above were eliminated once enforcers or lawmakers determined that market developments had created more pathways for distribution, softening the bottleneck's market power. Applying separations requires periodic reassessment that the remedy is still addressing an underlying harm.

Lastly, the separations principle has been applied in different forms. Broadly, two levels of strictness emerge: (1) complete bans (or total separations), which prohibit a company from *any* engagement or involvement, interest, or ownership in particular activity; and (2) partial bans (or functional separations), which permit a company to engage in a particular business activity but prescribe the organizational form it must take—requiring, for example, that the separate business activity be conducted through a separate affiliate. There is no clear pattern as to when lawmakers or regulators opted for one form over the other.

IV. FUNCTIONAL GOALS

This Part explores the policy motivations and functional goals that underlay these structural separations. Although policymakers applied structural limits in a variety of sectors, six justifications recur: (1) eliminating conflicts of interest, (2) preventing cross-financing that would extend existing dominance, (3) preserving system resiliency, (4) promoting diversity, (5) preventing excessive concentration of power, and (6) prioritizing administrability.

Notably, these motivations register in a normatively pluralistic framework: While some are cognizable in terms of welfare economics, others appeal to a broader set of institutional and democratic values. Some goals sound in both registers. This Part reviews these various policy motivations.

A. *Eliminating Conflicts of Interest*

A key policy objective that runs through the separations explored above is the elimination of conflicts of interest. The animating idea is that companies in infrastructure-like sectors that compete with the businesses using their services have an incentive to favor their own goods or services over those owned by rivals. Because these intermediaries comprise a backbone for a broader set of economic or social activity, whether they actually *act* on the incentive and ability to discriminate is secondary—the incentive and ability are deemed a sufficient threat. By forbidding the very structural arrangement that gives rise to the conflict of interest, prophylactic bans safeguard against discrimination.

470. See *supra* notes 466–468 and accompanying text.

The goal of eliminating conflicts of interest motivated the implementation and/or enforcement of structural separations in railroads, banking, and computing. As railroads continued to experiment with arrangements that facilitated control over coal, a group of critics argued that the commodities clause should be read as a sweeping structural ban—to prohibit railroads from transporting *any* commodity produced by *any* company in which it held *any* stock. This view was first articulated by Justice John Harlan dissenting in the first commodity clause case to reach the Court.⁴⁷¹ A reading of the act that permitted railroads to affiliate with producers in *any* capacity would, he warned, “enable the transporting railroad company, by one device or another, to defeat altogether the purpose which Congress had in view, which was to divorce, in a real, substantial sense, production and transportation, and thereby to prevent the transporting company from doing injustice to other owners of coal.”⁴⁷² While a majority of the Court refused to go along with this specific interpretation, it rested on the idea that integration created possibilities for abuse, and therefore bans on cross-ownership would help “avoid the tendency to discrimination,” which “*necessarily inheres* in the carrying on by a railroad company of the business of manufacturing, mining, producing, or owning, in whole or in part, . . . commodities which are by it transported in interstate commerce.”⁴⁷³ In other words, Justice Harlan wrote, history showed that discrimination “*inevitably* grew up where a railroad company occupied the inconsistent positions of carrier and shipper.”⁴⁷⁴ Only a clear separation between production and transportation would eliminate this risk of discrimination.

Similarly, the structural separation in banking was driven by the desire to prevent conflicts of interest that could bias how banks make loans or extend credit. Owning or even affiliating with a commercial entity could incentivize banks to make lending decisions with an eye to the effects on their own commercial entities.⁴⁷⁵ By interfering with the allocation of credit, this dynamic could threaten to distort not just competition in any given market but the economy as a whole.⁴⁷⁶

471. See *United States v. Del. & Hudson Co.*, 213 U.S. 366, 419 (1909) (Harlan, J., dissenting).

472. *Id.*

473. *Id.* at 404 (majority opinion) (emphasis added).

474. *United States v. Reading Co.*, 253 U.S. 26, 61 (1920) (emphasis added).

475. See, e.g., S. Rep. No. 100-19, at 8 (1987), as reprinted in 1987 U.S.C.C.A.N. 489, 498 (noting that commercial ownership by banks “raises the risk that the banks’ credit decisions will be based not on economic merit but on the business strategies of their corporate parents”).

476. J.P. Morgan running a copper business, for instance, could skew its lending decisions in a couple of ways. The bank could discriminate against competing copper companies, choosing to extend credit at unfavorable rates or declining to lend at all. It could also discriminate among suppliers or buyers of its copper—conditioning credit on favorable treatment for its commercial affiliate. Aggregated across millions of lending decisions, this biased approach—penalizing competing copper companies and pressuring

At root, the concern about biased lending echoes the antitrust fear about foreclosure. Both focus on how an integrated business may use its integrated structure to undermine or discriminate against rivals. The concern is more acute in the context of banking given the critical role financial institutions play in providing access to credit, the lifeblood of the economy.

The FCC echoed concerns about conflicts of interest in the Computer Inquiries. As the telephone companies expanded into the nascent computing market—thereby competing with the data-processing firms dependent on them⁴⁷⁷—the FCC worried about “even the most subtle preferences a common carrier might give its data processing subsidiary.”⁴⁷⁸ In its tentative decision first considering the structural regime, the Commission observed that the primary dangers of allowing common carriers to integrate into data processing “relate primarily to the alleged ability of common carriers to favor their own data processing activities by discriminatory services, cross-subsidization, improper pricing of common carrier services, and related anticompetitive practices and activities.”⁴⁷⁹

Notably, the FCC acknowledged that permitting carriers to use excess capacity for data processing might yield efficiencies that could lower costs.⁴⁸⁰ But the agency maintained that “the potential abuses inherent in operations of this nature outweigh whatever benefits might

borrowers into doing business with J.P. Morgan’s own copper dealer—could determine not only the fate of any single copper company but the trajectory of the copper sector as a whole.

477. See *Computer II*, 77 F.C.C.2d 384, 389–90, para. 15 (1980) (final decision) (explaining that a major goal of the Computer Inquiries was to address “whether communications common carriers should be permitted to market data processing services”).

478. Steve Bickerstaff, *Shackles on the Giant: How the Federal Government Created Microsoft, Personal Computers, and the Internet*, 78 *Tex. L. Rev.* 1, 17 (1999).

479. *Computer I*, 28 F.C.C.2d 291, 301–02, para. 33 (1970) (tentative decision). Reviewing the structural separation, the U.S. District Court for the District of Columbia echoed the FCC’s concerns, noting that:

[T]he ability for abuse exists as does the incentive, of that there can . . . be no doubt. . . . Among the more obvious means of anticompetitive action in this regard are increases in the rates for those switched and private line services upon which Regional Company competitors depend while lower rates are maintained for Regional Company network services; manipulation of the quality of access lines; impairment of the speed, quality, and efficiency of dedicated private lines used by competitors; development of new information services to take advantage of planned, but not yet publicly known, changes in the underlying network; and use for Regional Company benefit of the knowledge of the design, nature, geographic coverage, and traffic patterns of competitive information service providers.

United States v. W. Elec. Co., 673 F. Supp. 525, 566 (D.D.C. 1987).

480. See *Computer I*, 28 F.C.C.2d 267, 271, para. 13 (1971) (final decision and order).

be achieved.”⁴⁸¹ Moreover, the FCC argued that permitting carriers to integrate would distort the market by enabling a firm to succeed based on existing dominance rather than business-specific talent.⁴⁸²

B. *Preventing Protected Profits from Financing Entry into New Markets*

Another concern that recurs as a functional justification is the desire to prevent companies from using protected profits to finance entry into new lines of business—a tactic that was deemed anticompetitive. This concern was especially heightened in the context of banking and telecommunications, as officials worried that firms would use their regulated services to finance their unregulated businesses.⁴⁸³

The separation of banking and commerce, for example, was seen as a way to keep banks from leveraging a government-granted advantage into other lines of business.⁴⁸⁴ Some accounts view this as a foundational reason that England first instituted the separation. As the British government had granted the Bank of England a corporate charter, separation was a “protection against whatever advantages the special corporate charter implied and whatever advantages the Bank might obtain in the future.”⁴⁸⁵ Keeping banks from entering commerce would prevent a government-sponsored entity from constraining opportunities

481. *Id.*

482. The Commission noted in its tentative decision that “[t]he factors which mark the difference between service bureau success or failure are imaginative innovation, quality programming, and useful service features, rather than the size of the staff or the computing installation.” *Computer I*, 28 F.C.C.2d at 298, para. 21 (tentative decision). In its final decision and order, the Commission also stated its belief “that [its] restrictions herein respecting corporate arrangements are neither onerous nor burdensome but reflect, rather, the market conditions confronted by those 800 or more noncarrier-related firms with whom carrier data affiliates will be competing.” *Computer I*, 28 F.C.C.2d at 272, para. 16 (final decision and order).

483. Separations policies were applied in the context of regulated monopolies to prevent three anticompetitive practices: (1) the monopolist’s use of profits earned from regulated markets to engage in predatory pricing in the unregulated markets; (2) the monopolist’s control of the supply of competitors (assuming the two markets are related); and (3) the monopolist’s assignment of all joint costs to the regulated product, charging a higher price in the regulated market. See W. Kip Viscusi et al., *Economics of Regulation and Antitrust* 546–49 (4th ed. 2005) (highlighting the anticompetitive practices that “might result from allowing a regulated monopolist to compete against unregulated firms” and describing how “[t]he benefits of separation rest in preventing such practices from taking place”).

484. Professors Bob Hockett and Saule Omarova explain how banking has always functioned as a form of public franchise, built upon the full faith and credit of the U.S. government. See Robert C. Hockett & Saule T. Omarova, “Special,” Vestigial, or Visionary? What Bank Regulation Tells Us About the Corporation—and Vice Versa, 39 *Seattle U. L. Rev.* 453, 461 (2016).

485. Shull, *supra* note 391, at 274.

for private entrepreneurs. In other words, separation was a “protection against a firm affiliated with the government.”⁴⁸⁶

In computing, the FCC wanted to prevent regulated telephone monopolies from subsidizing their data-processing entities, which would have given them an edge over independent data processors.⁴⁸⁷ Because data processors depended on the carriers, permitting carriers to enter computing would mean the carrier’s data-processing division would receive an “implicit subsidy” from its competitors.⁴⁸⁸ This would lead to “unfairly and artificially low prices in the data processing market for the carrier’s computer services.”⁴⁸⁹ And because the monopoly had its long-run rate of return effectively guaranteed, it had latitude to engage in predatory pricing.⁴⁹⁰

Again, this cross-financing was viewed as anticompetitive, as it would permit the monopoly to leverage its government-protected advantage against firms in a separate market. The FCC wanted to “prevent any arbitrary manipulation in the allocation of revenues and expenses between a carrier’s regulated and unregulated service offerings.”⁴⁹¹ Specifically, the FCC worried that a carrier could charge inflated prices to its customers and use these revenues to finance its data-processing unit, which could underprice competitors in the data-processing market.⁴⁹² This concern applied even in the context of smaller carriers, which would still have “the incentive and opportunity to take advantage of their monopoly control of the transmission capacity, and to act in anticompetitive ways.”⁴⁹³

The FCC’s desire to prevent the affiliate from enjoying *any* residual benefits from the monopoly led it to prohibit affiliates from sharing even

486. *Id.* Some scholars argue that this aversion to “crony capitalism” and “trade monopolists” led in part to the American Revolution and played a key role in foundational debates about the federally incorporated Bank of the United States, the scope of the Contracts Clause, and the Fourteenth Amendment. See Steven G. Calabresi & Larissa C. Leibowitz, *Monopolies and the Constitution: A History of Crony Capitalism*, 36 *Harv. J.L. & Pub. Pol’y* 983, 984–88 (2013). A version of this same concern might focus on the implicit subsidy that large U.S. banks enjoy. In 2014 the International Monetary Fund (IMF) documented that big banks benefit from “implicit public subsidies created by the expectation that the government will support them if they are in financial trouble.” The IMF estimated that “global systemically important banks” enjoyed a \$70 billion subsidy in the United States and up to \$300 billion in the euro area. IMF Survey: Big Banks Benefit from Government Subsidies, IMF (Mar. 31, 2014), <http://www.imf.org/en/News/Articles/2015/09/28/04/53/sopol033114a> [<https://perma.cc/W973-6JCZ>].

487. See *supra* notes 431–436 and accompanying text.

488. Note on FCC Computer Inquiry, *supra* note 429, at 190.

489. *Id.*

490. *Id.*

491. *Computer I*, 28 F.C.C.2d 267, 273, para. 20 (1970) (final decision and order).

492. *Id.*

493. Cannon, *supra* note 426, at 194.

names or symbols with the common carrier.⁴⁹⁴ Branding the affiliate as an extension of the common carrier would produce the “same coercive effect” as if the carrier were soliciting sales on behalf of its data-processing business.⁴⁹⁵

Preventing cross-financing was treated as a tool to enhance competition in the data-processing market. Allowing exclusive transactions between a carrier and its affiliate would “substantially impact the competitive market in which hundreds of small competing service bureau firms would be unable to obtain and retain the patronage of so significant a data processing customer.”⁴⁹⁶ This is one reason the FCC required carriers to provide basic services to all other enhanced services on the same terms and conditions—effectively combining a structural separation with a nondiscrimination regime.

C. *Preserving System Resiliency*

Another justification that recurs is promoting the resiliency of systems. Because several of the entities subject to structural separations serve an “infrastructural” role—structuring access to markets or to an essential good or service—the public has a strong interest in maintaining their stability and shielding them from disruption.⁴⁹⁷ Crashes that cripple these infrastructural services can have an outsized effect on economic activity, and involvement in multiple lines of business can increase the likelihood of system crashes. For this reason, policymakers treated strict limits on entry and exit as one way to shield critical services from undue risk.⁴⁹⁸ Structural separations in banking and telephony, too, were partly justified on grounds of promoting system stability.⁴⁹⁹

Precisely because banking services constitute a critical good, ensuring the soundness and stability of banking is a central goal of banking policy. Lawmakers and regulators have argued that preventing

494. *Computer I*, 28 F.C.C.2d at 272, para. 18 (final decision and order).

495. *Id.*

496. *Id.* at 273, para. 19.

497. For a definition of “infrastructural,” see Rahman, *New Utilities*, *supra* note 26, at 1640–44. It’s also worth noting that the definition is contested. Even investors lack any single definition of “infrastructure.” Ryan Dezember & Miriam Gottfried, *What Do Laundry Machines and Roads Have in Common? To Investors, They’re Infrastructure*, *Wall St. J.* (Mar. 5, 2018), <https://www.wsj.com/articles/what-do-laundry-machines-and-roads-have-in-common-to-investors-theyre-infrastructure-1520282663> (on file with the *Columbia Law Review*) (“Blackstone notes that the term infrastructure is open to interpretation: “There is no generally accepted definition of infrastructure.””).

498. See Richard J. Pierce, Jr. & Ernest Gellhorn, *Regulated Industries in a Nutshell* 251–74 (4th ed. 1999).

499. See, e.g., Randall S. Kroszner & Raghuram G. Rajan, *Is the Glass-Steagall Act Justified? A Study of the U.S. Experience with Universal Banking Before 1933*, 84 *Am. Econ. Rev.* 810, 810 (1994) (“The driving force behind the Act was Senator Carter Glass, who strongly believed that direct commercial-bank involvement with corporate securities was detrimental to the stability of the financial system.”).

banks from expanding into commercial activities may help insulate banks from the vagaries of other sectors.⁵⁰⁰ This line of argument is premised on the idea that exposing banks to manufacturing, physical trading, or other commercial activities “increases the vulnerability of the banking and payments systems, the federal deposit insurance fund, and thereby the broader economy.”⁵⁰¹ A question frequently raised during the 2013 debates around banks’ expansion into physical commodity trading was: What would happen if Morgan Stanley repeated the BP oil spill? Would taxpayers be on the line for the \$61.2 billion in damages? In this way, a structural separation helps eliminate the risk that instability or disruption in commercial markets could necessitate a financial bailout.⁵⁰²

To be sure, not all commercial activities are inherently more risky than financial activity—and, some might argue, expanding into these spheres may help banks *diversify* risk. That said, it is true that some commercial activities—like drilling oil or mining—pose particularly expensive risks to which federally insured depository institutions should not be exposed.⁵⁰³

Concerns about system stability and resiliency also informed the FCC’s Computer Inquiries. The carriers argued that, in order to promote efficiency, they should be permitted to use excess capacity for data processing.⁵⁰⁴ The Commission stated, first, that “the potential abuses inherent” in the system far outweighed any purported efficiencies,⁵⁰⁵ and, second, the carriers should have a “‘back-up’ system” that “should be designed to meet foreseeable breakdowns of equipment dedicated to public service” and “should be available instantly for that purpose without the conflicting claims of other users.”⁵⁰⁶ In other words, the FCC privileged redundancy over efficiency, recognizing that the former would serve the public by helping to ensure the stability of communications services and

500. See, e.g., David Sheppard & Alexandra Alper, *Insight: As Banks Deepen Commodity Deals, Volcker Test Likely*, Reuters (July 3, 2012), <https://www.reuters.com/article/us-commodities-forwards-banks/insight-as-banks-deepen-commodity-deals-volcker-test-likely-idUSBRE86206420120703> [<https://perma.cc/42R9-J7XJ>] (quoting senators as decrying bank expansion into commodities-related businesses due to the risk potential); Editorial, *The Value of the Volcker Rule*, Wash. Post. (Oct. 28, 2011), https://www.washingtonpost.com/opinions/the-value-of-the-volcker-rule/2011/10/18/gIQATZhUQM_story.html (on file with the *Columbia Law Review*) (noting arguments by Paul Volcker, Chairman of the Federal Reserve at the time, in favor of requiring banks to separate investment banking practices from traditional commercial banking practices).

