The Platform-Property Paradox

Nikolas Guggenberger[1]

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ABSTRACT

In digital markets, the essential functions of property turn against each other. Common law property divides the world into mine, yours, and others' by excluding non-owners. This exclusion strategy generally serves three essential functions in economic ordering: internalizing externalities by channeling positive and negative effects on third parties back to the owner; creating modularity by dividing the world into manageable chunks; and promoting liberty by enabling

[1] Assistant Professor of Law, University of Houston Law Center, with courtesy appointment in the University of Houston Cullen College of Engineering's Electrical and Computer Engineering Department and Affiliated Fellow, Yale Information Society Project. For valuable thoughts, conversations, and feedback, thanks to Julia Adams, Jack Balkin, Emily Berman, Darren Bush, Anupam Chander, Danielle D'Onfro, Dave Fagundes, Leah Fowler, David Froomkin, James Grimmelmann, Amy Kapczynski, Andrew Lanham, Glynn Lunney, Andrew Miller, Christopher Mirasola, Douglas Moll, James Nelson, Francesca Procaccini, Peter Salib, Paul Schwartz, and Daniel Sokol, and the participants of the Boston University Cyber Alliance Speaker Series, Junior Intellectual Property Scholars Association Winter Workshop, LPE of Technology Workshop, Miami Herbert Business School Business Law Department Faculty Workshop, Second Annual Conference on Networks, Platforms, and Utilities at Vanderbilt University, Texas Junior Scholars Faculty Conference, UC Berkeley Law Topics in Privacy and Security Law Seminar, University of Houston Law Center Work in Progress Workshop, University of Miami School of Law Faculty Workshop, University of North Carolina School of Law Faculty Workshop, USC-Cambridge Virtual Antitrust Workshop, and Workshop on Private Law & Emerging Technology. Special thanks to Elizabeth Graff, Levi Loveless, Alyvia Todd, and T'arie Vincent for their excellent research assistance and to Stanford Technology Law Review's Jeff Wang, Albert Lee, James Fitz-Henley, Tammer Bagdasarian, Gillan Chalono, Anthony Cusat, Hugo Stack, Devina Sormin, Nathan Canadas, Alessia Welch, Axelle LaBaw, Anahita Srinivasan, and Colin Remy, for their thoughtful editing. This project has been supported by the University of Houston's Elizabeth D. Rockwell Center Faculty Research Award.

private control over resources. These functions usually work in harmony. As this Article shows, not so in the digital platform economy.

Digital networks create enormous value by facilitating communication, transactions, and knowledge production—value that grows exponentially as more people participate. Through property-like entitlements, law enables platforms like Amazon, Google, and Facebook to exclude others from these networks and thereby capture that exponential value. This legal architecture encloses digital networks just as law once enclosed common meadows. The resulting control over digital networks disproportionately benefits incumbents. Paradoxically, this Article argues, property's internalization function captures value so effectively that it fuels industrial concentration. Rather than creating modularity, this concentration amplifies systemic complexity and interdependence; instead of promoting liberty, it entrenches economic dependence, centralizes control, and breeds oligarchy.

This Article reveals property design as a central and underappreciated driver of platform dominance, one amenable to legal correction. While scholarly and policy responses to economic concentration have largely emphasized antitrust enforcement and sector-specific regulation, this Article foregrounds the upstream design of property entitlements. The Article challenges the classical prescription that property should maximize internalization of externalities. When platforms internalize network effects under that logic, the result is industrial concentration with deep structural harms to modularity and liberty. Reconciling property's essential functions thus requires curtailing property-like entitlements, expanding the digital commons, and recalibrating the remaining protections.

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INTRODUCTION

Property divides the world into mine, yours, and others' by excluding non-owners.[2] The conventional wisdom holds that this exclusion strategy[3] serves three essential functions.[4] First, exclusion internalizes externalities by incentivizing parties to account for the benefits and costs they impose on third parties.[5] Second, it creates modularity to reduce complexity by partitioning the world into manageable chunks.[6] Third, it promotes economic liberty by enabling individual control over resources and safeguarding the resulting reliance interests from arbitrary interference.[7] These functions usually work in harmony to facilitate decentralized decision-making and information

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[2] *See* 2 WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND 2 (1766) (defining property as "that sole and despotic dominion . . . over the external things of the world, in total exclusion of the right of any other individual in the universe"); MICHAEL HELLER & JAMES SALZMAN, MINE! HOW THE HIDDEN RULES OF OWNERSHIP CONTROL OUR LIVES 1–41, 47 (2021) (noting that from eighteen months onward, distinctions between mine, yours, and others' shape toddlers' social interactions); Morris R. Cohen, *Property and Sovereignty*, 13 CORN. L.Q. 8, 12 (1927) ("[T]he essence of private property is always the right to exclude others.").

[3] *See* Henry E. Smith, *Property and Property Rules*, 79 N.Y.U. L. REV. 1719, 1753–74 (2004) [hereinafter Smith, *Property and Property Rules*] (theorizing property's "exclusion strategy").

[4] On property's essentialism grounded in positive transaction costs, see Henry E. Smith, *The Economics of Property Law*, *in* 2 THE OXFORD HANDBOOK OF LAW AND ECONOMICS: PRIVATE AND COMMERCIAL LAW 148, 152 (Francesco Parisi ed., 2017) [hereinafter Smith, *Economics of Property Law*]; Henry E. Smith, *Intellectual Property as Property: Delineating Entitlements in Information*, 116 YALE L.J. 1742, 1747 (2007) [hereinafter Smith, *Intellectual Property*].

[5] *See* FRIEDRICH A. HAYEK, THE ROAD TO SERFDOM 39–40 (1944); Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 347–53 (1967) (contending that "[a] primary function of property rights is that of guiding incentives to achieve a greater internalization of externalities"). Incentivizing innovation and preventing the overexploitation of common resources falls into this category. *See* Henry E. Smith, *Exclusion versus Governance: Two Strategies for Delineating Property Rights*, 31 J. LEG. STUD. S453, S457–58 (2002) [hereinafter Smith, *Exclusion versus Governance*].

[6] CARLISS Y. BALDWIN & KIM B. CLARK, DESIGN RULES: THE POWER OF MODULARITY 63–64, 88–92 (2000) (theorizing modularity's function in managing complexity); RICHARD A. EPSTEIN, SIMPLE RULES FOR A COMPLEX WORLD 53–70 (1995) (including property in his proposed six rules); Harold Demsetz, *Toward a Theory of Property Rights II: The Competition between Private and Collective Ownership*, 31 J. LEGAL STUD. S653, S664–65 (2002) (identifying "the productivity gains that result from specialization" and thus the inevitable "need for coordination" as "[t]he single most important force behind our growing use of private ownership"); Henry E. Smith, *Property as the Law of Things*, 125 HARV. L. REV. 1691, 1701–8 (2012) [hereinafter Smith, *Property as the Law of Things*] (identifying property as a system that manages complexity by reducing interdependencies to decomposable modules).

[7] Bd. of Regents of State Colls. v. Roth, 408 U.S. 564, 577 (1972) ("It is a purpose of the ancient institution of property to protect . . . reliance that must not be arbitrarily undermined."); BLACKSTONE, *supra* note 2, at 2; MILTON FRIEDMAN, CAPITALISM AND FREEDOM 7–18 (40th anniversary ed. 2002); HAYEK, *supra* note 5, at 108–9.

aggregation,8 underpinning claims about efficient market ordering[9] and, for some, claims about the foundations of liberal democracy.[10]

In digital markets, paradoxically, property's internalization function works so well that it facilitates market concentration, systematically undermining property's other two functions.[11] Understanding why this occurs—and how to correct it—is crucial to reconciling property's essential functions.

Scholarly and policy responses to economic concentration have largely emphasized antitrust enforcement and sector-specific regulation. This Article foregrounds a different dimension: the upstream design of property-like entitlements that construct platforms in the first place. It makes two contributions, one to understanding platform power, the other to recalibrating property theory.

First, this Article demonstrates that online market concentration is primarily a problem of property design.[12] Digital networks create enormous value by facilitating communication, transactions, and knowledge production—value that grows exponentially with the number of participants ("network effects").[13]

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[8] *See* Smith, *Economics of Property Law*, *supra* note 4, at 148–50; Smith, *Property as the Law of Things*, *supra* note 6, at 1693–94; Smith, *Property and Property Rules*, *supra* note 3, at 1753–63 (emphasizing property's exclusion strategy as a primary source of decentralized decision-making and efficient information aggregation).

[9] *See* F. A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519, 521–28 (1945) (arguing that competition and the pricing system enable efficient decentralized information aggregation).

[10] *See* FRIEDMAN, *supra* note 7, at 7–21; HAYEK, *supra* note 5, at 73, 108; *see also* HANNAH ARENDT, THE HUMAN CONDITION 71 (2d ed. 1998) (emphasizing property's role in protecting privacy).

[11] On the precarious relationship between property and monopoly, see Lee Anne Fennell, *Fee Simple Obsolete*, 91 N.Y.U. L. REV. 1457, 1466–79 (2016) (analyzing the "perpetual spatial monopoly" awarded by the fee simple in land); Eric A. Posner & E. Glen Weyl, *Property Is Only Another Name for Monopoly*, 9 J. LEGAL ANALYSIS 51, 60–70 (2017); Katrina M. Wyman, *In Defense of the Fee Simple*, 93 NOTRE DAME L. REV. 1, 25–38 (2017) (discussing the economic efficiency of a fee simple in light critiques grounded in monopoly concerns).

[12] *See* Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CALIF. L. REV. 479, 489–91, 602–6 (1998). *See generally* HAYEK, *supra* note 5, at 38 (observing "that serious shortcomings [in property design] have . . . led to the destruction of competition in many spheres"). *But see* James Grimmelmann, *The Internet is a Semicommons*, 78 FORDHAM L. REV. 2799, 2818 (2010) (attributing the Internet's success to "get[ting] property boundaries right").

[13] Bell Telephone Laboratories researchers formalized the modern understanding of network effects. *See* Roland Artle & Christian Averous, *The Telephone System as a Public Good: Static*

Who gets to extract this value? Law emphatically answers: digital platforms, such as Amazon, Google, and Facebook. However, network effects need not accrue to individual platforms.[14] Whether they do—and thereby make it costly for users to switch platforms, creating entry barriers that drive concentration—depends on how legal institutions allocate control over networks.[15]

Law excludes non-owners from digital networks through a web of entitlements that function[16] like property, including state-enforced terms of service, expansive intellectual property, control-based privacy regimes, anti-hacking laws, and a comprehensive liability shield.[17] This framework functionally encloses digital networks much as law once enclosed common meadows during the English enclosure movement: access to networks depends on platforms' permission.[18] Granting platforms control over these networks disproportionately benefits incumbents. Platforms' entitlements entrench their dominance. Concentration in digital markets, therefore, is primarily a function

and Dynamic Aspects, 4 BELL J. ECON. & MGMT. SCI. 89, 90, 97–98 (1973); Jeffrey Rohlfs, *A Theory of Interdependent Demand for a Communications Service*, 5 BELL J. ECON. & MGMT. SCI. 16, 16–17 (1974).

[14] Michael Kades & Fiona Scott Morton, *Interoperability as a Competition Remedy for Digital Networks*, 11–12, 31 (Wash. Ctr. for Equitable Growth, Working Paper No. 092320, 2021), https://equitablegrowth.org/working-papers/interoperability-as-a-competition-remedy-for-digital-networks/ [https://perma.cc/9VSX-EL3K] (comparing telephony networks to social media).

[15] For a related argument, see Sanjukta Paul, *Antitrust as Allocator of Coordination Rights*, 67 UCLA L. REV. 378, 388, 401–9 (2020) (contending that antitrust constructs the firm by selectively permitting individuals to cooperate).

[16] This Article functionally analyzes property-like protections without opining on formal "Property" status platform entitlements for constitutional or other legal purposes. *See generally* JOSHUA A. T. FAIRFIELD, OWNED: PROPERTY, PRIVACY, AND THE NEW DIGITAL SERFDOM 135 (2017) (contending that digital goods should be treated as property); RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 41 (9th ed. 2014) (using the "concept of a de facto property right" to characterize electromagnetic spectrum licenses); Danielle D'Onfro, *The New Bailments*, 97 WASH. L. REV. 97, 100–101 (2022) (characterizing digital files as "digital property assets" with "sufficient similarity to traditional chattel property"); Christopher S. Yoo, *Beyond Coase: Emerging Technologies and Property Theory*, 160 U. PA. L. REV. 2189, 2193–2204 (2012) (analyzing "examples of new property rights").

[17] *See* Julie E. Cohen, *Law for the Platform Economy*, 51 U.C. DAVIS L. REV. 133, 153–75 (2017) (identifying "de facto property arrangements" and distinguishing four types of platform entitlements); Thomas E. Kadri, *Digital Gatekeepers*, 99 TEX. L. REV. 951 (2021) (focusing on the CFAA); Thomas E. Kadri, *Platforms as Blackacres*, 68 UCLA L. REV. 1184 (2022) (focusing on the CFAA). *But see* Nicholas Nugent, *The Unpropertied Internet*, 110 CORN. L. REV. 1209, 1234-50 (2026) (observing that the internet is still unpropertied).

[18] *See* James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, 66 L. & CONTEMP. PROBS. 33, 33–52 (2003) (drawing parallels between intellectual property expansion and the English enclosure movement).

of property's institutional design, not—as conventional accounts hold[19]—technological inevitability.[20]

These design choices have severe practical consequences. A handful of digital platforms now control the critical chokepoints of commerce and communication, including social media, app stores, advertising ecosystems, and large language models.[21] This concentration directly undermines property's other two functions. Rather than creating modularity, concentration amplifies systemic complexity and fragility:[22] when Amazon Web Services went offline on October 20, 2025, millions lost access to critical applications and services,

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[19] *See, e.g.,* United States v. Microsoft Corp., 84 F. Supp. 2d 9, 20–22 (D.D.C. 1999) (identifying network effects as the source of and reason for market concentration); CARL SHAPIRO & HAL R. VARIAN, INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY 184 (1999); Mark Armstrong, *Competition in Two-Sided Markets*, 37 RAND J. ECON. 668, 668–69 (2006); David Autor et al., *The Fall of the Labor Share and the Rise of Superstar Firms*, 135 Q.J. ECON. 645, 650–51, 656 (2020); Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, 1 J. EUR. ECON. ASS'N 990, 990–91 (2003).