501. Omarova, *supra* note 410, at 275–76.

502. See Nathaniel Popper & Peter Eavis, *Senate Report Finds Goldman and JPMorgan Can Influence Commodities*, NY Times: Dealbook (Nov. 19, 2014), <https://dealbook.nytimes.com/2014/11/19/senate-report-criticizes-goldman-and-jpmorgan-over-their-roles-in-commodities-market/> (on file with the *Columbia Law Review*).

503. See *id.* at 317–18 (noting that “[g]lobal energy prices are notoriously volatile”).

504. See *Computer I*, 28 F.C.C.2d 267, 271, para. 13 (1970) (final decision and order).

505. *Id.*

506. *Id.*

networks. Although expanding into data processing wouldn't necessarily heighten the risk of a crash, keeping that capacity for backup would enable the system to absorb any shocks, helping promote resiliency.

D. *Promoting Diversity*

By creating conditions that invite greater competition among producers, structural bans can promote diversity in the goods and services produced. The history of the media sector shows that mandating a separation between production and distribution can help create an open market for content.⁵⁰⁷

A key reason the FCC issued the fin-syn rules was to promote media diversity. One effect of the networks' vertical control was that they effectively controlled the production process of most programming, "from idea through exhibition."⁵⁰⁸ Their programming decisions, in turn, were driven by advertising profits. As a result, "programs were produced on the basis of 'formulas' that were pre-approved by the three networks and their advertisers, such that the subject matter would satisfy tested commercial patterns."⁵⁰⁹ The networks' grip on production, coupled with their commercial priorities, dramatically limited the range of programming that they would run. Lacking both the financial support of the networks as well as national exposure, independent producers languished.⁵¹⁰ The FCC worried that the networks' dominance was sapping program diversity, limiting the shows and voices that Americans could access.⁵¹¹

For this reason, the FCC structured its rules with diversity as a primary goal.⁵¹² Key to achieving greater variety in programming was restructuring the networks' incentives and restricting their ability to steer content. On this metric, the fin-syn rules worked: Between 1970 and 1990, the number of independent television stations increased from 65 to 340.⁵¹³

507. See Herskovitz, *supra* note 419, at 179–81 (arguing that FCC-mandated separation in media created an environment in which, "for the first time, independent producers were bargaining from a position of relative strength").

508. *Id.* at 186 (internal quotation marks omitted) (quoting Competition & Responsibility in Network Television Broad., 23 F.C.C.2d 382, 389, para. 11 (1970) (report and order)).

509. *Id.* at 187.

510. *Id.* at 188–89.

511. See *id.* at 179–80 (noting that the impetus behind fin-syn was to "foster a more competitive and diverse programming climate"). Available data validate the worry: From 1957 to 1968, the percentage of prime-time network programming provided by independent producers had fallen from 33% to 4%. Douglas Ginsburg et al., *Regulation of the Electronic Mass Media* 266 (2d ed. 1991).

512. Specifically, the agency sought to promote diversity across three different dimensions: source diversity, outlet diversity, and program diversity. See Herskovitz, *supra* note 419, at 200–06 (discussing the various results of fin-syn in the television marketplace).

513. Christian, *supra* note 415, at 109.

The Big Three networks' aggregate share of nationwide primetime audience over this same period, meanwhile, declined from 90% to nearly 62%.⁵¹⁴

Safeguarding diversity of information also motivated Judge Harold Greene to modify the government's consent decree with AT&T.⁵¹⁵ The decree proposed by the Justice Department would have permitted the new AT&T—having divested local carriers—to provide electronic publishing services.⁵¹⁶ Reviewing the provision, Judge Greene held that First Amendment values required that AT&T be blocked from entering this market.⁵¹⁷

Judge Greene's primary concern was that AT&T would use its power in the interexchange market to undermine competing electronic publishers. He identified a set of tactics that the corporation could use to discriminate against rivals.⁵¹⁸ For example, he explained, AT&T could use its control over the network to prioritize traffic from its own publishing operations, to develop technology that favored its own operations over those of the industry at large, or to discriminate against competitors when providing needed maintenance on their lines.⁵¹⁹

Judge Greene acknowledged the Justice Department's likely argument—namely, that market dynamics would limit AT&T's ability to discriminate.⁵²⁰ But he stated that “the peculiar characteristics of the electronic publishing market” invited particular caution.⁵²¹ Noting that information and news were “especially sensitive” to even small delays, and that publishers would “have no realistic alternative transmission system,” he concluded that “AT&T's entry into the electronic publishing market poses a substantial danger to First Amendment values.”⁵²² Judge Greene required that the consent decree be modified to prohibit AT&T from entering electronic publishing for seven years, with the prospect of extension if the court determined that threats remained.⁵²³

514. *Id.* The FCC's repeal of fin-syn was controversial. On the one hand, industry groups and some public advocates stressed that the advent of new technologies had injected fresh competition in the media marketplace, dissolving the networks' grip. Others held that the networks still possessed the ability to steer and manipulate programming at the expense of source and outlet diversity. See Herskovitz, *supra* note 419, at 200 (“Commentators have taken the position that the repeal of the rules was a prudent judgment . . . point[ing] to the proliferation of broadcast outlets such as cable, VCRs, and direct broadcasting They point to these as evidence of competition in the industry and an increasing supply of diverse programming.” (footnote omitted)); *Id.* at 200–01.

515. *United States v. AT&T Co.*, 552 F. Supp. 131, 181 (D.D.C. 1982).

516. *Id.* at 180.

517. *Id.* at 181–83.

518. *Id.* at 181.

519. *Id.*

520. *Id.* at 182.

521. *Id.*

522. *Id.* at 182–83.

523. *Id.* at 225. The U.S. Court of Appeals for the D.C. Circuit vacated Judge Greene's prohibition against a BOC's provision of information services, on the basis that BOCs

Abandoning the principle of structurally separating production and distribution has enabled widespread integration across media markets—potentially at the expense of media diversity. Critics of the Comcast–NBC merger, for example, warned that the tie-up would incentivize Comcast to privilege NBC programming⁵²⁴—and evidence suggests that Comcast has, in fact, discriminated against rival content.⁵²⁵ The recent vertical tie-up of Time Warner and AT&T⁵²⁶ poses some of the same hazards—including, public advocates predict, less media diversity.⁵²⁷ Weeks after the D.C. Circuit approved the deal, AT&T threatened to drop rival programming, prompting allegations that the merged firm was using its “new-found market dominance” as “leverage to drive consumers to the content it owns.”⁵²⁸

E. *Preventing Excessive Concentration of Power and Control*

By preventing certain forms of centralized control, structural separations can help safeguard against the concentration of power. The antimonopoly movement and the foundational antitrust laws were partly animated by a recognition that tyranny in our commercial spheres would preclude true democracy and liberty in our political sphere.⁵²⁹ Structural separations were seen as a tool in this antimonopoly toolbox. Perhaps due to the outsized power that a financial oligarchy can wield—and the trove of findings by the Pujo Committee showing how a handful of

could not be prevented from entering a market absent specific evidence that they had engaged in anticompetitive abuses in that market. *United States v. W. Elec. Co.*, 894 F.2d 430, 436–38 (D.C. Cir. 1990).

524. See Kim Hart, *Comcast-NBC Merger Conditions Expire, Raising Anti-Competitive Fears*, Axios (Jan. 22, 2018), <https://www.axios.com/comcast-nbm-1516393866-a394d1c7-abc5-4f51-879e-3fcab1c0de89.html> [<https://perma.cc/H2AY-F7AB>] (citing concerns of Senator Richard Blumenthal and then-FCC Commissioner Mignon Clyburn over the prospect of Comcast owning the distribution of both content and programming).

525. See Jasmin Melvin, *U.S. FCC Sides with Bloomberg over Comcast Dispute*, Reuters (May 2, 2012), <http://www.reuters.com/article/fcc-comcast-bloomberg-idUSL1E8G2N8C20120502> [<https://perma.cc/9K3D-9CR7>] (describing an FCC decision finding that Comcast had violated a “neighborhooding” requirement by not placing Bloomberg’s financial news channel near other news channels in its lineup).

526. The District Court for the District of Columbia approved the merger in June 2018. See *United States v. AT&T Inc.*, 310 F. Supp. 3d 161, 165 (D.D.C. 2018).

527. See, e.g., Shiva Stella, *Public Knowledge President to Testify on AT&T/Time Warner Merger*, Pub. Knowledge (Dec. 6, 2016), <https://www.publicknowledge.org/press-release/public-knowledge-president-to-testify-on-att-time-warner-merger> [<https://perma.cc/FVA6-MHPT>].

528. Sara Fischer, *In AT&T and Viacom Spat, Cable Customers Lose Out*, Axios (Mar. 22, 2019), <https://www.axios.com/att-viacom-directv-blackout-cable-tv-dispute-3945f9c1-9e7f-4711-b5f7-d0d8a3d20d02.html> [<https://perma.cc/2HVS-F4YJ>].

529. See Zephyr Teachout & Lina Khan, *Market Structure and Political Law: A Taxonomy of Power*, 9 *Duke. J. Const. L. & Pub. Pol’y* 37, 61 (2014) (“[E]xploration of the Sherman Act’s intellectual antecedents shows that for Senator Sherman and the Act’s congressional supporters, economic and political freedoms were seen as part of a piece.”).

financiers had seized control over entire sectors of the economy⁵³⁰—preventing excessive concentration featured as a prominent justification in debates on banking law through the mid-twentieth century.⁵³¹

On some accounts, all bank holding company regulation in the United States has had this antimonopoly goal as its focus—both to prevent “the unrestrained concentration of banking resources under the control of a single organization” and “to prevent undue concentration of economic power that Congress perceived may result when banking and nonbanking enterprises combine under the same corporate umbrella.”⁵³² The BHCA follows this antimonopoly tradition, and its passage was in part the product of effective lobbying by small independent and community banks.⁵³³ Embedded in the separation of banking and commerce is a preference for small, local business enterprise as a unit of economic activity.⁵³⁴

How would banks’ foray into commercial activities risk concentrating excessive power, rather than exhibiting bigness per se? One factor is control. If the same organizations that control access to money also control access to commercial products and services, banking experts worry that the arrangement would hand outsized decision-making power to a few. This concern is heightened when the products and services are of an essential nature—such as commodity inputs and raw materials like copper, grain, and energy—and when the controlling banks hold dominant positions.⁵³⁵

If one worry about big banks steering both credit and commerce is outsized economic control, the other is excessive political influence. The ways that corporate actors can translate economic power into political influence are legion.⁵³⁶ If history suggests that banks and finance

530. See H.R. Rep. No. 62-1593, at 133 (1913); see also Louis D. Brandeis, *Other People’s Money and How the Bankers Use It* 2–6 (1914) (describing the Pujo Committee report and arguing that the outsized power of the financial oligarchy—driven by investment bankers in particular—poses a danger to political liberty).

531. See Omarova, *supra* note 410, at 276–77 (noting the BHCA’s original focus as an “antitrust, anti-monopoly law”).

532. Melanie L. Fein, *Federal Bank Holding Company Law* § 7.01[1] (3d ed. 2018).

533. Omarova, *supra* note 410, at 277.

534. See *id.*

535. This potential hazard recently came to the surface around 2013, when the public learned that some of our biggest banks—Goldman Sachs, J.P. Morgan, and Morgan Stanley—had also morphed into some of the biggest merchants of physical goods, supplying crude oil, storing aluminum, and running electricity plants. See *id.* at 266–67 (describing these banks’ ventures into commodity industries); Goldman Sachs’s Aluminum Pile, *supra* note 408 (arguing that policymakers should investigate financial institutions’ commodities-driven profits).

536. See Simon Johnson & James Kwak, *13 Bankers: The Wall Street Takeover and the Next Financial Meltdown* 3–13 (2011) (“The Wall Street banks are the new American oligarchy—a group that gains political power because of its economic power, and then uses that political power for its own benefit.”); Teachout & Khan, *supra* note 529, at 37–38 (explaining how “decentralized economic power and democratic self-government are

interests have enjoyed political influence by virtue of their influence over the American economy, then prohibiting banks from acquiring significant equity in American industry remains one safeguard against their amassing greater political power.

F. *Prioritizing Administrability*

A final functional justification for structural separations is that they are highly administrable. Issuing outright bans obviates the need to engage in lengthy rule-of-reason type analysis; structural limits prescribe rules instead of standards. Structural separations are sometimes criticized for being far-reaching, crude, and overly broad, prohibiting benign as well as pernicious activity.⁵³⁷ This criticism is fair, given that rules are “by nature both over- and under-inclusive.”⁵³⁸ They accept some degree of error in return for clarity and predictability.

In at least two instances, public officials introduced structural regimes by citing their administrability, noting the limits of the government’s capacity to consistently detect discrete acts of wrongdoing. The FCC, for example, stressed its inability to “monitor carefully” the types of activities it had prohibited, “since even the injured party may not be aware of them.”⁵³⁹ The Commission observed that “subtle forms of favoritism” are “numerous and difficult to detect,” and that it was unlikely that the agency would “be prompt in cracking down on discovered abuses.”⁵⁴⁰ Relying on the agency to track individual acts of injury would risk extensive harm to competition. Structural bans, the agency explained, could also aid “the deterrence of foreseeable abuse.”⁵⁴¹

Members of Congress cited some of these same factors when constructing the BHCA. Lawmakers acknowledged that not *all* banks that expanded into commerce would discriminate or otherwise abuse their power.⁵⁴² But short of flagrant abuses, “subtle bias” might creep in, and it

deeply intertwined” and arguing that market structure is “innately political”); see also Johnson & Kwak, *supra*, 88–94 (noting that the “dismantling of the regulatory system” that occurred in the 1990s and 2000s coincided with increasing political donations from the financial sector and Wall Street bankers taking on “major positions in the government during the Clinton and George W. Bush administrations”); James Kwak, *Cultural Capture and the Financial Crisis*, in *Preventing Regulatory Capture: Special Interest Influence and How to Limit It* 71, 79–81 (Daniel Carpenter & David A. Moss eds., 2014) (describing the phenomenon of “cultural capture,” a process whereby regulators systematically favor regulated industries whose members share a common identity with the regulators, are in the regulators’ social networks, or are generally perceived as high-status individuals).

537. See *infra* Part V.

538. Jessica Bulman-Pozen & David E. Pozen, *Uncivil Obedience*, 115 *Colum. L. Rev.* 809, 843 (2015).

539. Note on FCC Computer Inquiry, *supra* note 429, at 200.

540. *Id.*

541. *Computer I*, 28 F.C.C.2d 267, 273, para. 20 (1971) (final decision and order).

542. See Omarova, *supra* note 410, at 277–78 (describing exemptions from the general statutory restrictions separating banking and commerce).

would be “quite unrealistic to expect [banking regulators] to monitor and detect” these less overt forms of discriminatory lending.⁵⁴³

G. *Shared Features Across Justifications*

As explored above, six primary justifications recur across the structural separations reviewed: (1) eliminating conflicts of interest, (2) preventing dominant firms from using protected profits to enter new markets, (3) preserving system resiliency, (4) promoting diversity, (5) limiting the concentration of power, and (6) prioritizing administrability.

Several justifications share features, even as they draw on different values. First, these goals generally seek to preserve the integrity of a process rather than achieve a specific market outcome. Eliminating conflicts of interest and preventing use of protected profits to finance entry, for example, target purported distortions of market competition; both seek to curb a firm’s ability to harness existing market power. While the rhetoric surrounding these two justifications occasionally draws on notions of fairness, the substantive justifications also ring soundly in welfare terms, given that preventing dominant firms from harnessing existing advantages at the expense of new firms can promote dynamic efficiency. Preserving system resiliency, too, can be viewed as a welfare-based goal, insofar as ensuring greater reliability of core infrastructure is likely to facilitate greater economic activity.

Several of the policy goals, however, can instead be understood as appealing to a broader set of democratic and institutionalist values.⁵⁴⁴ Preserving the system resiliency of essential services, for example, also draws on a tradition concerned with facilitating broad access to critical resources and restricting the arbitrary power that providers of essential services can exercise. Promoting diversity in production and preventing the excessive concentration of private power, meanwhile, are informed by a foundational recognition of the connection between economic structure and political outcomes. Drawing on the republican insight that domination is wrongful “even if the empowered party never affirmatively interferes with the dependent’s party choices,” structural separations target the *source* of the power, rather than its exercise.⁵⁴⁵

543. Jonathan Brown, *The Separation of Banking and Commerce, GIS for Equitable and Sustainable Communities*, <http://www.public-gis.org/reports/sbc.html> [<https://perma.cc/G5LG-F3X8>] (last visited Oct. 20, 2018).

544. Leading contemporary republican thinkers describe domination as subjection to another’s arbitrary power. See, e.g., Philip Pettit, *Republican Freedom: Three Axioms, Four Theorems*, in *Republicanism and Political Theory* 102, 102 (Cécile Laborde & John Maynor eds., 2008) (reformulating “the republican conception of freedom as non-domination” and, in doing so, using the “notion of being subject to the alien control of others . . . to represent the idea of domination”).

545. Evan J. Criddle, *Liberty in Loyalty: A Republican Theory of Fiduciary Law*, 95 *Tex. L. Rev.* 993, 1003 (2017) (“The mere fact that the empowered party has the *capacity* for

V. TOWARD A GENERAL FRAMEWORK FOR SEPARATING
PLATFORMS AND COMMERCE

The competition issues posed by dominant digital platforms have emerged against a doctrinal and institutional backdrop that seems particularly ill-equipped to handle them. The enfeebling of antitrust, coupled with the shift away from direct regulation of network industries, has permitted businesses that enjoy dominant positions as key infrastructure to integrate in ways that threaten to undermine competition. Yet even prominent proponents of deregulation have championed strong antitrust enforcement, including limits on vertical mergers.⁵⁴⁶

The debate around how to tackle the power of dominant tech platforms is in its early stages. Recognizing that these entities play critical gatekeeper roles can help illuminate legal regimes that have been used to address analogous challenges in the past. While structural separations were a mainstay in a previous era, their role in structuring open markets has been largely abandoned.⁵⁴⁷

This Part examines whether integration by dominant platforms gives rise to the sort of harm previously addressed through separations, offers a rough sketch of what a separations framework for digital intermediaries might look like, and identifies the likely challenges and unresolved questions. Ultimately, any separations proposal will require a case-by-case analysis of the relevant market that the platform dominates, the types of network effects and entry barriers that suggest the platform's market power may be durable, and the potential costs of implementing a separation. Several questions that this Part only briefly engages—such as how to define what constitutes a platform, how to assess the contours of the platform, and how to scope structural separations—invite deeper study.

arbitrary interference underscores the dependent party's vulnerability, impressing upon the dependent party's mind the need to remain within the power holder's good graces.").

546. See, e.g., Stephen Breyer, *Regulation and Its Reform* 158 (1982) ("[T]he antitrust laws rest upon the assumption that a workably competitive marketplace will achieve a more efficient allocation of resources, greater efficiency in production, and increased innovation Where this assumption holds true, antitrust would ordinarily seem the appropriate form [of] government intervention."); 2 Alfred E. Kahn, *The Economics of Regulation* 115 (1971) ("The only government planning required is of the antitrust kind—directed at preserving the competitive market *mechanism*—and related efforts to make that mechanism work as well as possible."); Breyer, *Analyzing Regulatory Failure*, *supra* note 249, at 557 ("Where predatory pricing might exist, it can be dealt with through application of the antitrust laws."); Alfred E. Kahn, *Deregulation: Looking Backward and Looking Forward*, 7 *Yale J. on Reg.* 325, 348 (1990) ("[T]he government clearly has neglected responsibilities of which it was never the intention of deregulation to relieve it. These include . . . vigorous enforcement of the antitrust laws").

547. See *supra* section II.B.

A. *Substantive Case*

1. *Innovation Concerns.* — Reports document that dominant digital platforms are using their integrated structure to discriminate against rivals and appropriate their competitively significant business information.⁵⁴⁸ If this dynamic depresses the incentive to innovate—as studies suggest it does⁵⁴⁹—then this cost of digital platform integration is worth taking seriously. While standard economic theory states that only under certain exceptions will dominant platforms have the incentive and ability to discriminate against complementors, digital markets characterized by network externalities help create the conditions under which platforms are likely to discriminate.⁵⁵⁰ Moreover, because dominant digital platforms passively capture highly precise and nuanced data on their business customers—information that is more valuable by virtue of being more sophisticated⁵⁵¹—both the risk and cost of information appropriation is heightened in digital markets.

Concerns about information exploitation are not new. In 1971, when the FCC was considering whether its “maximum separation” regime should prohibit involvement by carriers in data processing entirely (or should require instead that their data-processing services be run as an independent affiliate),⁵⁵² it noted that an integrated carrier could potentially misappropriate information against processor rivals.⁵⁵³ Data processors worried that integrated carriers would be able to collect their sensitive business information to exploit against them as rivals in data processing. The FCC concluded that this risk of misappropriation was low.⁵⁵⁴ Its final decision stated that that the majority of independent data processors would likely use the Bell System for communication services,⁵⁵⁵ and since Bell was forbidden from operating in unregulated markets (including data processing) altogether, there would be no risk of misappropriation of information by a rival.⁵⁵⁶ Still, the FCC recognized the potential threat and noted it would “consider any attempt on the part of a carrier to secure and use such information for the benefit of its

548. See *supra* sections I.A–D.

549. See, e.g., Zhu, *supra* note 204, at 24–26.

550. See *infra* Appendix.

551. See *supra* sections I.A–D.

552. See *Computer I*, 28 F.C.C.2d 267, 269–70, paras. 10–11 (1971) (final decision and order).

553. See *id.* at 281–82, para. 39. The Commission’s final decision stated, “[T]he fear is expressed that provision to the carrier of detailed information regarding a competitive offering is, in essence, provision of such information to the carrier’s data affiliate.” *Id.*

554. *Id.*

555. See *id.* (“[T]he majority of such non-affiliated firms will doubtless turn to companies of the Bell System for communication services and facilities since the latter provide the greater share of such services.”).

556. *Id.*

data processing affiliate as a serious breach of the policy established herein.”⁵⁵⁷

2. *Broader Concerns.* — As reviewed in Part IV, separations have been motivated by a host of functional goals, some of which fit squarely within a welfarist frame, while others appeal to a set of institutional and democratic values. Recalling these broader concerns that animated laws and regulations effecting separations helps bring into focus the range of factors at stake when dealing with a dominant intermediary. Below I briefly review how these functional goals do or do not resonate in the context of digital platforms.

a. *Extending Dominance Through Cross-Financing.* — As described above, structural separations imposed on banks and telecommunications carriers were partly motivated by a desire to prevent cross-financing. Lawmakers and regulators worried that firms whose dominance stemmed from government-granted privileges would use that cushion to advantage new lines of business.⁵⁵⁸ In particular, they worried that companies would use their regulated monopoly businesses to finance their unregulated businesses, thus gaining a competitive edge over rivals.⁵⁵⁹

One way in which this could occur is if a firm shifted the costs of supplying the unregulated market to the regulated sector. The regulator—hypothetically unable to detect that the higher costs should be attributed to a distinct market—would then raise the revenue requirement that ratepayers of the regulated product would have to cover.⁵⁶⁰ Effectively forcing consumers of the firm’s regulated service to finance its entry into the unregulated market would, in turn, undermine competition by discouraging potential rivals from entering the unregulated market.⁵⁶¹

Because digital platforms are unregulated, they cannot use regulated rates to finance new ventures. To the degree that it is the *regulated* nature of the subsidizing rates—namely, the fact that these rates are set by the government in a market where customers lack real choice—then digital platforms do not raise analogous concerns. If, instead, the concern is responding to dominant firms using supracompetitive profits to finance entry in an array of other markets, then the platform fact pattern becomes relevant.⁵⁶²

557. *Id.* at 282, para. 39.

558. See *supra* section IV.B.

559. See *supra* notes 484–493 and accompanying text.

560. Timothy J. Brennan, Cross-Subsidization and Cost Misallocation by Regulated Monopolists, 2 *J. Reg. Econ.* 37, 37 (1990).

561. See *id.* (“[T]he ability to set marginal costs low through cross-subsidization can discourage potential entrants from entering a market, even if the pre-entry price is above their average cost . . .”).

562. Antitrust experts previously have cited cross-financing as enabling predatory conduct. See Remedies Brief of Amici Curiae Robert E. Litan et al. at 54, *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000) (No. 98-1232), <https://www.brookings.edu/>

Since dominant platforms report earnings and revenue at a highly generalized level, without breaking revenues and profits down to specific lines of business, we can mostly only speculate about the degree to which these firms are cross-financing. For example, Google's operating margins over the last decade have hovered between 22% and 35%,⁵⁶³ margins that would qualify as supracompetitive and that derive from a market that Google dominates. Since 2004, Alphabet has purchased close to 200 companies.⁵⁶⁴ Several of these acquisitions strengthened Google's position in digital advertising, its core market.⁵⁶⁵ But many of its purchases have established its position in new markets; indeed, Alphabet has built its strength outside of advertising almost entirely through acquisitions.⁵⁶⁶

wp-content/uploads/2016/06/20000428.pdf [https://perma.cc/PMY6-XSVW] (“Microsoft’s deep pockets have financed its predatory actions. In whatever structure the Court finally decides, therefore, care should be taken to ensure that the vast cash resources of the company are not lodged in an entity that can use them for anticompetitive purposes . . .”).

563. Alphabet Inc (NAS:GOOG) Operating Margin %, Guru Focus, <https://www.gurufocus.com/term/operatingmargin/GOOG/Operating%252BMargin/Alphabet%2BInc> [https://perma.cc/M9TK-JKR8] (last visited Apr. 4, 2019).

564. Vicky Huang, Google Has Acquired 200 Companies Since 2001—Here Are Its Biggest Failures, Street (Jan. 14, 2017), <https://www.thestreet.com/story/13952508/1/google-s-moonshots-make-crash-landing.html> [https://perma.cc/7TVB-7XGD]; see also Josh Lipton, Google’s Best and Worst Acquisitions, CNBC (Aug. 19, 2014), <https://www.cnbc.com/2014/08/19/googles-best-and-worst-acquisitions.html> [https://perma.cc/284M-ZE3M].

565. In the second quarter of 2017, 86% of Alphabet’s total revenue came from advertising alone. Matthew Reynolds, If You Can’t Build It, Buy It: Google’s Biggest Acquisitions Mapped, Wired (Nov. 25, 2017), <http://www.wired.co.uk/article/google-acquisitions-data-visualisation-infoporn-waze-youtube-android> [https://perma.cc/U8ZW-LVBF]. Acquisitions that boosted its ad business include YouTube (\$1.65 billion in 2006) and DoubleClick (\$3.1 billion in 2007). *Id.*

566. For example, its 2005 purchase of Android (for an undisclosed but reported price of \$50 million) launched the company into the market for wireless device operating systems. It was described as the “best deal ever” by an Alphabet executive. Owen Thomas, Google Exec: Android Was “Best Deal Ever,” VentureBeat (Oct. 27, 2010), <https://venturebeat.com/2010/10/27/google-exec-android-was-best-deal-ever/> [https://perma.cc/K5VM-5M62]. The Android acquisition set up Google to enter the market for mobile ads, which generated over \$49 billion in annual revenue for the company in 2017. Rani Molla, Google Leads the World in Digital and Mobile Ad Revenue, Recode (July 24, 2017), <https://www.recode.net/2017/7/24/16020330/google-digital-mobile-ad-revenue-world-leader-facebook-growth> [https://perma.cc/9MHL-4ATB]. Today, Android captures around 88% of the global smartphone market. Ananya Bhattacharya, Android Just Hit a Record 88% Market Share of All Smartphones, Quartz (Nov. 3, 2016), <https://qz.com/826672/android-goog-just-hit-a-record-88-market-share-of-all-smartphones/> [https://perma.cc/2ML2-4NCQ]. Embedding sensors in Android products, in turn, has let Alphabet collect enormous amounts of location data, which it feeds back into its advertising business and into its maps business (both Google Maps and Waze). See Keith Collins, Google Collects Android Users’ Locations Even When Location Services Are Disabled, Quartz (Nov. 21, 2017), <https://qz.com/1131515/google-collects-android-users-locations-even-when-location-services-are-disabled/> [https://perma.cc/UEW2-78AE] (noting that Google “allow[s] advertisers to target consumers using location data”); Tim Stenovec, Google Has Gotten

Google established its home-automation business,⁵⁶⁷ for example, primarily through buy-ups.⁵⁶⁸ Most recently, the race for capturing the AI market is spurring a new flurry of acquisitions.⁵⁶⁹ Its pattern of acquisitions suggests that the company “will continue to push into entirely new areas, from genomics and healthcare to autonomous transport.”⁵⁷⁰

A dominant digital platform that uses its supracompetitive profits to buy its way into other markets can raise entry barriers in two ways. First, the platform can bundle its various services, such that any new firm seeking to compete in any one line of business may be unable to enter unless it could enter in multiple lines.⁵⁷¹ Second, entering multiple markets positions a digital platform to combine multiple sources of data, potentially enabling a “super-platform” to control “key portals of data, which helps it attain or maintain its power across many products.”⁵⁷² Amazon’s growing suite of acquisitions—which have picked up since Amazon Web Services (AWS) started reporting enormous profits⁵⁷³—has

Incredibly Good at Predicting Traffic—Here’s How, *Bus. Insider* (Dec. 18, 2015), <https://www.businessinsider.com/how-google-maps-knows-about-traffic-2015-11> [<https://perma.cc/2BKF-8N93>] (“Hundreds of millions of people around the world give Google real-time data that it uses to analyze traffic and road conditions.”). In other words, Alphabet acquired its way into the mobile OS market, which in turn has boosted its ad and maps businesses.

567. Dan O’Shea, *Google Gunning for Amazon’s Smart Speaker Market*, *Retail Dive* (Jan. 29, 2018), <https://www.retaildive.com/news/google-gunning-for-amazons-smart-speaker-market/515739/> [<https://perma.cc/5ANB-QL3G>]. Google currently captures around 40% of the market. *Id.*

568. See Alistair Barr, *Google’s Nest Buys Smart Home Startup Revolv*, *Wall. St. J.* (Oct. 24, 2014), <https://blogs.wsj.com/digits/2014/10/24/googles-nest-buys-smart-home-startup-revolv/> (on file with the *Columbia Law Review*) (stating that Google’s purchases include Nest Labs (\$3.2 billion), Dropcam (\$555 million), and Revolv (undisclosed)).

569. See Jacques Bughin et al., *McKinsey Glob. Inst., Artificial Intelligence: The Next Digital Frontier?* 6 (2017), <https://www.mckinsey.com/~media/McKinsey/Industries/Advanced%20Electronics/Our%20Insights/How%20artificial%20intelligence%20can%20deliver%20real%20value%20to%20companies/MGI-Artificial-Intelligence-Discussion-paper.ashx> [<https://perma.cc/j98W-KCZC>] (“Companies at the digital frontier—online firms and digital natives such as Google and Baidu—are betting vast amounts of money on AI. We estimate between \$20 billion and \$30 billion in 2016, including significant M&A activity.”). “Artificial intelligence is poised to unleash the next wave of digital disruption” and could be a \$126 billion business by 2025. *Id.* at 4, 6.

570. Reynolds, *supra* note 565 (internal quotation marks omitted) (quoting Suranga Chandratillake, general partner at Balderton Capital, a London-based venture capital firm); see also Rani Molla, *Google Parent Company Alphabet Has Made the Most AI Acquisitions*, *Recode* (May 19, 2017), <https://www.recode.net/2017/5/19/15657758/google-artificial-intelligence-ai-investments> [<https://perma.cc/CR88-ABBD>].

571. See Robert D. Buzzell, *Is Vertical Integration Profitable?*, *Harv. Bus. Rev.* (Jan. 1983), <https://hbr.org/1983/01/is-vertical-integration-profitable> [<https://perma.cc/L4RU-YYB3>] (“The more vertically integrated a business, the greater the financial and managerial resources required to enter and compete in [that market]”).