[20] Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 297 n.148 (2007); Lemley & McGowan, *supra* note 12, at 489–91. *See also* Robert B. Ahdieh, *Making Markets: Network Effects and the Role of Law in the Creation of Strong Securities Markets*, 76 S. CAL. L. REV. 277, 296–321 (2003) (focusing on the role of law in the emergence and maturing of securities markets). On the role of law in constructing digital markets, see JULIE E. COHEN, BETWEEN TRUTH AND POWER: THE LEGAL CONSTRUCTIONS OF INFORMATIONAL CAPITALISM (2019); KATHARINA PISTOR, THE CODE OF CAPITAL: HOW THE LAW CREATES WEALTH AND INEQUALITY 8, 184–204 (2019); Elettra Bietti, *Self-Regulating Platforms and Antitrust Justice*, 101 TEX. L. REV. 165, 169–88 (2022); Anupam Chander, *How Law Made Silicon Valley*, 63 EMORY L.J. 639, 647–69 (2014); Cohen, *supra* note 16; Amy Kapczynski, *The Law of Informational Capitalism*, 129 YALE L.J. 1460 (2020). *See generally* KARL POLANYI, THE GREAT TRANSFORMATION: THE POLITICAL AND ECONOMIC ORIGINS OF OUR TIME 147 (Beacon Press 2d ed. 2001) (1944) ("While laissez-faire economy was the product of deliberate State action, subsequent restrictions on laissez-faire started in a spontaneous way.").

[21] *See* United States v. Google LLC, 778 F. Supp. 3d 797, 849–50 (E.D. Va. 2025); *In re* Google Play Store Antitrust Litig., 147 F.4th 917, 932, 947–50 (9th Cir. 2025); United States v. Google LLC, 747 F. Supp. 3d 1, 117–24, 136–39 (D.D.C. 2024) (finding that Google holds "monopoly power in the general search services market" and "the market for general search text advertising"); SUBCOMM. ON ANTITRUST, COM. & ADMIN. L. OF COMM. ON JUDICIARY OF H.R., 117TH CONG., INVESTIGATION OF COMPETITION IN DIGITAL MARKETS: MAJORITY STAFF REPORT AND RECOMMENDATIONS 28–30, 110–317 (Comm. Print 2020); JACQUES CRÉMER ET AL., COMPETITION POLICY FOR THE DIGITAL ERA 12–13, 23 (2019); Lina M. Khan, *The Separation of Platforms and Commerce*, 119 COLUM. L. REV. 973, 983–1008 (2019); Steven C. Salop, *Dominant Digital Platforms: Is Antitrust Up to the Task?*, 130 YALE L.J.F. 563, 564–66 (2021), https://yalelawjournal.org/essay/dominant-digital-platforms [https://perma.cc/A6RZ-JYMP].

[22] *See* Jeffrey Jou et al., *Bank Lending Fragility After Mergers* 1 (U. of Mich. L. & Econ. Rsch. Paper No. 24-039, 2025), https://ssrn.com/abstract=5121787 [https://perma.cc/JD2N-8X9M] (showing that "loan portfolios of merged banks become more vulnerable to adverse economic conditions").

illustrating how concentration creates single points of failure and cascading outages that modular design aims to prevent.[23] Instead of promoting economic liberty, concentration replaces voluntary exchange with structural coercion,[24] leaving advertisers, merchants, developers, and ordinary users at the whim of private central planners.[25] It systemically centralizes economic control and breeds oligarchy as economic power translates into political influence.[26]

Second, this Article posits that realizing property's essential functions in creating modularity and promoting liberty paradoxically requires limiting the internalization of externalities, property's other essential function.[27] In doing so, the argument challenges classic prescriptions that internalizing externalities is beneficial where practically feasible.[28] These prescriptions build on Harold

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[23] Jenny Gross, *Amazon Outage Forces Hundreds of Websites Offline for Hours*, N.Y. TIMES (Oct. 20, 2025), https://www.nytimes.com/2025/10/20/business/aws-down-internet-outage.html [https://perma.cc/DVA4-H24R]; Emma Roth, *'There Isn't Really Another Choice:' Signal Chief Explains Why the Encrypted Messenger Relies on AWS*, THE VERGE (Oct. 27, 2025), https://www.theverge.com/news/807147/signal-aws-outage-meredith-whittaker [https://perma.cc/9JJ6-SBFP].

[24] FRIEDMAN, *supra* note 7, at 14; Thurman Arnold, *An Inquiry into the Monopoly Issue*, N.Y. TIMES MAG., Aug. 21, 1938, at 95.

[25] *See* SUBCOMM. ON ANTITRUST, COM. & ADMIN. L. OF COMM. ON JUDICIARY OF H.R., 117TH CONG., *supra* note 21, at 146–76, 207–56; *United States v. Google LLC*, 778 F. Supp. 3d 797; Francesca L. Procaccini, *Social Network as Work: A Labor Paradigm for Regulating Speech on Social Media*, 110 CORN. L. REV. 389, 415–17 (2025) (demonstrating the granular control platforms exercise over their users, creating employee-like relations).

[26] DAVID KIRKPATRICK, THE FACEBOOK EFFECT 254 (2011) (citing Mark Zuckerberg's comparison of Facebook to "a government"); Anupam Chander, *Facebookistan*, 90 N.C. L. REV. 1807, 1817–19 (2012) (identifying similarities between Facebook's power and sovereign power). *See also* MARTIN GILENS, AFFLUENCE AND INFLUENCE: ECONOMIC INEQUALITY AND POLITICAL POWER IN AMERICA 10, 48, 83, 162–63 (2012) (observing that "gross levels of [economic] inequality . . . seem incompatible with notions of political equality"); Reilly S. Steel, *Lobbying Against Enforcement*, 44 Yale J. on Reg. (forthcoming Mar. 2026) ("offer[ing] new empirical evidence that companies regularly use political spending to defend against enforcement"); Thomas B. Nachbar, *The Antitrust Constitution*, 99 IOWA L. REV. 57, 70–74 (2013) (warning of "private regulation"). On oligarchy as a governance arrangement generally, see JEFFREY A. WINTERS, OLIGARCHY (2011).

[27] For a paradoxical need for limitations on property rights grounded in "grotesque transaction costs" caused by "long sequence[s] of two-party transactions" in network infrastructures, see Thomas Merrill, *The Property Strategy*, 160 U. PA. L. REV. 2061, 2091 (2012) ("Paradoxically, private property must be interlaced with networks of open-access or public property if it is to work effectively as a strategy for managing resources").