572. Stucke & Grunes, *supra* note 26, at 137.

573. While the company traditionally operated on losses or razor-thin margins, it now reports consistent profits—in large part due to AWS. See Stephanie Condon, *In*

also led analysts to speculate that Amazon uses AWS profits to finance entry into new markets.⁵⁷⁴

The desire to prevent companies from extending their existing dominance into new lines of business motivated policymakers to impose structural limits on firms with government-granted advantages.⁵⁷⁵ Unlike in the case of telephone carriers, the additional costs of these new ventures are not raising government-set rates that the public must pay.⁵⁷⁶ But if durable and persistent dominance is enabling a platform to earn supracompetitive profits that it can sink into any new market it chooses to enter, the dynamic may raise analogous concerns, especially given that dominant platforms' serial acquisitions—431 over the last decade⁵⁷⁷—appear to have helped them maintain and extend their dominance.⁵⁷⁸

Placing structural limits to address this concern would require separating the business earning supracompetitive profits from other businesses. This would not necessary fall along the line of separating platforms from commerce. Although in other contexts the functional goal of preventing protected profits from financing entry into new markets aligned with the goal of preventing conflicts of interest, in this context the two goals may yield different forms of breakup.

2018, AWS Delivered Most of Amazon's Operating Income, ZDNet (Jan. 31, 2019), <https://www.zdnet.com/article/in-2018-aws-delivered-most-of-amazons-operating-income/> [<https://perma.cc/W973-6JCZ>]. Called the “cash cow” of Amazon, AWS enjoys 35% of the cloud computing market, more than its next three competitors combined. Ron Miller, AWS Continues to Rule the Cloud Infrastructure Market, TechCrunch (Oct. 30, 2017), <https://techcrunch.com/2017/10/30/aws-continues-to-rule-the-cloud-infrastructure-market/> [<https://perma.cc/MHT2-ZJ5G>].

574. Amazon has also made a suite of acquisitions to establish its position in new or early-stage lines of business. Since 1995, it has made around 130 acquisitions or investments. Zoe Henry, Amazon Has Acquired or Invested in More Companies Than You Think—At Least 128 of Them, Inc. (May 2017), <https://www.inc.com/magazine/201705/zoe-henry/will-amazon-buy-you.html> [<https://perma.cc/9KC6-BL35>]. Its largest purchases include Audible (audiobooks, \$300 million), Zappos (shoes, \$1.2 billion), Kiva Systems (robotics, \$775 million), Annapurna Labs (semiconductor chip designer, \$370 million), Twitch Interactive (video game livestreaming, \$970 million), and Whole Foods (grocery, \$13.7 billion). Jeff Desjardins, Infographic: Amazon's Biggest Acquisitions, Bus. Insider (Sept. 12, 2017), <http://www.businessinsider.com/amazon-stock-price-biggest-acquisitions-infographic-2017-9> [<https://perma.cc/EP9N-AAD4>]; Sally French, All the Companies in Jeff Bezos' Empire, in One (Large) Chart, MarketWatch (Jan. 30, 2018), <https://www.marketwatch.com/story/its-not-just-amazon-and-whole-foods-heres-jeff-bezos-enormous-empire-in-one-chart-2017-06-21> [<https://perma.cc/EM5T-U8JT>].

575. See *supra* section IV.B.

576. See Shelanski, *Adjusting Regulation*, *supra* note 350, at 59–60 (describing government-set rates in the telephone industry as a response to concerns about monopolies).

577. David McLaughlin, Did Big Tech Get Too Big? More of the World Is Asking, Bloomberg (Mar. 21, 2019), <https://www.bloomberg.com/news/articles/2019-03-22/did-big-tech-get-too-big-more-of-the-world-is-asking-quicktake> (on file with the *Columbia Law Review*) (“Data compiled by Bloomberg show the big five—Alphabet, Amazon, Apple, Facebook and Microsoft—have made 431 acquisitions worth \$155.7 billion over the last decade.”).

578. See *supra* Part I.

b. *Media Diversity*. — As in the past, integration by dominant platforms today could undermine the richness and diversity of outlets providing media and news. At first blush, this may seem counterintuitive, given how much easier and cheaper the digital age has made it to disseminate information. But the proliferation of information in the digital age—the age of information overload—means that the firms organizing and delivering desired and valued information gain in importance. The dominant platforms have emerged as powerful gatekeepers and network distributors in part because they serve as digital portals, and “choosing and switching among different portals entails cognitive costs.”⁵⁷⁹ This stickiness helps explain why a portal that achieves early dominance can prove so challenging to dislodge.

Critics have argued that Amazon’s outsized power to cut off publishers and authors from the online marketplace threatens First Amendment values.⁵⁸⁰ Google and Facebook’s role as dominant portals of news and media, meanwhile, may undermine the health and diversity of the media ecosystem. For one, the need to be visible in search rankings and the News Feed incentivizes publishers to invest in content that the platforms’ algorithms favor. Facebook’s emphasis on video content, for example, spurred publishers to fire hundreds of journalists in favor of video producers—only to learn that Facebook had inflated its video numbers.⁵⁸¹ A market structure in which two companies set the metrics determining whether internet content gets seen is not a system that promotes diversity. In recent years, questions about news bias by Facebook and the black-box nature of Google search rankings have prompted a larger discussion about whether permitting two firms to

579. John M. Newman, *Antitrust in Digital Markets*, 72 *Vand. L. Rev.* (forthcoming 2019) [hereinafter Newman, *Digital Markets*] (manuscript at 10) (on file with the *Columbia Law Review*).

580. See Letter from Authors United to William J. Baer, Assistant Att’y Gen., Antitrust Div., Dep’t of Justice, <http://www.authorsunited.net/july/longdocument.html> [<https://perma.cc/76GZ-38KW>] (last visited Oct. 21, 2018) (“Amazon’s aggressive and retaliatory behavior has engendered fear and stifled expression throughout the book industry. As we can attest from our own experience at Authors United, such fear runs deep among authors, editors, and literary agents.”).

581. Alexis C. Madrigal & Robinson Meyer, *How Facebook’s Chaotic Push into Video Cost Hundreds of Journalists Their Jobs*, *Atlantic* (Oct. 18, 2018), <https://www.theatlantic.com/technology/archive/2018/10/facebook-driven-video-push-may-have-cost-483-journalists-their-jobs/573403/> [<https://perma.cc/R68G-YT39>] (“As media companies desperately tried to do what Facebook wanted, many made the disastrous decision to ‘pivot to video,’ laying off reporters and editors by the dozen.”); see also Nicholas Thompson & Fred Vogelstein, *Inside the Two Years that Shook Facebook—and the World* (Feb. 12, 2018), <https://www.wired.com/story/inside-facebook-mark-zuckerberg-2-years-of-hell/> [<https://perma.cc/5E45-DTRB>] (“Every publisher knows that, at best, they are shareholders on Facebook’s massive industrial farm.”).

capture control over digital information mediation undermines the integrity of our news ecosystems.⁵⁸²

This algorithm-chasing dynamic is primarily a feature of Google and Facebook's horizontal dominance. But Facebook and Google also vertically compete with the news publishers that depend on their platforms for greater exposure to readers.⁵⁸³ This dual role they play—as a competitor in the sale of digital ads and as an intermediary in the distribution of information—diverts advertising revenue from publishers to the dominant platforms, helping them maintain their duopoly in the digital advertising market.⁵⁸⁴ The news industry, meanwhile, is on life support: Hundreds of local and regional newspapers have been rolled up or shuttered, such that two thirds of counties in America now have no daily newspaper and 1,300 communities have lost all local coverage.⁵⁸⁵ Even outlets native to the web, like BuzzFeed and the Huffington Post, are laying off reporters.⁵⁸⁶

Insofar as this dual role played by Facebook and Google deprives publishers of digital advertising revenue, structurally separating the communications networks these firms operate from their ad businesses could potentially be justified on the basis of protecting the news media. Rather than separating platforms from commerce, such a separation would target a particular business model in order to promote media diversity and protect journalism.⁵⁸⁷ Careful analysis would be needed to determine precisely what kinds of limits on behavioral-ad based business models might be justified.

582. See Foer, *supra* note 4, at 123–27 (arguing that Google, Facebook, and Amazon are “indifferent to democracy” and yet “have acquired an outside role in it”); Frank Pasquale, *The Black Box Society* 71 (2015) (describing how the vast array of content provided by Facebook’s “News Feed” may favor the interests of advertisers and Facebook itself over the news-consuming public).

583. See *supra* section I.C; see also Elisa Shearer & Jeffrey Gottfried, *News Use Across Social Media Platforms 2017*, Pew Research Ctr. (Sept. 7, 2017), <https://www.journalism.org/2017/09/07/news-use-across-social-media-platforms-2017/> [<https://perma.cc/3NBG-VXV9>] (finding that 45% of U.S. adults get news through Facebook).

584. See *supra* sections I.B–C.

585. Riley Griffin, *Local News Is Dying, and It’s Taking Small Town America With It*, Bloomberg (Sept. 5, 2018), <https://www.bloomberg.com/news/articles/2018-09-05/local-news-is-dying-and-its-taking-small-town-america-with-it> (on file with the *Columbia Law Review*); Tom Stites, *About 1,300 U.S. Communities Have Totally Lost News Coverage*, UNC News Desert Study Finds, Poynter (Oct. 15, 2018), <https://www.poynter.org/business-work/2018/about-1300-u-s-communities-have-totally-lost-news-coverage-unc-news-desert-study-finds/> [<https://perma.cc/Z87F-E999>].

586. Oliver Darcy & Tom Kludt, *Media Industry Loses About 1,000 Jobs as Layoffs Hit News Organizations*, CNN (Jan. 24, 2019), <https://edition.cnn.com/2019/01/24/media/media-layoffs-buzzfeed-huffpost-gannett/index.html> [<https://perma.cc/D2MU-NVDD>].

587. Responding to the rise of the new information monopolies, Professor Tim Wu has argued in favor of applying a separations regime in information industries, specifically an approach that would create “a salutary distance between each of the major functions or layers in the information economy.” Tim Wu, *The Master Switch* 304 (2010).

c. *System Resiliency*. — As a growing share of online commerce and communications rely on dominant online platforms, the resiliency of platform infrastructure becomes paramount. Yet concentrating activity can also concentrate risk, creating the possibility that a single system crash could have cascading effects.⁵⁸⁸

For example, AWS leads the cloud computing market, capturing a greater share than its next three competitors combined.⁵⁸⁹ This level of concentration has at least two potential risks. One is general fragility. For example, a single outage at AWS a few years ago led Netflix, Reddit, Business Insider, and several other major websites to crash for five hours.⁵⁹⁰ The second risk is the security vulnerabilities created by monoculture. Homogeneity can render a system more susceptible to malware or hacks, a risk recognized in the context of computer systems.⁵⁹¹ As more businesses come to use AWS as default computing power (the company counts among its clients the CIA⁵⁹²), the potential systemic

588. For in-depth analysis of how excessive concentration can heighten system fragility, see generally Barry C. Lynn, *End of the Line: The Rise and Coming Fall of the Global Corporation* 11 (2005) (arguing that an essential network platform “can be viewed as common property that belongs to all of the companies that rely on it” and therefore, “no one, quite naturally, is responsible for ensuring that the system is safe”); Barry C. Lynn, *Built To Break, Challenge*, Mar.–Apr. 2012, at 87, 94–95 (describing a shutdown in Japanese automobile manufacturing following a 2007 earthquake, which disrupted operations at an industrial firm that produced an automobile part used by all Japanese automakers, and using this example to illustrate the problems that result when an entire industry utilizes the same infrastructure); Yossi Sheffi & Barry C. Lynn, *Systemic Supply Chain Risk, Bridge*, Fall 2014, at 22, 25–26 (noting how, given increasing reliance on “single ‘super’ suppliers” throughout the economy, “[a] strike, sabotage, financial problem, or cyber-attack can shut down a supplier, . . . creating a systemic disruption”). For an argument for why antitrust analysis generally and merger enforcement specifically should take fragility and resiliency concerns into account, see Peter C. Carstensen & Robert H. Lande, *The Merger Inciency Doctrine and the Importance of “Redundant” Competitors*, 2019 *Wis. L. Rev.* (forthcoming) (manuscript at 58–63) (on file with the *Columbia Law Review*).

589. See Peter Cohan, *5 Ways That Amazon Keeps Its Lead in the \$180B Cloud*, *Forbes* (Aug. 1, 2018), <https://www.forbes.com/sites/petercohan/2018/08/01/5-ways-that-amazon-keeps-its-lead-in-the-180b-cloud/> [<https://perma.cc/V6EW-DYZD>].

590. Romellaine Arsenio, *Amazon Web Services Suffers Crash, Takes Down Netflix, Reddit, Tinder and Other Huge Parts of The Internet*, *Tech Times* (Sept. 23, 2015), <http://www.techtimes.com/articles/86667/20150923/amazon-web-services-suffers-crash-takes-down-netflix-reddit-tinder-and-other-huge-parts-of-the-internet.htm> [<https://perma.cc/6Z2R-KTP4>].

591. The Computer & Communications Industry Association raised the issue of monoculture during the U.S. antitrust proceedings against Microsoft. A report published by the group in 2003 concluded, “The presence of this single, dominant operating system in the hands of nearly all end users is inherently dangerous. . . . These competition related security problems have been with us, and getting worse, for years.” Dan Geer et al., *CyberInsecurity: The Cost of Monopoly* 3–4 (2003), <https://www.flyingpenguin.com/wp-content/uploads/2016/02/cyberinsecurity.pdf> [<https://perma.cc/7QBS-K9YW>].

592. Kevin McLaughlin, *Amazon Wins \$600 Million CIA Cloud Deal as IBM Withdraws Protest*, *CRN* (Oct. 30, 2013), <http://www.crn.com/news/cloud/240163382/amazon-wins-600-million-cia-cloud-deal-as-ibm-withdraws-protest.htm> [<https://perma.cc/NQE8-7HG3>].

ramifications are not trivial. Indeed, the prospect of Amazon winning a single-source contract for the Pentagon has prompted concerns that awarding the business to a single provider could increase cybersecurity risks.⁵⁹³ Analogous concerns raised by Google's dominance have prompted policy officials to debate whether the company should be designated as "critical infrastructure."⁵⁹⁴

Notably, these resiliency concerns are primarily responding to concentration, not integration. A vertical separation would not address the underlying issue, unless exiting an adjacent market would reduce exposure to risk.

B. *Institutional Shortcomings*

Over the last decade, antitrust agencies have primarily responded to anticompetitive vertical acquisitions through behavioral remedies.⁵⁹⁵ Behavioral remedies include, for example, transparency provisions, information firewalls, and nondiscrimination provisions, as well as limits on certain contracting practices.⁵⁹⁶ Unlike structural remedies, behavioral remedies seek to change the firm's conduct, while leaving the underlying incentives untouched.⁵⁹⁷ In effect these remedies constitute "attempts to require" a merged firm to "operate in a manner inconsistent with its own profit-maximizing incentives"—an effort that proves both "paradoxical" and "likely difficult to achieve."⁵⁹⁸

Behavioral remedies carry at least four substantial costs.⁵⁹⁹ First, there are the direct costs of monitoring the merged firm's activity to ensure compliance with the decree. Second, there are costs of evasion

593. Ali Breland, Amazon's Attempt to Land Major Pentagon Job Stokes Antitrust Fears, Hill (Mar. 11, 2018), <http://thehill.com/policy/technology/377649-amazons-attempt-to-land-major-pentagon-job-stokes-antitrust-fears> [https://perma.cc/LMY8-DQ67] ("A single-source provider for Pentagon cloud services is obviously reckless. The Pentagon should clearly have multiple cloud providers so that if something happens to one of them there is resiliency and redundancy." (internal quotation marks omitted) (quoting Matt Stoller, fellow at the Open Markets Institute)).

594. See, e.g., Eric Engleman, Google Exception in Obama's Cyber Order Questioned as Unwise Gap, Bloomberg (Mar. 5, 2013), <http://www.bloomberg.com/news/articles/2013-03-05/google-exception-in-obama-s-cyber-order-questioned-as-unwise-gap> (on file with the *Columbia Law Review*) (describing how an executive order issued by President Obama may have exempted Google's Gmail service from being designated as "critical infrastructure").

595. Bureau of Competition and Econ., FTC, The FTC's Merger Remedies 2006-2012, at 13 (2017), https://www.ftc.gov/system/files/documents/reports/ftcs-merger-remedies-2006-2012-report-bureaus-competition-economics/p143100_ftc_merger_remedies_2006-2012.pdf [https://perma.cc/CA6B-WFHN] (capturing that 100% of vertical mergers in which the Commission ordered a remedy, the remedy was non-structural).

596. Kwoka & Moss, *supra* note 27, at 982–83.

597. *Id.* at 982.