[28] *See, e.g.,* POSNER, *supra* note 16, at 31, 41, 43–44 (discussing overexploitation and observing that "[t]he creation of exclusive rights is a necessary rather than sufficient condition for efficient use of resources."); Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1327–30 (1993); Henry E. Smith, *Exclusion and Property Rules in the Law of Nuisance*, 90 VA. L. REV. 965, 988–89 (2004) (suggesting "reason to think that institutions are efficient when their costs and benefits are more internalized to the members of [a] group"); Smith,

Demsetz's famous observation that "property rights develop to internalize externalities when the gains of internalization become larger than the cost of internalization,"[29] treating this account as a template for optimal property design.[30] Cost, in this context, refers to boundary enforcement—particularly, expenses of drawing, monitoring, and policing property lines.[31] In digital markets, boundary enforcement costs are minimal while network externalities generate enormous value. Internalization is thus optimal by classical principles.[32] Yet "optimal" internalization turns the exclusion strategy against itself. It creates concentrated industrial structures that systematically undermine modularity and liberty. Therefore, realizing all of property's essential functions requires radically constraining, rather than maximizing, the internalization of network effects.

Crucially, concentration in networked markets is not unprecedented. Railroads, telegraphs, and telecommunications created similar dynamics. Law responded with common carrier obligations, structural separations, and public

Property and Property Rules, *supra* note 3, at 1755 (explaining that successful internalization "will at the same time maximize the social value of the asset").

[29] Demsetz, *supra* note 5, at 348–50.

[30] Brett M. Frischmann, *Evaluating the Demsetzian Trend in Copyright Law*, 3 REV. L. & ECON. 650, 650–59 (2007) (detailing how "Demsetz's property theory has . . . been extended to support normative arguments for increased propertization" and contending that "the normative argument permeates Demsetz's article"); Frischmann & Lemley, *supra* note 19, at 264 n.21. *See, e.g.*, F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 717–27 (2001); Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CALIF. L. REV. 1293, 1326 n.94 (1996) (discussing the "Demsetzian theory of optimal property rights").

[31] Ellickson, *supra* note 28, at 1327–32; Henry E. Smith, *Semicommon Property Rights and Scattering in the Open Fields*, 29 J. LEGAL STUD. 131, 133, 143 (2000). *See also* Demsetz, *supra* note 4, at 353. Assuming the theorem included *all* costs, including monopoly harms, would render it tautological—property rights would develop wherever they produce net benefits. *See id.* at 354 (observing that "property rights arise when it becomes economic for those affected by externalities to internalize benefits and costs"); Smith, *Exclusion versus Governance*, *supra* note 5, at S462–67. *See generally* Michael A. Heller, *The Boundaries of Private Property*, 108 YALE L.J. 1163, 1169–87 (1999) (delineating the functions of boundary-drawing in property systems).

[32] *See* Trotter Hardy, *Property (and Copyright) in Cyberspace*, 1996 U. CHI. LEGAL F. 217, 236–58 (1996) (focusing on informational works in cyberspace).

utility regulation[33]—tools often criticized as interference with property rights.[34] This Article reframes these tools as mechanisms that harmonize property's essential functions by constraining the capture of network effects through exclusion.

The Article proceeds in three parts. Part I explores property's exclusion strategy, its functions, and entitlement design options. Part II delineates five layers of legal enclosure that create what I call "Demsetzian Platforms"—entities optimized to capture spillover benefits.[35] Part III first demonstrates how these enclosures lay the groundwork for economic concentration, while antitrust law and sector-specific regulation have failed to counterbalance these effects. Then, it reveals how concentration systematically undermines modularity and liberty. In response, it proposes and discusses remedies that curtail exclusionary entitlements, expand digital commons, and recalibrate remaining protections.

PROPERTY, PROPERTY FUNCTIONS, AND ENTITLEMENT DESIGN

Property's "legal magic" flows from its exclusion strategy—the framework imposing duties on all non-owners to exclude themselves. This abstract legal principle underpins core pillars of private governance, ranging from ejecting trespassers to algorithmically curating digital content. To set the stage for demonstrating how the exclusion strategy turns against itself, this Part establishes the strategy's theoretical foundation, identifies its essential functions in economic ordering, and analyzes how legal institutions design and protect specific entitlements.

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[33] Munn v. Illinois, 94 U.S. 113, 130–31 (1876); WILLIAM J. NOVAK, THE PEOPLE'S WELFARE: LAW AND REGULATION IN NINETEENTH-CENTURY AMERICA 83–114 (1996); William Boyd, *Just Price, Public Utility, and the Long History of Economic Regulation in America*, 35 YALE J. ON REG. 721, 750–69 (2018); Ganesh Sitaraman & Morgan Ricks, *Tech Platforms and the Common Law of Carriers*, 73 DUKE L.J. 1037 (2024) (detailing "the common law of carriers" and endorsing its application to technology platforms).

[34] *See, e.g.* RICHARD A. EPSTEIN, TAKINGS: PRIVATE PROPERTY AND THE POWER OF EMINENT DOMAIN 168–69, 274–76 (1985); Eric R. Claeys, *The Telecommunications Act of 1996, the Takings Clause, and Tensions in Property Theory*, 22 YALE J. ON REG. 205 (2005).

[35] *See* Frischmann & Lemley, *supra* note 20, at 262–64 (defining spillovers).

A. Foundations of Property's Exclusion Strategy

Property carves out domains of control. It distinguishes what is mine from what is yours and others'. Rather than prescribing how an owner may use something, property law primarily operates by excluding non-owners.[36] This exclusion strategy is why courts and commentators often characterize property as a "right to exclude" that is enforceable against the world at large, not just individual counterparties. Property's "exclusion strategy" relies on rights *in rem* (binding everyone) rather than *in personam* (binding only specific parties).[37] As James Penner points out, however, a precise account of property must begin with a focus on non-owners, who bear the duty "to exclude themselves from the property of others."[38] Property rights, in this view, are the flipside of non-owners' *in rem* duties.[39] By imposing these duties on non-owners, property regimes allocate control to owners, empowering them to engage in private governance over their domain.[40]

By default, a homeowner gets to set the temperature in the bedroom, and a car owner may choose the music. Roman law identified this "rule over things

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[36] JAMES E. PENNER, THE IDEA OF PROPERTY IN LAW 71–74 (1997) (observing that "property is driven by an analysis which takes the perspective of exclusion, rather than one which elaborates a right to use" and defining the "exclusion thesis [such that] the right to property is a right to exclude others from things which is grounded by the interest we have in the use of things"); Smith, *Property as the Law of Things*, *supra* note 6, at 1693 ("[E]xclusion strategies, including the right to exclude, serve the interest in use."). For greater emphasis on a positive manifestation of a right to use in civil law traditions, see for example, Bürgerliches Gesetzbuch [BGB] [Civil Code], § 903, sentence 1, https://www.gesetze-im-internet.de/englisch_bgb/ [https://perma.cc/MY4Y-UQWN](Ger.).

[37] PENNER, *supra* note 36, at 23–31.

[38] *Id.* at 71.

[39] *Id.* There is longstanding controversy over whether property rights transcend mere interpersonal relations. *See* Wesley Newcomb Hohfeld, *Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 26 YALE L.J. 710, 719–23 (1917) (arguing that, logically, "all rights *in rem* are against persons"); Cohen, *supra* note 2, at 12 (urging an understanding "that a property right is a relation not between an owner and a thing, but between the owner and other individuals in reference to things"); PENNER, *supra* note 36, at 23–31 (observing that "physical things or states of affairs such as bodily security, mediate between rights *in rem* and duties *in rem*, blocking any content which has to do with the specific individuality of particular persons from entering the right-duty relation"); Smith, *Property as the Law of Things*, *supra* note 6, at 1693–1700 (foregrounding "our interest in using things" and conceptualizing "property as a right to a thing").