598. *Id.*

599. U.S. Dep't of Justice, Antitrust Division Policy Guide to Merger Remedies 8–9 (2004), <https://www.justice.gov/sites/default/files/atr/legacy/2011/06/16/205108.pdf> [https://perma.cc/YC9N-KYRY].

associated with the merged firm sidestepping the spirit of the decree.⁶⁰⁰ Third, there are costs of restraining potentially procompetitive behavior.⁶⁰¹ And fourth, a behavioral remedy may hamper the firm's ability to adapt effectively to changing market conditions.⁶⁰² Stating that "a structural remedy can in principle avoid" these costs, the Justice Department has historically "strongly preferred" structural merger remedies to behavioral ones.⁶⁰³

The challenges of enforcing a behavioral remedy are likely heightened in digital markets, where the information asymmetry between the integrated firm and public enforcers is even starker. This is especially true with regard to information firewalls, which—in theory—could help prevent information appropriation by dominant integrated firms.⁶⁰⁴ In practice, seeking to regulate the dissemination of information within a firm is difficult in any market—let alone in multibillion dollar markets built around the intricate collection, combination, and sale of data.⁶⁰⁵ The significant business insights, market intelligence, and competitive advantage derived from gathering and analyzing data suggest that firms will have an even greater incentive to combine different sets of information—meaning that any regulatory attempts to limit that sharing or dissemination is more likely to fail. The fact that these regulatory remedies are imposed by antitrust enforcers, who generally lack regulatory tools and resources,⁶⁰⁶ makes successful oversight and compliance even more doubtful.

The Justice Department's remedies in the Google-ITA merger illustrate one instance of imposing an information firewall in a digital market. ITA developed and licensed a software product known as "QPX," a "mini-search engine" that airlines and online travel agents used to

600. For example, if a remedy required a firm not to raise prices, it could go on to reduce its costs by cutting quality—"thereby effecting an anticompetitive increase in the 'quality adjusted' price." *Id.* at 8.

601. *Id.*

602. *Id.* at 8–9.

603. *Id.*

604. See *supra* sections I.A–C.

605. See *The World's Most Valuable Resource Is No Longer Oil, but Data*, *Economist* (May 6, 2017), <https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data> (on file with the *Columbia Law Review*) ("This abundance of data changes the nature of competition. . . . By collecting more data, a firm has more scope to improve its products, which attracts more users, generating even more data, and so on."); see also Dan Gallagher, *Data Really Is the New Oil*, *Wall St. J.* (Mar. 9, 2019), <https://www.wsj.com/articles/data-really-is-the-new-oil-11552136401> (on file with the *Columbia Law Review*) ("Moving ones and zeroes around the Internet is getting to be more expensive than keeping the oil flowing.").

606. See, e.g., Delrahim, *supra* note 27 ("[A]ntitrust is law enforcement, it's not regulation.").

provide users with customized flight search functionality.⁶⁰⁷ Because the merger would put Google in the position of supplying QPX to its rival travel-search websites, the Justice Department required as a condition of the merger that Google establish internal firewalls to avoid misappropriation of rivals' information.⁶⁰⁸ Although one commentator highlighted the risks and inherent difficulties associated with designing a comprehensive behavioral remedy, the court approved the order.⁶⁰⁹

Whether the information firewall was successful in preventing Google from accessing rivals' business information is not publicly known. A year after the remedy expired, Google shut down its QPX API.⁶¹⁰

The challenges of enforcing behavioral remedies—both generally and in digital markets specifically—highlight the importance of assessing the relative enforcement costs of alternate remedies. A focus on enforcement costs—which include administrative costs, monitoring costs, and the misallocation of resources resulting from rent-seeking activity⁶¹¹—can help identify instances when the purported welfare benefits of a conduct remedy may not be worth the steep enforcement costs. Another factor to consider is the prospect that rejecting a structural remedy earlier could result in more regulation later. This prospect is especially likely in monopolistic markets, where the failure to build an “effective institutional firewall between the regulated monopoly and the other segments of a vertical chain” could mean that “as the number of competitive interfaces between regulated monopoly and competitive segments expands, the regulation of these competitive interfaces will expand as well.”⁶¹² In other words, cabining the monopoly can cabin regulation.

Lastly, it is worth considering whether increases in information asymmetries between companies and enforcers should weigh in favor of greater reliance on structural remedies. If enforcers have less ability to discern a firm's business activities—be it due to heightened opacity or complexity—then targeting the firm's incentives, rather than attempting to police its behavior, may make more sense.

607. Competitive Impact Statement at 1–2, *United States v. Google Inc.*, No. 1:11-CV-00688 (D.D.C. Oct. 5, 2011).

608. *Id.* at 13–14. The Justice Department included as a condition of the merger that Google not restrict, through exclusive dealing, its rivals' access to the airlines' seat and booking-class data. Final Judgment at 27–28, *Google Inc.*, No. 1:11-CV-00688.

609. See Eric K. Clemons & Nehal Madhani, *The Real and Inevitable Harm from Vertical Integration of Search Engine Providers into Sales and Distribution*, Huffington Post: The Blog (Apr. 20, 2011), https://www.huffpost.com/entry/the-department-of-justice_b_851079 [<https://perma.cc/9KC2-6E5A>].

610. Ingrid Lunden, *Google Will Pull Its QPX Express API in April 2018, Cutting Off Its Airfare Feed*, TechCrunch (Nov. 1, 2017), <https://techcrunch.com/2017/11/01/google-will-pull-its-qpx-express-api-in-april-2018-cutting-off-its-flight-data-feed/> [<https://perma.cc/CRA5-PEZ3>].

611. Shelanski & Sidak, *supra* note 18, at 19.

612. Joskow & Noll, *supra* note 462, at 1253.

C. *Theory*

One condition that generally united previous separations is that they were applied to bottleneck firms. This was true in both the regulated industries and antitrust contexts.⁶¹³ The regulated-industries paradigm identified dominant intermediaries through functional criteria rather than strict economic ones. Although most regulated industries exhibited natural monopoly features, separations were often implemented not—as natural monopoly regulation is sometimes described—to correct market failure but instead to promote goals that privately regulated markets could not deliver.⁶¹⁴ Antitrust separations, meanwhile, sought to remedy abuses of monopoly power.⁶¹⁵ In either case, separations were responding to the dominance of a gatekeeper entity.⁶¹⁶ In regulated industries, outsized market power was what rendered a firm's business decisions systemically significant, while in antitrust, a lack of competition meant a lack of market discipline.

Assessing whether integration by dominant platforms might invite structural separations requires evaluating (1) whether a digital platform is dominant and serving as a gatekeeper intermediary, and (2) whether that dominance is likely to be durable and persistent, in light of high entry barriers. In other words, is it likely that, absent separations, discrimination or appropriation by these firms will be disciplined by competition? Critically, it is not discrimination or information appropriation per se that is harmful—but rather discrimination or information appropriation by a network intermediary for which there are no substitute channels to market.⁶¹⁷ Insofar as a platform grants access to

613. See *supra* Part III.

614. As Professors Kearney and Merrill note, the application of regulated industries law was guided less by the designation of national monopoly industries and more by a belief that “government oversight of the market was required to ensure the accepted goals of reasonableness, non-discrimination, and reliable service.” Kearney & Merrill, *supra* note 232, at 1334; see also Nachbar, *supra* note 240, at 102 (“[T]he correlation between market power and the traditional imposition of nondiscriminatory access is tenuous at best.”).

615. When analyzing the effects of exclusionary conduct by a dominant firm, case law assesses whether rivals have access to alternative channels to market. Compare, e.g., *United States v. Microsoft Corp.*, 253 F.3d 34, 70–71 (D.C. Cir. 2001) (en banc) (per curiam) (holding that the dominant firm's exclusionary conduct violated the antitrust laws because its rivals lacked alternative distribution channels), and *United States v. Dentsply Int'l Inc.*, 399 F.3d 181, 196 (3d Cir. 2005) (same), with *Omega Envtl., Inc. v. Gilbarco, Inc.*, 127 F.3d 1157, 1163 (9th Cir. 1997) (finding that the exclusive conduct at issue did not violate the antitrust laws, in part because rivals had other efficient routes to market).

616. See *supra* Part III.

617. Given these factors, it is unlikely that a grocer selling private labels would give rise to similar harms. There is also reason to think that discrimination and appropriation in digital markets, by virtue of being more tailored and sophisticated, have a greater effect on competition than discrimination and appropriation in nondigital markets.

third-party products, “a bottleneck to everything can potentially take a share of, and exercise some control over, everything.”⁶¹⁸

For many years, an underlying assumption regarding digital markets has been that they are characterized by “uniquely low” entry barriers.⁶¹⁹ Unlike industries involved in the production and distribution of physical goods, digital markets have been understood to involve relatively low capital investment and rapid rates of innovation.⁶²⁰ Market power enjoyed by digital firms is assumed to be fleeting, constantly susceptible to the dizzying pace of technological change.⁶²¹ This general view of digital markets—as exceptionally dynamic and self-correcting—has produced a highly permissive approach to regulation and antitrust enforcement in these markets.⁶²²

618. Howard A. Shelanski, *Information, Innovation, and Competition Policy for the Internet*, 161 U. Pa. L. Rev. 1663, 1676 (2013); see also Posner, *New Economy*, *supra* note 349, at 934 (“We may be in a similar stage in the development of the new economy, where distribution facilities may be sufficiently limited to create bottlenecks that monopolists can exploit to perpetuate monopoly.”).

619. Newman, *Digital Markets*, *supra* note 579, at 14 & nn.86–88 (emphasis added) (collecting sources); see also, e.g., *Am. Library Ass’n v. United States*, 201 F. Supp. 2d 401, 416 (E.D. Pa. 2002), *rev’d*, 539 U.S. 194 (2003) (“The Internet presents low entry barriers to anyone who wishes to provide or distribute information.”); *Shea ex rel. Am. Reporter v. Reno*, 930 F. Supp. 916, 929 (S.D.N.Y. 1996) (“[T]he Internet presents extremely low entry barriers to those who wish to convey Internet content or gain access to it.”); *ACLU v. Reno*, 929 F. Supp. 824, 877 (E.D. Pa. 1996) (“[T]he Internet presents very low barriers to entry.”); Geoffrey A. Manne & Joshua D. Wright, *Google and the Limits of Antitrust: The Case Against the Case Against Google*, 34 *Harv. J.L. & Pub. Pol’y* 171, 195 (2011) (summarizing Google’s assertion “that competition really is ‘just a click away’ for a significant number of users” in the online search market); Henry H. Perritt, Jr., *Cyberspace and State Sovereignty*, 3 *J. Int’l Legal Stud.* 155, 161 (1997) (“[T]he most important differentiating characteristic of the Internet is its extremely low barriers to entry.”); Posner, *New Economy*, *supra* note 349, at 930 (“Because of the extraordinary pace of innovation, . . . the extraordinary amount of capital that is available . . . , and the rapidity with which new networks that are primarily electronic can be put into service, the networks that have emerged in the new economy do not seem particularly secure against competition.”); D. Daniel Sokol & Roisin Comerford, *Antitrust and Regulating Big Data*, 23 *Geo. Mason L. Rev.* 1129, 1136 (2016) (“Data driven markets are typically characterized by low entry barriers. . . .”); Deborah T. Tate, *Net Neutrality 10 Years Later: A Still Unconvinced Commissioner*, 66 *Fed. Comm. L.J.* 509, 518 (2014) (“The Internet’s low entry costs and lack of barriers to create, upload, start up, and sell goods and services are especially beneficial to women and minorities with less access to capital than established firms.”); Yana Welinder, *A Face Tells More Than a Thousand Posts: Developing Face Recognition Privacy in Social Networks*, 26 *Harv. J.L. & Tech.* 165, 189 (2012) (“[T]he Internet offers a platform for projects that require very little capital investment — thus lowering the barriers to entry.”); Ilene Knable Gotts & Joseph G. Krauss, *Antitrust Review of New Economy Acquisitions*, *Antitrust*, Fall 2000, at 59, 59 (arguing that few “new economy” transactions raised antitrust issues because of “the low entry barriers in the Internet space”).

620. Posner, *New Economy*, *supra* note 349, at 926.

621. See Newman, *Digital Markets*, *supra* note 579, at 19–21 (“[A]nti-enforcement scholars and stakeholders contend that digital markets should evade antitrust scrutiny because ‘competition is just a click away.’”).

622. As Professor John Newman writes, the last two decades have been characterized by a “near-total lack of antitrust enforcement in digital markets.” *Id.* at 4. Notably, enforcers

More recently, however, new research and experience has demonstrated that digital markets can favor long-term dominance. This is due to several features. One is network effects, whereby the value of the network increases with greater use of that network.⁶²³ Bigger is generally better. But the same demand-side economies of scale that help a network form can also come to shield the network from competition, as a potential competitor must induce a significant number of users to choose its network over the existing good or service.⁶²⁴ In the absence of interconnection, the switching costs for users can be significant, making it difficult for even a rival with a superior product or service to induce users to switch.⁶²⁵ Not all network effects are the same, and not all network effects serve as entry barriers. Indeed, the significance of the entry barriers created by network effects will vary depending on the strength and type of the network and on the availability of interconnection, interoperability, multihoming, and other tools that could soften these exclusionary effects.⁶²⁶

A second feature that can favor platform dominance is heightened returns to scale. The cost structure of many digital markets involves steep up-front costs followed by low marginal costs.⁶²⁷ Firms in the business of providing information see their marginal cost plummet, as information—once produced—can be disseminated online to large groups at negligible costs.⁶²⁸ Increasing returns to scale can also discourage entry, as only a firm with either a far superior or far cheaper product would enter the market.⁶²⁹

and scholars have acknowledged that technology markets *can* be susceptible to entry barriers and anticompetitive conduct. See *id.* at 24–37 (describing various types of “cognizable welfare harm” that are “uniquely facilitated by digital markets”). But the assumption that false positives are highly costly, while false negatives are rare, has tilted the balance in favor of underenforcement. See *id.* at 56; see also Frank H. Easterbrook, *The Limits of Antitrust*, 63 *Tex. L. Rev.* 1, 2–4 (1984) (“If the court errs by condemning a beneficial practice, the benefits may be lost for good. . . . If the court errs by permitting a deleterious practice, though, the welfare loss decreases over time. Monopoly is self-destructive. Monopoly prices eventually attract entry.”). It is also worth noting that dominant tech firms have benefited not only from a *laissez faire* approach to actions that would limit their power or autonomy, but also from other favorable government policies, including generous intellectual property rights and historically low interest rates.

623. Katz & Shapiro, *supra* note 284, at 483.

624. See Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 *Calif. L. Rev.* 479, 483 (1998) (“In other words, a network effect exists where purchasers find a good more valuable as additional purchasers buy the same good.”).

625. See Frank Pasquale, *When Antitrust Becomes Pro-Trust: The Digital Deformation of U.S. Competition Policy*, *Antitrust Chron.*, May 2017, at 46, 48–49 (arguing that assuming that the costs of switching between online platforms are low “belies the complexity of online innovation”).

626. Lemley & McGowan, *supra* note 624, at 483–84.

627. Crémer et al., *supra* note 3, at 20.

628. *Id.*

629. *Id.*

A third factor that can benefit dominant incumbents is the critical and competitive significance of data.⁶³⁰ Services like Google Maps, for example, have been built through collecting billions of user data inputs, operating camera-fitted cars that collected more than 21.5 billion megabytes of street-view images from around the world, and combining multiple sources of place data across various Android devices.⁶³¹ Theoretically a new firm could attempt to build a rival service by relying on public data, but the continued data inputs that Google Maps receives after achieving initial success are likely to keep any potential competitor a distant second.⁶³² These self-reinforcing advantages of data can amplify network effects, lead markets to tip, and close off entry.

Assessing whether a dominant platform should be subject to separations would require analyzing these factors and the degree to which they serve as high entry barriers or render merchants or trading partners “unavoidable.”⁶³³ Limiting digital dominant platforms whose services constitute a “unique infrastructural asset” from entering adjacent markets and competing with dependent trading partners could avoid distortions of the competitive process and generate a host of other payoffs.⁶³⁴

D. *Application: Challenges and Unresolved Questions*

Implementing a separations regime presents some first-order questions and challenges. First, how do we define platforms and to which platforms should a separation apply? Second, how does one identify the parameters of the platform, especially when integration provides heightened functionality? Third, what should be the scope of the prohibited activity and how should the prohibition be structured? And fourth, what is the proper institutional mechanism for implementing the separation? This section offers some initial suggestions for how to approach these questions. Arriving at a complete analytical framework for structuring separations in digital markets will require deeper engagement with these issues.

1. *Defining Platform.* — Offering a clearly bounded definition of “platform” is challenging. Most definitions look to the role that the entity plays in intermediating activity by others. One definition, for example, is “a firm that controls a network, facility, or essential input that those

630. See *supra* note 286 and accompanying text.

631. Newman, *Digital Markets*, *supra* note 579, at 15.

632. See, e.g., *The Manifest*, *Apple Maps vs. Google Maps: Which Is Better?*, Medium (Sept. 12, 2018), https://medium.com/@the_manifest/apple-maps-vs-google-maps-which-is-better-9ceaf28f9bf0 [<https://perma.cc/H28R-WHCV>] (noting that Google Maps remains preferred to Apple Maps by a “clear majority of smartphone owners,” even though Apple has made significant improvements to its Maps application).

633. See Case T 286/09, *Intel Corp. v. Commission*, ECLI:EU:T:2014:547 para. 91 (E.C.J. June 12, 2014) (discussing “unavoidable trading partner”).

634. For one theory of what constitutes “infrastructure,” see Frischmann & Waller, *supra* note 295, at 11–12.

providing a complementary good or service” must “rely on.”⁶³⁵ Another set of definitions focuses on the infrastructure-like role that these firms play, by structuring access to markets or facilitating transactions.⁶³⁶ And some discussions use the terms “network,” “infrastructure,” and “platform” interchangeably.⁶³⁷

Recent studies by policymakers have also settled on the idea that dominant platforms play a unique role that regulators should recognize. In March, the Digital Competition Expert Panel—a panel convened by the U.K. government to study digital markets—issued a report proposing, among other ideas, that dominant platforms that enjoy a “powerful negotiating position” be designated as having a “strategic market status” and be required to abide by a special code of conduct.⁶³⁸ A report commissioned by the European Commission, meanwhile, noted that, by designing marketplace rules that govern millions of users, dominant platforms “function as regulators” that should face a special responsibility to “ensure a level playing field” on their marketplace and “not use [their] rule-setting power to determine the outcome of competition.”⁶³⁹

Given the challenge of offering a bounded definition of “dominant platform,” any definition will likely be under- or over-inclusive. But any definition should seek to capture the degree of market power that the platform enjoys over users.⁶⁴⁰ How essential is the platform’s infrastructure? To what degree do other businesses depend on the platform to reach users, and what is the cost to businesses of avoiding this platform and using alternative channels? Relevant factors could include: (1) the extent to which the entity serves as a central exchange or marketplace for the transaction of goods and services, including the level of market power that it enjoys in its platform market; (2) the extent to which the entity is essential for downstream productive uses, and whether downstream users have access to viable substitutes for the entity’s services;

635. Weiser, *supra* note 17, at 271.

636. See Khan, *Antitrust Paradox*, *supra* note 255, at 795 (“Amazon itself effectively controls the infrastructure of the internet economy.”); Rahman, *New Utilities*, *supra* note 26, at 1641 (“Firms like [too-big-to-fail] finance, Verizon, Google, or Amazon provide essential public goods, not in the economic sense of being non-rival and non-excludable, but in a broader social sense of comprising the basic *infrastructure* of modern society.”).

637. As Professor Julie Cohen has noted, platforms are slightly different from infrastructures and networks; they take advantage of network effects and provide infrastructures but also “represent strategies for bounding networks and privatizing and controlling infrastructures.” Julie E. Cohen, *Law for the Platform Economy*, 51 *U.C. Davis. L. Rev.* 133, 144 (2017); see also Frischmann, *supra* note 226, at 319–23 (describing a five-layer model of internet infrastructure).

638. Digital Competition Expert Panel, *supra* note 31, at 59–61.

639. Crémer et al., *supra* note 3, at 6.

640. It’s worth noting that “platforms” can be further distinguished by type. Nick Srnicek, for example, identifies five distinct types of platforms: advertising platforms (Google, Facebook); cloud platforms (AWS, Salesforce); industrial platforms (General Electric, Siemens); product platforms (Spotify); and lean platforms (Uber, Airbnb). Nick Srnicek, *Platform Capitalism* 49 (2016).

(3) the extent to which the entity derives value from network effects, and the type of network effects at play; (4) the extent to which the entity serves as infrastructure for customizable applications by independent parties; and (5) the size, scope, scale, and interconnection of the company.

There are no neatly bounded ways to capture these dimensions of platform power. When implementing “maximum separation,” the FCC initially used operating revenue as the criterion for determining which carriers must comply.⁶⁴¹ In the context of digital platforms, market share may prove a better proxy than operating revenues, given that it is the platform’s role as a gatekeeper or bottleneck—for which there are no real adequate substitutes—that gives rise to the relevant harms.

The prohibition should be centered on the activities that the platform facilitates as a bottleneck. Since a key goal of the separations regime is to eliminate the conflict of interest that arises when a dominant platform directly competes with the firms using the platform,⁶⁴² only activity that would place platforms in direct competition in this way would be subject to the prohibition. This would not prevent platforms from integrating into lines of business that do not rely on the platform market. Nor would such a separations regime target conglomeration or vertical integration categorically; it would instead focus on platform entry into markets that creates the ability and incentive to discriminate, to leverage dominance, and to use information collected on firms as customers against them as competitors.

2. *Distinguishing Between Platform and Commerce.* — Applying separations to digital platforms would likely raise the challenge of identifying what constitute distinct products or services. In *Microsoft*, for example, the court had to determine whether the operating system and the browser—the two products the government claimed Microsoft had “tied”—should be considered a single integrated system.⁶⁴³ Microsoft argued that bundling new functionality into old products was a basic component of technological evolution.⁶⁴⁴ A similar issue may arise with digital platforms: Android, for example, could claim that certain apps

641. See *Computer I*, 28 F.C.C.2d 291, 302–03, para. 36 (1970) (tentative decision). The FCC determined that maximum separations applied only to carriers whose combined annual operating revenue exceeded \$1 million. *Id.* Its policy justification was to avoid imposing burdens on smaller carriers, which it thought could spur competition in data processing. See *id.* at 299, para. 25. It acknowledged arguments that small carriers could also discriminate or abuse powers if permitted to enter data processing but concluded that “both the potential and motives for abuse by these smaller carriers is minimal at this time.” *Computer I*, 28 F.C.C.2d 267, 275, para. 23 (1971) (final decision and order).

642. See section IV.A.

643. See *United States v. Microsoft Corp.*, 253 F.3d 34, 84–89 (D.C. Cir. 2001) (en banc) (per curiam) (“[U]nless products are separate, one cannot be ‘tied’ to the other.”).

644. See *id.* at 85 (“Microsoft does not dispute that it bound Windows and IE in the four ways the District Court cited. Instead it argues that Windows (the tying good) and IE browsers (the tied good) are not ‘separate products’ . . .”).

must be integrated with its operating system in order to provide basic functionality or for technical necessity.

The traditional metric for assessing whether a set of bundled products constitute separate products is consumer demand. In *Microsoft*, the D.C. Circuit relied on *Jefferson Parish's* consumer-demand test to determine whether consumers preferred a choice in browsers.⁶⁴⁵ Applying a similar inquiry in the platform context could similarly help identify whether integration of distinct functionalities should be viewed as an integrated system or as a platform.

Regulators would also have the capacity to determine, over time, whether certain apps or features were necessary for basic functionality and whether the benefits of integration were sufficiently high to offset any potential harms to innovation. There may also be specific apps or functionalities where innovation is less likely to be transformative, and therefore where integration may prove fewer risks. As with earlier regimes, periodic reassessment and revisions would prove necessary to ensure the separation continued to accord with and reflect evolving market realities.

3. *Institutional Mechanism and Timing.* — A separations regime separating platforms and commerce could be implemented through statute or rulemaking or as antitrust remedies (under existing or new antitrust law). A statute from Congress could also establish the principle of separating platforms from commerce—as was the case with banking—with the specific authority to design and implement separations delegated to an agency. This approach would benefit from having an expert agency design and revisit the separation. Absent new legislation, the FTC could use its Section 5 authority to implement a separations principle through rulemaking.⁶⁴⁶ Designing separations only through rulemaking

645. *Id.* at 89; see *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 12 (1984) (“[T]he essential characteristic of an invalid tying arrangement lies in the seller’s exploitation of its control over the tying product to force the buyer into the purchase of a tied product that the buyer either did not want . . . or might have preferred to purchase elsewhere on different terms.”).

646. In *National Petroleum Refiners Ass’n v. Federal Trade Commission*, the D.C. Circuit held that the FTC has substantive rulemaking power under Section 5 for both “unfair methods of competition” and “unfair or deceptive acts and practices.” 482 F.2d 672, 674–78 (D.C. Cir. 1973). Shortly after the decision, Congress passed the Magnuson-Moss Warranty Act, raising the procedural hurdles the FTC must jump when engaging in “unfair or deceptive acts and practices” rulemaking. Magnuson-Moss Warranty—Federal Trade Commission Improvement Act, Pub. L. No. 93-637, sec. 202(a), § 18, 88 Stat. 2183, 2193–98 (1975) (codified as amended at 15 U.S.C. § 57a (2012)). While these hurdles cause significant delay, they do not affect the FTC’s rulemaking under “unfair methods of competition,” which is what the Commission could use to implement a separations regime. For more on the FTC’s rulemaking authority, see Jeffrey S. Lubbers, *It’s Time to Remove the “Mossified” Procedures for FTC Rulemaking*, 83 *Geo. Wash. L. Rev.* 1979, 1985–87 (2015) (describing past FTC rulemakings under various statutory regimes); Sandeep Vaheesan, *Resurrecting “A Comprehensive Charter of Economic Liberty”: The Latent*

would require the agency to create rules of general applicability and—absent a specific congressional mandate—could limit the agency’s ability to structure highly tailored separations. Antitrust remedies would be costlier and take significantly longer, requiring the government or a private party to successfully show anticompetitive conduct and effects stemming from a digital platform’s involvement in multiple markets. Given the enfeebling of antitrust doctrines that police single-firm anticompetitive conduct—and the judicial requirement that remedies be carefully tailored to competitive harm—this path is likely to be significantly more challenging.⁶⁴⁷

Previous instances of structural separations offer a few models for structuring these prohibitions. An operational or functional separation requires the firm to create separate divisions within the firm, requiring that a platform wishing to engage in commerce may do so only through a separate and independent affiliate, which the platform may not favor in any manner. A full structural separation, by contrast, requires that the platform activity and commercial activity be undertaken through separate corporations with distinct ownership and management. For example, the functional approach would permit Alphabet to operate Google search and vertical services that produce content so long as the two complementary services are structured as separate affiliates. The second option would prohibit Alphabet from running both the platform service and the complementary service, requiring that one be spun off and run by an independent owner.

It’s not clear that anything short of a full structural separation would be sufficient, especially given the risks of information misappropriation. While running complementary services as affiliates could be accompanied by information firewalls, the efficacy of firewalls requires close monitoring.⁶⁴⁸ Evidence shows that the antitrust agencies have neglected to fully monitor and enforce conduct remedies in the past.⁶⁴⁹ Moreover, firewalls may prove especially difficult to monitor in the context of digital platforms, given the heightened information asymmetries between private platform firms and public enforcers. It is possible that the risk of information misappropriation may vary by platform—but dominant

Power of the Federal Trade Commission, 19 U. Pa. J. Bus. L. 645, 651–57 (2017) (giving the statutory and jurisprudential bases for the FTC’s authority to interpret Section 5).

647. *Supra* section II.B.

648. The Justice Department acknowledges this: “Effective monitoring also is required to ensure that the firewall provision is adhered to and is effective.” U.S. Dep’t of Justice, Antitrust Division Policy Guide to Merger Remedies 14 (2011), <https://www.justice.gov/sites/default/files/atr/legacy/2011/06/17/272350.pdf> [<https://perma.cc/7XRE-4XFF>].

649. Kwoka & Moss, *supra* note 27, at 989–96. Indeed, Assistant Attorney General for the Antitrust Division Makan Delrahim recently admitted that the antitrust agencies “have struggled more and more with the challenges of crafting and enforcing effective behavioral relief” and find it “difficult to monitor and enforce granular commitments like non-discrimination and information firewalls.” Delrahim, *supra* note 27.

platforms should carry the burden of establishing why operating complementary services as affiliates would not be anticompetitive.

Finally, a basic challenge facing regulators and enforcers when dealing with high-tech industries is the role of timing. Because these markets can evolve quickly, market changes can render regulatory interventions obsolete.⁶⁵⁰ Similarly, the failure to intervene can leave exclusionary conduct unchecked, resulting in path-dependent reductions in innovation. Any subsequent attempt to impose separations should include a built-in review process every two to three years, to ensure that the remedy still matches the market conditions.⁶⁵¹

E. *Costs and Tradeoffs*

Separations may come at a cost. Vertical relations can generate certain efficiencies that structural limits forego. This section reviews some of the potential costs and tradeoffs of a separations regime, and it considers how separations might be structured to minimize potential harms and maximize countervailing benefits.

First, insofar as integration can eliminate double markups, it is possible that limiting a network monopolist's ability to compete on its own network would sacrifice certain cost savings, resulting in higher prices.⁶⁵² This loss in static efficiency should be weighed against the innovation benefits that would likely result from creating an ecosystem in which the platform lacks the incentive and ability to exclude or appropriate from third-party complementors.⁶⁵³

Second, separations could come at the expense of *platform* innovation. Prohibiting dominant platforms from competing in markets that the platform operates would reduce platform investment in certain platform-adjacent markets.⁶⁵⁴ Insofar as directly competing with complementors can generate for a dominant platform additional profits,

650. Judge Posner described this tension as “the tension between law time and new-economy real time.” Posner, *New Economy*, *supra* note 349, at 939.

651. As scholars have observed, agencies already engage in this sort of periodic reassessment. See Wendy Wagner et al., *Dynamic Rulemaking*, 92 *N.Y.U. L. Rev.* 183, 184–90 (2017) (“In contrast to the prevailing view that agencies rarely revise rules, our findings reveal that, at least in some quarters of the administrative state, revisions are the rule rather than the exception.”).

652. See *supra* notes 269–271 and accompanying text (describing the Chicago School theory of vertical integration and double marginalization).

653. See Caves & Singer, *supra* note 292, at 2, 6–11 (describing how platforms' participation in the market can decrease “edge innovation”—“the reduction in investment, entrepreneurial, and risk-taking activity by independent [app] and content providers operating at the ‘edge’ of a dominant platform”); Zhu, *supra* note 204, at 24–26 (summarizing empirical studies showing that “[the platform’s] entry pushes . . . app developers to innovate in other product spaces, which may reduce wasted efforts in developing . . . duplicate apps,” but in the long term, “existing or prospective complementors discouraged by [the platform’s] entry may bring fewer innovative products to the platform”).

654. See Caves & Singer, *supra* note 292, at 7.

uniquely valuable business intelligence, and greater leverage over complementors, closing off this avenue of business could reduce platform profits, diminishing the platform's incentive to invest.⁶⁵⁵ Again, this potential reduction in platform innovation would need to be weighed against the likely increase in complementor innovation—as well as the potential for greater competition in the platform market.⁶⁵⁶ It is possible that separations could spur development of competing platforms, allowing smaller intermediaries to continue developing into viable alternatives to incumbents.

Whether we should privilege platform or complementor innovation is, in turn, a question of whether decentralized or centralized innovation should be favored.⁶⁵⁷ The answer is likely to vary by industry and market.⁶⁵⁸ But innovation literature suggests that “external” innovation is more valuable for two reasons.⁶⁵⁹ First, “external innovation is more likely to be of a disruptive nature,”⁶⁶⁰ that which marks a “radical departure from the past.”⁶⁶¹ And second, even “disruptive” internal innovation can be contingent on the existence of external competitors.⁶⁶² For this reason, it may make sense to structure an ecosystem that encourages external innovation, even if it comes at the expense of some platform innovation.

Third, some argue that separations would dampen entrepreneurial investment by creating a barrier to exit.⁶⁶³ Since venture capitalists invest in startups in order to reap the rewards of “scaling a venture to exit,” this argument holds, closing off one exit path would deter investment and chill business formation.⁶⁶⁴ It is worth noting that a policy preventing

655. *Id.* (“[W]ith more enforcement, *platform* innovation could decrease due to the reduced incentive for existing or would-be platforms to invest; for example, a regime that shared the majority of the rents of incumbent platforms with edge providers or rival platforms could upset Schumpeterian competition.”).

656. *Id.* at 6–11.

657. Van Schewick, *Internet Architecture*, *supra* note 217, at 298 (“Does decentralized innovation by many innovators offer specific advantages that cannot be achieved by a potential increase in centralized application-level innovation by a few network providers?”).

658. See Lemley, *supra* note 210, at 651–52 (arguing that the “relationship between market structure and innovation is industry-specific,” demanding a more industry-specific innovation policy).

659. Wu, *Taking Innovation Seriously*, *supra* note 213, at 318.

660. *Id.*

661. Lemley & Lessig, *supra* note 16, at 962.

662. See Wu, *Taking Innovation Seriously*, *supra* note 213, at 318 (“That is to say, established firms tend to innovate when they actually face a challenge from a startup or an outsider.”).