[40] Smith, *Exclusion versus Governance*, *supra* note 5, at S454–55. *See* BARBARA H. FRIED, THE PROGRESSIVE ASSAULT ON LAISSEZ FAIRE: ROBERT HALE AND THE FIRST LAW AND ECONOMICS MOVEMENT 51–52 (3d ed. 2009).

by the individual" as *dominium*, in contrast to *imperium*, or state power.[41] In other words, the exclusion of non-owners enables owners to use their property as they please, without positively defining specific permitted uses.[42]

Granted, property's exact contours are notoriously difficult to circumscribe, and exclusion is no clean binary category. What kind of *in rem* duties must the law specifically impose on non-owners to create property? What about hybrid forms of entitlements that share *in rem* and *in personam* characteristics, like rental leases and security interests?[43] These and other questions have led many scholars to doubt whether property regimes possess any coherent logic.[44] Rather than defining property as a distinct institution, they have characterized it as a "bundle of sticks" or "bundle of rights" to emphasize its composite nature. At its most extreme, the bundle-of-sticks perspective conceives of property as a mere vehicle for ultimately arbitrary policy preferences, devoid of inherent meaning or function: property is what the law defines as property.[45]

Along the spectrum between viewing property as a distinct institution and as a mere vehicle for policy preferences, Thomas Merrill distinguishes three main schools of thought, each defined by the role they assign to the exclusion strategy: "single-variable essentialism," "multi-variable essentialism," and "nominalism."[46] The first school, associated with William Blackstone's conceptualization of property as dominium, treats the exclusion of non-owners as the necessary and sufficient condition for property rights.[47] The second approach considers exclusion as one of several essential features of property

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[41] Cohen, *supra* note 2, at 8–9.

[42] Henry Smith, *Modularity in Contracts: Boilerplate and Information Flow*, 104 MICH. L. REV. 1175, 1187 (2006).

[43] Thomas Merrill & Henry Smith, *The Property/Contract Interface*, 101 COLUM. L. REV. 773, 820–43 (2001) (locating bailments, landlord-tenant law, security interests, and trusts at the property/contract interface).

[44] *See, e.g.* Felix S. Cohen, *Transcendental Nonsense and the Functional Approach*, 35 COLUM. L. REV. 809, 814–17 (1935) (criticizing the "veiled . . . 'thingification' of *property*").

[45] Thomas W. Merrill, *Property and the Right to Exclude*, 77 NEB. L. REV. 730, 737–38 (1998). *See also* RESTATEMENT OF PROPERTY § 10 (A.L.I. 1936) (defining owner as "person who has one or more interests").

[46] Merrill, *supra* note 45, at 734.

[47] *Id.* (identifying "the right to exclude other [as] *sine qua non*"). *See* 2 BLACKSTONE, *supra* note 2, at 2.

rights.[48] Third and finally, nominalism ascribes only historic path dependency to property; exclusion may or may not be part of what law considers property.[49]

In practice, courts have pragmatically combined elements of the realist tradition with more institutional approaches. They frequently invoke the "bundle of sticks" metaphor but qualify it, referencing the exclusion strategy. In *United States v. Craft*, for example, the Supreme Court defined the idiomatic bundle as "a collection of individual rights which, *in certain combinations*, constitute property."[50] In *Kaiser Aetna v. United States*, the Court explained that "one of the most essential sticks" distinguishing a property bundle from other entitlements is the power of exclusion, claiming that this understanding was universally shared.[51] The object of exclusion—the thing—may be land, chattel, or various forms of intangibles.[52] Courts recognize that typically, but not necessarily, state law creates and defines the individual sticks, while state or federal law determines whether the resulting bundle constitutes "property" for statutory or constitutional purposes.[53]

Ultimately, critiques suggesting that legal definitions of property are inherently arbitrary[54] do not undermine the argument about conflicting essential property functions advanced in this Article.[55] Even accepting the notion that the law could recognize arbitrary combinations of sticks as property does not mean that the law at large does so. As applied, property is more than an empty vehicle for policy preferences. It is neither a coincidence that courts detect patterns in property rights, nor that property textbooks cover broadly

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[48] Merrill, *supra* note 45, at 736–37.

[49] *Id.* at 737–39.

[50] United States v. Craft, 535 U.S. 274, 278 (2002) (emphasis added).

[51] Kaiser Aetna v. United States, 444 U.S. 164, 178–80 (1979); *see also Property*, BLACK'S LAW DICTIONARY (12th ed. 2024) ("Collectively, the rights in a valued resource such as land, chattel, or an intangible. It is common to describe property as a 'bundle of rights.' These rights include the right to possess and use, the right to exclude, and the right to transfer.") (bullet point omitted); Dave Fagundes, *Why Less Property Is More: Inclusion, Dispossession, & Subjective Well-Being*, 103 IOWA L. REV. 1361, 1363–66 (2018) (emphasizing exclusion and possession as characteristics of contemporary property doctrine).

[52] Smith, *Property as the Law of Things*, *supra* note 6.

[53] *United States v. Craft*, 535 U.S. at 278; Drye v. United States, 528 U.S. 49, 58 (1999); Bd. of Regents of State Colls. v. Roth, 408 U.S. 564, 577 (1972); United States v. Bess, 357 U.S. 51, 55–56 (1958); Morgan v. Comm'r, 309 U.S. 78, 80–81 (1940).

[54] Cohen, *supra* note 44, at 814–17.

[55] *See* Part III.

similar themes.[56] Whether exclusion is seen as foundational, significant, or merely incidental to property rights, the exclusion strategy is practically ubiquitous in the domain of property.[57] It serves distinct functions in resolving conflicting interests in resources within market-based ordering, as further elaborated in the following section.

B. Property's Essential Functions

Property's exclusion strategy is widely regarded as essential to three core functions of market-based economic ordering.[58] "Essential" means that, given positive transaction costs, only the exclusion strategy can achieve these functions at scale.[59] First, exclusion links resource use to its consequences.[60] When owners reap the benefits and bear the costs, they have incentives to internalize externalities.[61] Property rights, Harold Demsetz argued, tend to emerge where the gains of internalizing externalities outweigh the costs of drawing, monitoring, and policing the enclosure's boundaries.[62] In Demsetz's

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[56] *See, e.g.*, JESSE DUKEMINIER ET AL., PROPERTY (10th ed. 2022); SHELDON F. KURTZ ET AL., CASES AND MATERIALS ON AMERICAN PROPERTY LAW (7th ed. 2019); THOMAS W. MERRILL ET AL., PROPERTY: PRINCIPLES AND POLICIES (4th ed. 2022).

[57] Merrill, *supra* note 45, at 747–52; Henry E. Smith, *The Persistence of System in Property Law*, 163 U. PA. L. REV. 2055, 2064–69 (2015).

[58] *See* Smith, *Property and Property Rules*, *supra* note 3, at 1753–74 (using the term exclusion strategy).

[59] In a hypothetical, frictionless world, the exclusion strategy would be unnecessary at best and obstructing at worst. Contract law and regulation would suffice; property's crude exclusion and information-hiding would only reduce efficiency without purpose. For an inquiry into "the 'essential role' of property" to delineate its unique character, see Smith, *Economics of Property Law*, *supra* note 8, at 152 (observing that "[p]roperty law owes its actual contours to positive transaction costs"); Smith, *Property as the Law of Things*, *supra* note 6, at 1696 (observing that "in a zero-transaction-cost world . . . any benefit to be secured by parsing out relations in a fine-grained manner could be obtained at zero cost"); Smith, *Intellectual Property as Property: Delineating Entitlements in Information*, *supra* note 4, at 1747 (explaining that "the focus on exclusion—for reasons of simplicity and cheapness—only makes sense because of positive transaction costs").

[60] *See* Demsetz, *supra* note 5, at 348–49, 350–53.

[61] HAYEK, *supra* note 5, at 39–40.

[62] *See* Demsetz, *supra* note 5, at 348–49, 350–53; *see also* HAYEK, *supra* note 5, at 40; Jonathan M. Barnett, *Property as Process: How Innovation Markets Select Innovation Regimes*, 119 YALE L.J. 384, 421–43 (2009) (observing that Demsetzian property formation can work in reverse and providing examples of "large firms . . . sometimes act[ing] as the strongest bulwark against too much property"); Demsetz, *supra* note 6, at S656 (defending yet softening the original observation); Fennell, *supra* note 11, at 1463, 1473–74 (emphasizing

account, costs refer to the administrative burdens of boundary enforcement, not to the systemic costs that exclusion might impose on society.[63] Property's contours, therefore, shift with technological, economic, or social changes that alter the costs of boundary-drawing.[64] This framework has served both analytical and normative purposes: describing how property historically emerged and prescribing how legal systems should allocate rights for efficient ordering.[65] Practical prescriptive examples include patent law (internalizing the positive externalities of inventions for a set duration) and emission trading systems (internalizing the negative externalities of pollution).[66]

Second, property frameworks provide an efficient tool for reducing economic complexity.[67] As Herbert Simon explained, systems are complex when they are "made up of a large number of parts that have many interactions."[68] In

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the normative dimension of the Demsetzian argument and extending it to the reverse proposition—stopping the internalization as its costs exceed its benefits); Smith, *Exclusion versus Governance*, *supra* note 5, at 463–83 (offering a more nuanced account of "Demsetzian Models" by identifying exclusion costs as potentially endogenous to changes in the value of land use and correcting the historical record of enclosure in England).

[63] *See supra* note 24. *But see* Thomas W. Merrill, *Introduction: The Demsetz Thesis and the Evolution of Property Rights*, 31 J. LEGAL STUD. S331, S333 (2002).

[64] Demsetz, *supra* note 5, at 350 (observing that, historically, property rights emerged in reaction to "new or different beneficial and harmful effects"); Smith, *Exclusion versus Governance*, *supra* note 5, at S453.

[65] Frischmann, *supra* note 30, at 650-659; Frischmann & Lemley, *supra* note 20, at 264 n.21. *But see* Harold Demsetz, *Frischmann's View of "Toward a Theory of Property Rights,"* 4 REV. L. & ECON. 127 (2008).

[66] Smith, *Exclusion versus Governance*, *supra* note 5, at 457–58.

[67] BALDWIN & CLARK, *supra* note 6, at 63–92; Demsetz, *supra* note 6, at S660–65; Smith, *Property as the Law of Things*, *supra* note 6, at 1701–8 (identifying property as a system that manages complexity by reducing interdependencies to decomposable modules). *See generally* LEE ANNE FENNELL, SLICES AND LUMPS (2019) (delineating the immense power that comes with defining the chunks and modules); HERBERT A. SIMON, THE SCIENCES OF THE ARTIFICIAL 183–216 (3d ed. 1996). *But see also* Alberto Galasso & El Hadi Caoui, *Fractional Ownership and Copyright Licensing: Evidence from the Music Industry* (Nat'l Bureau of Econ. Rsch., Working Paper No. w34336 2025), https://www.nber.org/papers/w34336 (showing that "greater fractionalization is associated with lower likelihood of licensing" of songs for movies); Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621, 624, 660–79 (1998) (observing that overlapping and fragmented property rights contribute to complexity and may lead to resource underuse). For an internet specific account, see Christopher Yoo, *Modularity Theory and Internet Regulation*, 2016 U. ILL. L. REV. 1, 18–24 (2016).

[68] SIMON, *supra* note 67, at 183–84. Distinguishing simplicity, organized complexity, and disorganized complexity, Warren Weaver demonstrated that complexity is a matter of degree, defined by the variables at play. *See* Warren Weaver, *Science and Complexity*, 36 AMERICAN SCIENTIST 536, 536–42 (1948).

society, complexity increases with heightened specialization and reduced relational compactness in mature, sophisticated economies, as specialization necessitates coordination among different economic actors.[69]

To reduce complexity, property breaks interdependencies into manageable chunks and insulates these chunks from their environment, creating modular structures.[70] This modularity allows individuals to interact with specific components of a system without needing to understand the entire system.[71] As Henry Smith illustrates, a car's modularity allows mechanics to repair brakes without knowing anything about the fuel injection system.[72] Such modularity not only eases repairs but also increases resilience, as mistakes do not immediately spill over.[73] In essence, modularity lightens the cognitive load, enabling individuals to act effectively without grasping the full complexity of their social and economic environment.[74] At a system level, this information-hiding feature[75] facilitates decentralized decision-making and, ultimately, enables decentralized information aggregation through the price system.[76]

Third, property is widely credited with promoting economic liberty.[77] This link builds on two distinct traditions in political theory. Classical liberal theorists equate liberty with what Isaiah Berlin termed negative liberty—freedom from interference—aiming to maximize individual choice. Neo-roman republican theorists, by contrast, understand liberty as independence or freedom from

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[69] Demsetz, *supra* note 6, at S664 (defining "compactness [as] the degree to which the problem is largely confined to a group whose members").

[70] Smith, Property as the Law of Things, supra note 6, at 1701–3; see also BALDWIN & CLARK, supra note 5, at 63 (identifying the first idea of modularity as "interdependence within and independence across modules").

[71] BALDWIN & CLARK, supra note 6 ("For human beings, the only way to manage a complex system or solve a complex problem is to break it up.").

[72] Smith, Property as the Law of Things, supra note 6, at 1701.

[73] Id.

[74] EPSTEIN, *supra* note 6, at 53–70 (including property in his proposed six rules); Smith, *Property as the Law of Things*, *supra* note 6, at 1701–8 (identifying property as a system that manages complexity by reducing interdependencies to decomposable modules).

[75] BALDWIN & CLARK, *supra* note 6 (identifying "[t]he second idea [of modularity as] "captured by three terms: *abstraction, information hiding, and interface*").