663. See D. Daniel Sokol, *Vertical Mergers and Entrepreneurial Exit*, 70 *Fla. L. Rev.* 1357, 1362 (2018). It's worth noting that Sokol is counsel at Wilson Sonsini, which counts Google among its clients.

664. See *id.* (“Vertical merger policy that would unduly restrict large tech firms from undertaking acquisitions in industries as diverse as finance, pharmaceuticals, medical

dominant platforms from competing in the very markets they mediate would leave the vast majority of exit options totally unaffected. The policy would not categorically limit vertical acquisitions or acquisitions more generally by a dominant platform. Limits would apply only if a dominant platform that controlled a key distribution channel or marketplace sought to acquire a firm that would compete in that marketplace. It seems unlikely that such a targeted and limited restriction—that would affect each dominant platform differently, given the distinct markets in which each is dominant—would meaningfully undermine investment. Moreover, in an environment in which startups face a threat of appropriation and discrimination by the platforms on which they are reliant, dramatically reducing the likelihood of that threat should spur some investment, not categorically diminish it.⁶⁶⁵ Even if closing off a small number of exit options altered some investment decisions, the impact on innovation is likely to be ambiguous at worst. This is especially likely to be true in light of research showing that incumbent firms may acquire innovative startups in order to squash their research and thwart future competition⁶⁶⁶ and that “some limited antitrust restrictions on startup acquisitions by highly-dominant incumbents would be socially beneficial.”⁶⁶⁷ Introducing this limit as a presumption would increase administrability, leading to significant administrative savings.

Applying a separations regime, however structured, will involve unavoidable uncertainties. But this uncertainty is not a compelling argument for inaction. The fact that enforcers did not block a single one of the over 400 acquisitions made by the five largest dominant platforms over the last ten years strongly suggests systemic underenforcement.⁶⁶⁸ Switching the presumption under a limited set of conditions—namely, when a dominant platform seeks to acquire a firm that would give the platform the incentive and ability to discriminate and appropriate against

devices, hardware, and internet platforms would hurt incentives for innovation in the economy by chilling business formation in start-ups.”).

665. See Caves & Singer, *supra* note 292, at 7–11 (describing the disincentive to invest in startups that create products platforms might copy).

666. Colleen Cunningham, Florian Ederer & Song Ma, *Killer Acquisitions 1* (Mar. 22, 2019) (unpublished manuscript), <http://ssrn.com/abstract=3241707> (on file with the *Columbia Law Review*) (leveraging theoretical and empirical evidence to argue that “an incumbent firm may acquire an innovative target and terminate development of the target’s innovations to preempt future competition”).

667. Kevin A. Bryan & Erik Hovenkamp, *Antitrust Limits on Startup Acquisitions*, Rev. Indus. Org. (forthcoming 2019) (manuscript at 20–21), <http://ssrn.com/abstract=3350064> (on file with the *Columbia Law Review*) (suggesting that enforcers should intervene when “(a) the acquirer is highly dominant; and (b) the acquired technology could plausibly have an appreciable impact on competition if it is used exclusively by the acquirer”).

668. See Digital Competition Expert Panel, *supra* note 31, at 12 (noting that “[o]ver the last 10 years the 5 largest firms have made over 400 acquisitions globally” but that “[n]one has been blocked and very few have had conditions attached to approval, in the UK or elsewhere,” and recommending “more frequent and firmer action to challenge mergers”).

third-party platform dependents—is likely to involve some costs and significant benefits.⁶⁶⁹

F. *Alternative Remedies*

It is worth briefly assessing what alternate remedies might address information appropriation and discrimination by dominant digital platforms.

The main alternative that has been proposed is a standalone nondiscrimination regime. One such proposal would create a new tribunal to assess innovation harms under a new nondiscrimination standard.⁶⁷⁰ The idea is modeled after a tribunal created by the 1992 Cable Act, a forum that adjudicates discrimination complaints against vertically integrated cable video operators pursuant to Section 616 of the Cable Act.⁶⁷¹ If applied to dominant digital platforms, edge innovators alleging discrimination by a dominant platform could file a complaint in the tribunal.⁶⁷² Drawing from the cable example, Kevin Caves and Hal Singer observe that the specialized tribunal has resolved discrimination claims in half the time it takes on average to adjudicate a Section 2 antitrust claim in federal court.⁶⁷³

In contrast with a separations regime, this proposal institutes a remedy *ex post* rather than *ex ante* and through case-by-case adjudication rather than a prophylactic rule.⁶⁷⁴ In particular, the complainant bears the burden of showing (1) that its network is similarly situated to the cable operator's affiliated network(s); (2) that it received unfavorable treatment owing to its lack of affiliation as opposed to some efficiency justification; and (3) as a result of (1) and (2) it was materially impaired in its ability to compete effectively. When considering the likely efficacy of such a tribunal in resolving discrimination, it is important to consider its administrability.

For one, the proposal assumes that third-party innovators can identify when they are the subject of discrimination or appropriation. While this may be true in the cable context—where getting blocked or relegated to a less penetrated tier is relatively easy to detect—digital

669. See generally Robert W. Crandall, *The Failure of Structural Remedies*, 80 *Or. L. Rev.* 109 (2001); Richard A. Epstein, *Monopolization Follies: The Dangers of Structural Remedies Under Section 2 of the Sherman Act*, 76 *Antitrust L.J.* 205 (2009).

670. See Caves & Singer, *supra* note 292, at 20–27 (outlining this proposal).

671. *Id.* at 21.

672. *Id.*

673. *Id.* at 26 (comparing the average duration of each process and concluding that “to the extent that these measures capture the difference between adjudicating a discrimination complaint at the proposed tribunal and in an antitrust court, the duration of adjudication prior to appeal could be reduced by nearly 50 percent”).

674. This assumes that separations would be implemented through a statute or rulemaking, rather than as an antitrust remedy.

platforms can discriminate in highly subtle ways.⁶⁷⁵ While well-resourced incumbents may have the resources to hire experts to identify and investigate discrimination and satisfy the evidentiary burden at a hearing, most small- and medium-sized entrepreneurs will be less able to detect and verify discrimination.

Second, the tribunal approach adopts a quasi-contractual frame, assuming that platforms and edge companies are equal parties to a transaction. This assumption is at odds with the significant asymmetry of power between dominant platforms and the producers that depend on them to get to market. In other words, the fact that bringing discrimination claims would require independent developers or producers to challenge their biggest business partner⁶⁷⁶ makes it even less likely that third parties would freely use the tribunal, given potential risks of retaliation.⁶⁷⁷ More generally, the tribunal assumes some base level of resources: Independent edge companies without resources would have to depend on the deterrent effect from private enforcement by those with means to avail themselves of the protections. The universe of merchants, developers, and content producers that rely on a dominant platform to reach market is far more numerous and diverse than the universe of cable video programmers that could rely on the tribunal to adjudicate discrimination claims, suggesting that the remedy that works in the cable context may be inapt for the digital platform context.⁶⁷⁸

Moreover, even disputes between well-heeled corporations can take years to resolve. For example, in 2011 Bloomberg filed a complaint with the FCC, alleging that Comcast was improperly grouping Bloomberg's channel in an unfavorable cluster of channels.⁶⁷⁹ Since the FCC had conditioned Comcast's acquisition of NBC on the basis of fair "neighborhooding" of independent news networks, Bloomberg claimed that Comcast was in violation of its commitments.⁶⁸⁰ Granted that this dispute

675. See, e.g., Benjamin Edelman, *Mastering the Intermediaries*, Harv. Bus. Rev. (June 2014), <https://hbr.org/2014/06/mastering-the-intermediaries> [<https://perma.cc/3AZ2-XNV9>] (noting that "[p]latform providers usually get away with relatively subtle discrimination as long as consumers don't notice or care" and describing how Google deprioritized Yelp search results after its proposed acquisition of Yelp fell through).

676. See Dzieza, *supra* note 41 (describing how reliant many merchants are on Amazon's infrastructure).

677. Cf. Jack Nicas, *Google Pulls YouTube from Amazon Devices in Retaliation*, MarketWatch (Dec. 6, 2017), <https://www.marketwatch.com/story/google-pulls-youtube-from-amazon-devices-in-retaliation-2017-12-06> [<https://perma.cc/UW32-G9VN>] (describing how Google blocked access to YouTube on Amazon devices in retaliation for Amazon's refusal to stock products that compete with its own, "like the Google Home smart speaker or Google's Chromecast streaming device").

678. See, e.g., Dzieza, *supra* note 41 (describing the diverse merchants on Amazon). Amazon's Marketplace alone has over six million merchants. *Id.*

679. See *Bloomberg L.P. v. Comcast Cable Commc'ns*, 28 FCC Rcd. 14,346, 14,347, para. 3 (2013) (noting that Bloomberg filed its complaint on June 13, 2011).

680. *Id.* at 14,347–49, paras. 3–6 (explaining the background merger between Comcast and NBC, as well as the dispute between Bloomberg and Comcast).

was adjudicated outside the auspices of section 616 and the agency's ALJ, the FCC took over two years to reach a final decision.⁶⁸¹ Given the importance of timeliness in high-tech markets—where a slight delay can render a remedy obsolete—even a two-year process in digital markets will likely come at the expense of innovation.

In short, while a nondiscrimination regime coupled with a separations remedy would target the platform's incentive and ability to discriminate—be it through integration or through contract—a stand-alone nondiscrimination remedy would risk being ineffective. For example, the European Commission's remedy in the Google Shopping case—which required Google to implement a nondiscrimination approach—has not changed the underlying market dynamic, prompting content producers to describe it as “neither compliant nor effective.”⁶⁸²

A remedy that was more attuned to the significant asymmetry in leverage would not rely entirely on third parties to contest the very intermediary on which their business often depends. Imposing a structural separation—that targets the underlying incentive to discriminate—would mitigate these shortcomings.

CONCLUSION

A handful of digital platforms enjoy increasing control over key arteries of online commerce and communications. How lawmakers and regulators should respond to this concentration of market power is now the subject of a global debate. Public authorities around the world are studying digital platforms to understand how antitrust and competition tools can be applied to markets mediated by digital technologies.⁶⁸³ These studies vary slightly in their methods and conclusions, but they generally demonstrate that digital platform markets today are governed neither by real competition nor regulation—giving dominant platforms astounding power to shape market outcomes.

In the United States, the process of exploring how to respond to dominant platforms has been stunted by the fact that we are living

681. See *id.* at 14,346.

682. Letter from Fourteen European Comparison Shopping Services to Margrethe Vestager, Comm'r for Competition, European Comm'n (Nov. 22, 2018), http://www.foundem.co.uk/Comparison_Shopping_Open_Letter_Commissioner_Vestager_Nov_2018.pdf [<https://perma.cc/QC9F-EBJM>].

683. See, e.g., Australian Competition & Consumer Comm'n, *supra* note 31, at 7–8 (discussing the anticompetitive risk online platforms pose to Australian consumers, given consumers' “lack of informed and genuine choice” in relying on these platforms); Crémer et al., *supra* note 3, at 5–7 (summarizing the European Commission's conclusions on the anticompetitive nature of major online platforms); Data Processing in Online Advertising, *supra* note 31, at 2–10 (providing findings from the French Competition Authority on the dominance that Facebook and Google possess in the market for online advertising); Digital Competition Expert Panel, *supra* note 31, at 8–16 (providing various recommendations for how the U.K. government can promote competition in digital markets).

through a major regulatory gap. The abandonment of traditional regulatory tools in favor of antitrust—followed by the partial collapse of antitrust—has left us with a diminished sense of the policy levers available to address dominant network intermediaries. This Article joins an emerging field of scholarship that is responding to this sense of impoverishment by exploring how traditional principles of economic regulation may apply in the digital age.

The process of identifying how to confront the challenges posed by dominant platforms requires, first, an understanding of the relevant problems and, second, an understanding of the relevant set of legal tools and principles available to confront them. Recovering our understanding of structural separations—traditionally a mainstay regulatory principle for confronting dominant intermediaries—is one part of this process. Reviewing the tradition of separations, moreover, underscores the broader set of values and concerns that traditionally informed how we assessed and arrived at the proper form of intervention when confronted with dominant intermediaries.

Recent events, meanwhile, seem to be driving the public discussion toward separations. Earlier this year, India began enforcing a structural separation on foreign online retailers—requiring Amazon to separate its private-label business from its marketplace.⁶⁸⁴ In March, Senator Elizabeth Warren rolled out, through her presidential campaign, a proposed separations regime for dominant tech platforms, even drawing support from some tech workers.⁶⁸⁵

Getting the policy right will require careful case-by-case analysis and further study to assess the relevant tradeoffs. Closer study, moreover, may reveal that the set of contexts that warrant separations is relatively limited. Arriving at the proper set of interventions, however, requires first knowing the full set of available tools.

684. See Sankalp Phartiyal, Walmart, Amazon Scrambling to Comply with India's New E-Commerce Rules, Reuters (Jan. 31, 2019), <https://www.reuters.com/article/us-india-ecommerce/walmart-amazon-scrambling-to-comply-with-indias-new-e-commerce-rules-idUSKCN1PP1PN> [<https://perma.cc/3HZR-ES45>] (“Another rule blocks entities in which an e-commerce firm, or any of its group companies, owns a stake from selling its products on that firm’s marketplace.”).

685. See Elizabeth Warren, Here’s How We Can Break Up Big Tech, Medium (Mar. 8, 2019), <https://medium.com/@teamwarren/heres-how-we-can-break-up-big-tech-9ad9e0da324c> [<https://perma.cc/MRX5-5WZY>] (proposing “passing legislation that requires large tech platforms to be designated as ‘Platform Utilities’ and broken apart from any participant on that platform”); see also Casey Tolan, Google, Facebook, Amazon and Apple Employees Donating to Elizabeth Warren, Even Though She Wants to Break Up Big Tech, Mercury News (Apr. 19, 2019), <https://www.mercurynews.com/2019/04/19/elizabeth-warren-president-tech-campaign-donations-berine-sanders-kamala-harris/> (“I see a lot of people start companies and their whole plan for the company is to get acquired. . . . It creates this narrow environment where you’re only trying to please Facebook or Apple or Google, and I think that is ultimately bad for our country.” (internal quotation marks omitted) (quoting Justin Kruger, a freelance software developer)).

APPENDIX. WHY WOULD PLATFORMS UNDERMINE THEIR ECOSYSTEM?

At first glance, the idea that dominant digital platforms may be using their integrated structure to undermine dynamic efficiency appears in tension with standard economic theory. This Appendix examines how to square digital platforms' conduct with an economic understanding of integration in adjacent markets.

Vertical relationships, including full integration, can deliver certain benefits.⁶⁸⁶ Integration can help resolve contractual holdup problems that can arise in economically interdependent relationships.⁶⁸⁷ It can also reduce costs: Since each company in a vertical transaction usually charges consumers a markup above marginal cost, vertical integration can eliminate this "double marginalization."⁶⁸⁸ Moreover, by granting a single firm greater control over quality and interoperability, integration can also better guarantee a stable ecosystem in which platforms and complementary products work together smoothly.⁶⁸⁹

Vertical restraints can also be anticompetitive. Economic literature extensively documents how vertical relationships can raise rivals' costs or deny rivals scale, enable exclusion, or facilitate tacit collusion.⁶⁹⁰ When

686. While the focus of this Article is full vertical ownership, other vertical arrangements include joint ventures, tie-ins, long-term contracts, and affiliates.

687. See Bork, *Antitrust Paradox*, supra note 267, at 226–33; Christopher S. Yoo, *Vertical Integration and Media Regulation in the New Economy*, 19 *Yale J. on Reg.* 171, 262–64 (2002). The holdup problems can be especially significant in platform markets, which are commonly characterized as facing a "chicken-and-egg" problem. See David S. Evans, *The Antitrust Economics of Two-Sided Markets*, 20 *Yale J. on Reg.* 325, 350 (2003) ("Critical mass . . . is a key start-up issue [for platforms]. Known in the literature as the chicken-and-egg problem, the name does not do the problem justice. In some situations coupled products cannot come into existence without a sufficient number of customers on both sides from the start.").

688. Bork, *Antitrust Paradox* supra note 267, at 219; see also Joseph J. Spengler, *Vertical Integration and Antitrust Policy*, 58 *J. Pol. Econ.* 347, 350 (1950). Notably, evidence today shows that the elimination of double marginalization does not categorically benefit consumers. See, e.g., Fernando Luco & Guillermo Marshall, *Vertical Integration with Multiproduct Firms: When Eliminating Double Marginalization May Hurt Consumers* 2 (Dec. 7, 2018) (unpublished manuscript), <http://ssrn.com/abstract=3110038> (on file with the *Columbia Law Review*) (observing that in multiproduct industries, the elimination of double marginalization caused by vertical integration may cause price changes that hurt consumers).