[76] Demsetz, *supra* note 6, at S664 n.18; Hayek, *supra* note 9, at 525–26; Ludwig Mises, *Die Wirtschaftsrechnung im sozialistischen Gemeinwesen [The Economic Calculation in the Socialist Commonwealth]*, 47 ARCHIV FÜR SOZIALWISSENSCHAFT UND SOZIALPOLITIK 86, 93–97, 100–105 (1920); Smith, *Property and Property Rules*, *supra* note 3, at 1753–63.

[77] 2 BLACKSTONE, *supra* note 2, at 2; FRIEDMAN, *supra* note 7, at 7–18; HAYEK, *supra* note 5, at 108–9. *But see also* EDUARDO MOISÉS PEÑALVER & SONIA K. KATYAL, PROPERTY OUTLAWS 65–70 (2010) (stressing the liberty-enhancing contributions of challenging property entitlements).

domination—the absence of arbitrary power over one's affairs to allow for self-rule.[78] The crucial difference lies in their approach to unexercised power: liberal accounts object to actual interference; republican understandings object to the mere presence of leverage that creates dependence, even when that leverage remains unexercised.[79]

Property serves both conceptualizations of liberty. For liberals, property maximizes choice. Individually, property grants control over resources free from third-party interference, creating zones of individual autonomy.[80] Systemically, distributed ownership underwrites competitive markets: when multiple actors can provide goods and services, individuals can choose among alternatives through voluntary exchange.[81]

For republicans, property secures independence. Individually, it frees individuals from collective control and the need for third-party permission, enabling self-rule without subjection to others' arbitrary power.[82] Systemically, distributed ownership prevents any single actor from controlling essential resources—avoiding the dependence that creates vulnerability to domination, even when that power remains unexercised.[83] Under both frameworks, property protects reliance interests, safeguarding expectations from arbitrary interference.[84]

Theorists have blended these traditions into unified arguments for property's essential role in securing liberty. Friedrich von Hayek synthesized both in praising "the system of private property [as] the most important guarant[ee] of freedom."[85] Milton Friedman seamlessly combined both conceptions when he argued that private property and competitive markets

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[78] PHILIP PETTIT, REPUBLICANISM: A THEORY OF FREEDOM AND GOVERNMENT 21–27 (1999); QUENTIN SKINNER, LIBERTY AS INDEPENDENCE: THE MAKING AND UNMAKING OF A POLITICAL IDEAL 4 (2025).

[79] PETTIT, *supra* note 78, at 22–27; SKINNER, *supra* note 78, at 4, 277–78; QUENTIN SKINNER, LIBERTY BEFORE LIBERALISM 41, 69–70 (2012).

[80] FRIEDMAN, *supra* note 7, at 27; Nugent, *supra* note 17, at 151 (observing that "[p]roperty provides a zone of autonomy against both the state and other private parties").

[81] HAYEK, *supra* note 5, at 103.

[82] *See* FRIEDMAN, *supra* note 7, at 27.

[83] *See* Arnold, *supra* note 24, at 95.

[84] *See* Board of Regents v. Roth, 408 U.S. 564, 577 (1972); 2 BLACKSTONE, *supra* note 2, at 2; FRIEDMAN, *supra* note 7, at 8 (identifying this form of economic liberty as "an end in itself [and] an indispensable means toward the achievement of political freedom").

[85] HAYEK, *supra* note 5, at 103–4.

provided the only reliable institutional arrangement securing both the material independence necessary to advocate radical ideas (independence) and the basis for permissionless association with fellow political travelers (non-interference).[86] Hannah Arendt identified private property as "[t]he only efficient way to guarantee the darkness of what needs to be hidden," securing privacy by creating zones of autonomy and protecting against collective surveillance.[87] Together, these accounts elevate property's exclusion strategy to a necessary precondition for political freedom and, thus, liberal democracy, precisely because it serves both conceptions—maximizing choice while securing independence.[88]

The exclusion strategy's essential functions generally work in harmony. Together, they aim toward the same goal, enabling decentralized decision-making and efficient information aggregation,[89] which underpin claims about the efficiency of market ordering as well as democratic governance.[90] Beyond pursuing common goals, each function also directly strengthens the others. Mitigating spillover effects strengthens modularity, while insufficient internalization increases complexity, and *vice versa*. The failure to internalize risk in the financial sector, for example, fostered an opaque web of interdependencies that undermined modularity and concealed systemic fragility. When this risk materialized in 2008, failures cascaded across seemingly

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[86] *See* FRIEDMAN, *supra* note 7, at 16–18.

[87] ARENDT, *supra* note 10, at 71.

[88] FRIEDMAN, *supra* note 7, at 9–11.

[89] *See* Smith, *The Economics of Property Law*, *supra* note 8, at 148–50; Smith, *Property as the Law of Things*, *supra* note 6, at 1693–94; Smith, *Property and Property Rules*, *supra* note 3, at 1753–63 (emphasizing property's exclusion strategy and its modularity as an information-hiding strategy).

[90] *See* HAYEK, *supra* note 5, at 108; Hayek, *supra* note 9, at 521–28 (arguing that competition and the pricing system enable efficient decentralized information aggregation); FRIEDMAN, *supra* note 7, at 9. Resolving the conflicts over scarce resources also contributes to prevent open violence, see Smith, *The Economics of Property Law*, *supra* note 8, at 149 ("argu[ing] that basic possession and many of the more refined features of property law approach the private law problem—reconciling potentially conflicting complex horizontal interactions among actors—using a strategy of incomplete separation"); Robert Bates et al., *Organizing Violence*, 46 J. CONFL RESOLUTION 599, 612–18 (2002); W.C. Bunting, *Resolving Conflicts Over Scarce Resources: Private Versus Shared Ownership*, 99 MARQ. L. REV. 893, 897–903 (2016). For critical accounts, see, for example, Cohen, *supra* note 2, at 12; Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 749–61, 771–74 (1986) (warning of privatization's dangers and contending that some resources are inherently public).

discrete financial institutions.[91] Post-crisis reforms—from increased capital requirements to recovery and resolution schemes—internalized some externalities, thereby reinforcing modular structures.[92] Similarly, internalization supports economic liberty: it allows individuals to reap the benefits of their actions while protecting them from negative externalities imposed by others. This enables independence. Modularity and liberty are also closely intertwined. The former frees individuals from systemic concerns. The latter, in turn, enables individuals to act upon the incentives to internalize externalities and engage in trade. This harmony among property's essential functions explains the exclusion strategy's theoretical appeal and practical significance.[93]

C. Protecting and Structuring Property Entitlements

Recognizing the exclusion strategy as a form of private legal ordering is one thing; legally specifying the protections and contours of individual entitlements is another. First, consider the protective strategies defining individuals' ability to determine the fate of the entitlement and seek remedies. Guido Calabresi and Douglas Melamed provided a foundational account of how the law protects entitlements, which identifies three principal modes: "Property Rules, Liability Rules and Inalienability."[94] Property rules, the authors explain, protect entitlements through a consent requirement.[95] The holder of the entitlement determines the price of any transfer.[96] Attempts to take the entitlement without consent can be enjoined.[97] Liability rules, in contrast, do not support

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[91] *See generally* ANAT R. ADMATI & MARTIN F. HELLWIG, THE BANKERS' NEW CLOTHES 60–80 (2013) (detailing the domino dynamics in the financial system during the financial crisis, where the failure of one institution triggered failures of others).