689. Courts have acknowledged this justification. See *United States v. Jerrold Elecs. Corp.*, 187 F. Supp. 545, 556–57 (E.D. Pa. 1960) (acknowledging that bundling the sale of equipment with engineering services helped "foster the orderly growth of the industry").

690. See, e.g., Oliver Hart & Jean Tirole, *Vertical Integration and Market Foreclosure*, 1990 *Brookings Papers on Econ. Activity* 205, 205–07; Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 *Yale L.J.* 209, 224 (1986); Patrick Rey & Jean Tirole, *A Primer on Foreclosure*, in 3 *Handbook of Industrial Organization* 2145, 2148–50 (Mark Armstrong & Robert Porter eds., 2007); Michael H. Riordan, *Anticompetitive Vertical Integration by a Dominant Firm*, 88 *Am. Econ. Rev.* 1232, 1232 (1998); Michael A. Salinger, *Vertical Mergers and Market*

assessing the competitive implications of vertical acquisitions, enforcers largely assess tradeoffs between foreclosure incentives and claimed reductions in price.

Two theories maintain that integrated firms are unlikely to use their dominant network to discriminate against independent products and services (which are sometimes described in platform literature as “complementors”). Both focus on the incentives faced by an integrated monopolist. Although a monopolist may have the *ability* to discriminate against complementors, these theories hold, the monopolist will generally lack the incentive to do so. It is worth reviewing these economic theories and identifying the exceptions that may explain why dominant platforms appear to engage in this conduct, even in instances in which the platform is not strictly a monopolist.

First, the “single monopoly profit” theory suggests that a monopolist does not have an incentive to discriminate against complementors because it cannot increase its profit by monopolizing a market for complementary products.⁶⁹¹ Say, for example, a monopolist in the bolts market sought also to monopolize the market for nuts. Economic theory holds that there is a single profit-maximizing price for any combination of nuts and bolts, such that raising the price of nuts while maintaining the monopoly-level price of bolts would lead to a decline in demand sufficient to lower total profits.⁶⁹² In other words, the bolts monopolist is no better off by also monopolizing nuts. Therefore, the theory goes, the bolts monopolist has nothing to gain by excluding—and thereby driving out—rivals in the nuts market.⁶⁹³

The second major explanation for why monopolists lack an incentive to discriminate against complementors is that these independent services may actually raise the monopolist’s profits. This “internalizing complementary efficiencies” (ICE) argument holds that if complementors introduce valuable goods or services that generate surplus, the monopolist that hosts these services on its network can capture that surplus.⁶⁹⁴ If an

Foreclosure, 103 Q.J. Econ., 345, 345–46 (1988); Michael D. Whinston, Exclusivity and Tying in *U.S. v. Microsoft*: What We Know, and Don’t Know, 15 J. Econ. Persp. 63, 64 (2001).

691. Bork, Antitrust Paradox, supra note 267, at 229 (“[A] monopolist has no incentive to gain a second monopoly that is vertically related to the first, because there is no additional monopoly profit to be taken.”); Richard A. Posner, Antitrust Law 197–99 (2d ed. 2001); Bowman, supra note 268, at 20–23; Aaron Director & Edward H. Levi, Antitrust Law and the Future: Trade Regulation, 51 Nw. U. L. Rev. 281, 290–92 (1956).

692. 1 Herbert Hovenkamp et al., IP and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law § 21.03[B] (3d ed. 2018).

693. For explanations relying on a detailed example, see Barbara van Schewick, Internet Architecture, supra note 217, at 222–23 (2010); Einer Elhauge, Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory, 123 Harv. L. Rev. 397, 403 (2009) [hereinafter Elhauge, Single Monopoly Profit Theory].

694. Van Schewick, Internet Architecture, supra note 217, at 223; Joseph Farrell & Philip J. Weiser, Modularity, Vertical Integration, and Open Access Policies: Towards a

operating system with a broader range of applications (or a marketplace with a broader range of products) is more valuable to users than one with a narrower range, then the monopolist has an incentive to cultivate a broader set of complementors. On this view, the monopolist's incentives are aligned with the user's.⁶⁹⁵ Not only does the monopolist lack an incentive to exclude valuable complementors⁶⁹⁶ but doing so may even lower its profits.⁶⁹⁷ ICE explains why it is assumed that a platform monopolist will be a "good steward" of the applications and products that seek access to its platform.⁶⁹⁸

Subsequent learning and research has led scholars to refine both of these theories. While the single monopoly profit idea was initially introduced as a general rule, scholars have since understood that it provides definitive answers under a relatively narrow set of condition.⁶⁹⁹ Today the theory is understood to be decisive only when: (1) the monopolist is both unregulated and protected by prohibitive entry barriers, (2) the monopolist's product is used in fixed proportion with the product sold in the adjacent market, and (3) the adjacent market is perfectly competitive.⁷⁰⁰ When any of these conditions does not hold, the welfare effects of integration are far more ambiguous. Single monopoly profits, it turns out, are "the exception, not the rule."⁷⁰¹

Similarly, the assumption that a monopoly platform will always make its platform available whenever it is efficient to do so does not always

Convergence of Antitrust and Regulation in the Internet Age, 17 *Harv. J.L. & Tech.* 85, 89 (2003).

695. See Joseph Farrell, Open Access Arguments: Why Confidence Is Misplaced, *in* *Net Neutrality or Net Neutering: Should Broadband Internet Services Be Regulated?* 195, 198 (Thomas M. Lenard & Randolph J. May eds., 2003) ("ICE asserts that if a platform sponsor does, or allows to be done, anything that reduces customer value from applications, say by \$1, then the demand curve for platform subscription falls by that \$1, lowering platform profits by \$1 per customer.").

696. See van Schewick, *Internet Architecture*, *supra* note 217, at 223 ("Whether the presence of independent producers generates additional surplus depends on consumers' preferences, as well as on such things as the intensity of competition and the degree of differentiation in the complementary market . . .").

697. See *id.* at 225 ("Whereas the 'one monopoly rent' theory argues that exclusionary conduct in the complementary market will not increase the monopolist's profits, the 'internalizing complementary efficiencies' theory suggests that such conduct may even reduce its profits.").

698. Farrell & Weiser, *supra* note 694, at 104.

699. See, e.g., Elhauge, *Single Monopoly Profit Theory*, *supra* note 693, at 404 ("However, the model indicating a single monopoly profit depended on several key assumptions As the economic literature shows, different results are reached if one relaxes these narrow assumptions. Indeed, relaxation of any one of these assumptions produces a distinctive profit-increasing effect."); see also Salop, *supra* note 272, at 1968–69 (2018) ("This theory is simple but invalid in all but the following extreme conditions . . .").

700. Salop, *supra* note 272, at 1968–69; see also Elhauge, *Single Monopoly Profit Theory*, *supra* note 693, at 404.

701. Elhauge, *Single Monopoly Profit Theory*, *supra* note 693, at 400.

hold.⁷⁰² There are several circumstances under which a platform can be expected to engage in exclusionary conduct that is inefficient.⁷⁰³ Broadly, a dominant platform can be expected to engage in exclusionary conduct when (1) it is able to more fully exploit its existing market power or (2) it is able to achieve additional market power.

It is worth briefly identifying the contexts under which these conditions are likely to arise in digital markets.⁷⁰⁴

A. *More Fully Exploiting Existing Market Power: Exclusionary Conduct Enables Price Discrimination*

First, a dominant platform may have an incentive to exclude complementors from its network when doing so would enable it to price discriminate.⁷⁰⁵ Price discrimination—or charging customers different prices based on their willingness to pay—enables a monopolist to more fully exploit its existing market power by extracting more consumer surplus.⁷⁰⁶ In order to engage in price discrimination, a seller must enjoy some market power—namely, the ability to profitably set price above marginal costs.⁷⁰⁷

Foreclosing or discriminating against certain applications or services can enable the platform to separate consumers into different groups, based on their willingness to pay.⁷⁰⁸ For example, the platform can offer different tiers of service: a basic version that provides access to the network but excludes certain applications and a premium version that provides access to the network as well as all applications.⁷⁰⁹

702. The number of exceptions to both the single monopoly profit theorem and ICE has prompted some to question whether these ideas should still be considered general principles. See, e.g., Farrell, *supra* note 695, at 197 (“However, post-Chicago economics finds that [the one monopoly rent theorem]/ICE has many holes, perhaps too many to be a ‘theorem.’”).

703. See Farrell & Weiser, *supra* note 694, at 105–119 (identifying and discussing eight exceptions to ICE); van Schewick, *Internet Architecture*, *supra* note 217, at 225–81 (discussing exceptions to the one monopoly rent theorem and ICE).

704. Notably, the exceptions reviewed do not assume that only a *monopoly* platform can undermine competition in an adjacent market. Although most of the literature analyzing the exclusionary potential of vertical conduct takes monopoly power to be an “indispensable precondition” for anticompetitive effects, even platforms facing limited competition may have the ability and incentive to exclude competing content, services, or applications. See, e.g., van Schewick, *Internet Architecture*, *supra* note 217, at 255 (“A monopoly in the primary market is therefore considered an indispensable precondition for successful monopolization of the secondary market.”); *id.* at 256 (“A network provider may have the ability and incentive to exclude rival content, applications, or portals from its network, even if it faces limited competition in the market for Internet services.” (footnote omitted)).

705. See *id.* at 275–77; Farrell & Weiser, *supra* note 694, at 107–09.

706. Van Schewick, *Internet Architecture*, *supra* note 217, at 275–76.

707. *Id.* at 276.

708. See *id.* at 275–76.

709. *Id.* at 276.

This form of price discrimination may or may not undermine the static welfare of consumers.⁷¹⁰ Analyzing the welfare effects of any price discrimination scheme requires empirical analysis based on consumer preferences and the market's cost structure.⁷¹¹ But insofar as price discrimination lowers the profits available to complementors, it can depress their incentive to invest and innovate—thereby undermining dynamic efficiency.⁷¹² More generally, discriminatory pricing can “introduce distortion into the overall market” by “disadvantaging certain classes” of complementors and decreasing the profits available to them by diverting more consumer surplus to the dominant platform.⁷¹³

B. *Expanding Market Power: Complementary Market Is a Source of Outside Revenue*

In the standard economic model, a monopolist in the primary market is assumed to capture its entire monopoly profit from that market, limiting its ability to earn a second monopoly profit.⁷¹⁴ But if firms in the complementary market derive revenue from other sources—such as advertising—then the monopolist in the primary market will likely have an incentive to monopolize the secondary market as well.⁷¹⁵ Since excluding rivals in the complementary market can diminish for consumers the value of the primary network, the overall gains in outside revenue postexclusion will need to be greater than the profit reduction in the primary-good market in order for exclusion to be a profitable strategy.⁷¹⁶

Digital platforms that operate in distinct but interrelated markets are likely to fit this exception. Google, for example, provides its search engine at zero monetary price and earns the vast majority of its net income through selling digital ad placement.⁷¹⁷ When considering whether to grant third-party content providers equal access to its search platform, Google must weigh the revenue it could lose through discriminating against

710. See Farrell & Weiser, *supra* note 694, at 108 (“Price discrimination need not in itself be inefficient or anti-consumer . . .”).

711. See generally Hal R. Varian, Price Discrimination, in 1 *Handbook of Industrial Organization* 597 (Richard Schmalensee & Robert D. Willig eds., 1989) (providing a theoretical background for analyzing the welfare effects of price discrimination).

712. See van Schewick, *Internet Architecture*, *supra* note 217, at 277–78; Wu, *Network Neutrality*, *supra* note 16, at 153; see also Farrell & Katz, *supra* note 199, at 414 (“[F]irm M’s desire and ability to extract rents from independent suppliers *after* they have conducted their R&D may inefficiently reduce these suppliers’ innovation incentives . . .”).

713. Van Schewick, *Internet Architecture*, *supra* note 217, at 277.

714. See *id.* at 222–23.

715. See *id.* at 233.

716. *Id.*

717. See 2018 Alphabet 10-K, *supra* note 106, at 4–5, 27.

third-party content⁷¹⁸ against the revenue it could gain through monopolizing the secondary market. Privileging its own content sites would help keep users within the Google ecosystem, which would in turn allow Google both to capture greater user data and to sell more (and potentially higher-priced) ads.⁷¹⁹ Given that behavioral ad markets place a premium on comprehensive user data,⁷²⁰ prioritizing Google verticals in Google search results is likely to be lucrative. Whether this exclusionary conduct would offset potential revenue losses to Google's primary network is an empirical question.

More generally, it is worth examining whether certain features exhibited by digital platform markets may change the default calculus in *favor* of exclusion. If a standard choice faced by a dominant platform is whether to grant rival complementors access to its network and charge a fee to extract some of their revenue or to exclude all rival complementors and sell the service itself, then digital markets seem to tip the balance in favor of the latter. This is because digital platforms are making an ecosystem play: By bundling different services and portals, a platform can heighten switching costs and collect more user data by tracking individuals across services, both of which amount to a lucrative strategy.⁷²¹ The enormous value assigned to user datasets suggests that platforms will have an even greater incentive to keep users within their walled gardens, meaning that they will be more likely to choose direct access and exclusion over shared access and complementor revenue.

Lastly, online markets may lower the cost of exclusion. While foreclosure strategies traditionally involve denying a third-party access outright, digital markets enable subtler forms of discrimination.⁷²² Discriminating against a complementor risks increasing user dissatisfaction with the product, but users will have limited insight into the source of the

718. Since Google does not charge a monetary price for using its search engine, calculating the revenue loss that results from one user abandoning Google Search is not straightforward. Since Google monetizes the user through selling ads, see *id.* at 4–5, 27, the revenue loss would be on the ad side.

719. Notably, this does not assume or require that Google capture the secondary market. See van Schewick, *Internet Architecture*, *supra* note 217, at 237 (“Even without monopolizing a specific market in which advertisers buy access to the network provider’s Internet customers, selling access to a large block of customers may be more profitable than selling access to subgroups of that block.”).

720. See Newman, *Control of User Data*, *supra* note 286, at 407 (noting that Google’s “integrated profile[s]” of its users are valuable to advertisers).

721. See *id.* (noting that Google’s many products and services “allow[] it to develop an integrated profile of more individuals,” which it then uses “to allow advertisers to more effectively target particular ads”).

722. See van Schewick, *Internet Architecture*, *supra* note 217, at 260 (“[T]he network provider may be able to engage in exclusionary conduct without losing too many of its Internet-service customers by using discrimination instead of direct exclusion.”). For example, instead of blocking access to a complementary product, a network provider could merely slow that complementary product—a subtler form of discrimination that the network provider’s internet-service customers would be less likely to notice. See *id.*

quality degradation, reducing the chance that they will respond by abandoning the platform. In other words, if Apple denies Spotify upgrades on iOS, users may blame Spotify rather than Apple, limiting Apple's exposure to users abandoning Apple. Switching costs, moreover, can be significant in digital platform markets, especially in the absence of interoperability or data portability regimes—a fact that also reduces the cost of exclusion.⁷²³

C. *Expanding Market Power: Primary Good Is Inessential for Uses of Complementary Good*

Another set of conditions under which a dominant platform will have an incentive to foreclose rivals in a complementary market occurs when: (1) the dominant platform's complementary good can be used independently of the primary platform, (2) the platform can stop its competitors from selling their version of the complementary good to the platform's users, and (3) the complementary market exhibits economies of scale or network effects.⁷²⁴

Because a platform monopoly facing these conditions would not be able to extract all monopoly profits through its pricing of the primary service, it would have an incentive to extend its monopoly into the complementary market.⁷²⁵ The existence of network effects, meanwhile, enables the monopolist to thwart potential rivals from the complementary market by excluding them from the primary market.⁷²⁶

Even if the platform is not a monopolist, exclusionary conduct that drove more sales of the complementary good or service would likely be profitable. Because the cost structure of applications and content usually involves high fixed costs and low marginal costs, any subsequent sales—presumably at prices above marginal cost—would likely generate profits.⁷²⁷

723. See Adam Candeub, Behavioral Economics, Internet Search, and Antitrust, 9 I/S: J.L. & Pol'y for Info. Soc'y 407, 409 (2014) ("If we establish habits and routines to allocate our scarce cognitive resources, these routines—like many other habits—can be quite difficult, *i.e.*, costly, to break, creating high switching costs with possible anti-competitive implications."); Newman, Digital Markets, *supra* note 579, at 8–12, 20 (discussing various factors that lead to high switching costs in digital markets).

724. See van Schewick, Internet Architecture, *supra* note 217, at 226–27.

725. See *id.* at 227.

726. See *id.*

727. See *id.* at 252.