[92] Aaron Klein, *Three Cheers for Normal Bank Failure*, BROOKINGS (Nov. 26, 2024), https://www.brookings.edu/articles/three-cheers-for-normal-bank-failure/ [https://perma.cc/RY8D-DZ4T].

[93] Merrill, *supra* note 45, at 747–52.

[94] Guido Calabresi & A. Douglas Melamed, Property Rules, Liability Rules, and Inalienability: One View of the Cathedral, 85 HARV. L. REV. 1089, 1089 (1972).

[95] Id. at 1092; see also Cohen, supra note 2, at 12 ("[T]he law of property helps me directly only to exclude others from using the things which it assigns to me. If then somebody else wants to use the food, the house, the land, or the plow which the law calls mine, he has to get my consent.").

[96] Calabresi & Melamed, supra note 94, at 1092.

[97] Id.

injunctions.[98] An intruder upon an entitlement protected by a liability rule need only pay damages, as determined by a state institution, typically a court.[99]

Entitlements protected by either property or liability rules are transferable. Inalienable entitlements are not.[100] Restricting or eliminating the ability to transfer the entitlement is part of the protective or regulating framework.[101] Property regimes can rely on all three types of rules to protect individuals' entitlements. They may even attach all three types of rules to the same entitlement. Calabresi and Melamed discuss the example of a house, subject to property rules for private purchases, liability rules for eminent domain, and inalienability rules when the owner is incapacitated.[102] Absent extraordinary circumstances, however, property regimes typically steer clear of inalienability rules, because the ability to transfer an asset lies at the core of what property regimes generally aim to bestow. As the authors emphasize in the article's title, this matrix provides only one of many possible perspectives.[103] Yet, even as subsequent scholarship has expanded Calabresi and Melamed's framework to include hybrid types of rules, its foundational structure remains dominant and continues to serve as a reliable tool for categorizing different approaches to protecting entitlements.[104]

Second, there are different approaches to defining the contours of entitlements. Despite the exclusion strategy's prominent presence, property regimes also rely on governance strategies—precise and positive definitions of permitted and prohibited uses.[105] In fact, governance and exclusion lie at the opposite ends of a continuum, demonstrating what Henry Smith describes as

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[98] Id.

[99] Id.

[100] Id. at 1092–93.

[101] Id. at 1093. For critiques of the boundaries of commodification, see Kieran Healy & Kimberly D. Krawiec, Repugnance Management and Transactions in the Body, 107 AM. ECON. REV. 86, 86–89 (2017); Kimberly D. Krawiec, Markets, Repugnance, and Externalities, J. INST'L ECON. 944, 949–51 (2023).

[102] Calabresi & Melamed, *supra* note 94, at 1093.

[103] *Id.* at 1128; Karen Tani, *Legal History Blog: Guido Calabresi and the "Economic Style," Part 3: Partial Views and "Pearls Beyond Price,"* LEGAL HISTORY BLOG (May 11, 2023), https://legalhistoryblog.blogspot.com/2023/05/guido-calabresi-and-economic-style-part_0793482911.html [https://perma.cc/2BUA-ZRK8].

[104] *See* Abraham Bell & Gideon Parchomovsky, *Pliability Rules*, 101 MICH. L. REV. 1 (2002) (identifying pliability rules as a hybrid of property and liability rules); Tani, *supra* note 103.

[105] Smith, *supra* note 5, at S454–55, S457–62, S478–87 (emphasizing the developments in the wake of the English enclosure movement); *see also* Smith, *supra* note 31, at 134–38 (identifying "the medieval open-fields system" as "a semicommons").

the "roughness of the proxy measurement used to define the right."[106] Relying on transaction and enforcement cost analysis, Smith shows that both modes of property design are compatible with a refined formulation of the Demsetz hypothesis.[107] Property rights evolve in response to changes in resource valuation and enforcement costs. Yet, enforcement costs must be understood to incorporate the costs of exclusion—policing access to property through fencing and monitoring—and the costs of governance—defining specific uses with precision. In some instances, emphasizing the former will prove more cost-effective; in others, the latter will prevail. As in the original Demsetzian framework, technological innovation in resource use, monitoring, and boundary-drawing constantly alters this calculation, as Smith demonstrates in the context of English agricultural land use.[108]

NETWORK ENCLOSURE INTERNALIZES NETWORK EXTERNALITIES

Just like historical enclosure movements converted common meadows into private capital, this Part demonstrates how property-like entitlements today internalize network externalities, enabling digital platforms to capture the value of network effects and convert it into durable platform capital.[109] To understand this conversion, it is essential to distinguish between network effects and network externalities.[110] Network effects describe the relationship between a network's user base and utility. As more participants join, networks generally become dramatically more useful. The more people use email or speak English, for example, the more valuable these communication networks become for everyone.[111] Network externalities, on the other hand, refer to the spillover effects of an individual's participation in a network. When someone uses email

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[106] Smith, *supra* note 5, at S467–74.

[107] *Id.* at S467-83.

[108] *Id.* at S454–55, S457–62, S478–87; *see also* Terry Anderson & P. Hill, *The Evolution of Property Rights: A Study of the American West*, 18 J.L. & ECON. 172 (1975) (analyzing the effects of the invention of barbed wire).

[109] *See* Cohen, *supra* note 17, at 144, 153–75; *see also* Cohen, *supra* note 2, at 13 (delineating property rights' power to allocate future returns).

[110] *See supra* note 13.

[111] DAVID SINGH GREWAL, NETWORK POWER: THE SOCIAL DYNAMICS OF GLOBALIZATION 21–25 (2008) (identifying language as a mediating standard); Lawrence Lessig, *Do You Floss?*, *in* 27 LONDON REVIEW OF BOOKS (2005).

or learns English, this changes the utility a network provides to others. Network externalities aggregate into network effects.[112]

Unlike the English language or email protocols, which remain open networks where anyone with the necessary skills can participate and benefit, digital platforms benefit from comprehensive legal enclosure.[113] This Part first examines how multiple layers of legal protection create property-like entitlements that allocate control over digital networks. It then analyzes how this legal architecture constructs "Demsetzian Platforms" as distinct organizational entities, optimized to internalize network externalities.

A. Five Layers of Network Enclosures

Five distinct layers of protection enclose digital networks: state-enforced terms of service, intellectual property and trade secret protection, control-based privacy regimes, trespass and anti-hacking laws, and an expansive intermediary liability shield.[114] Individually, these frameworks may appear benign—each simply regulating aspects of user-platform, developer-platform, and platform-platform interactions. Together, however, they establish comprehensive duties for non-owners to exclude themselves from digital networks, conferring exclusive control to individual platforms and enabling private governance at scale.

1. Contract

It may appear counterintuitive to start delineating property-like entitlements through recourse to contracts.[115] Fundamentally, contracts are freely customizable and only bind voluntarily consenting parties.[116] This, however, describes classic, idealized, and today, rather anachronistic, forms of contracting: equals negotiate individual agreements as expressions of their

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[112] Nikolas Guggenberger, *Essential Platforms*, 24 STAN. TECH. L. REV. 237, 278 (2021).

[113] *See* Mike Masnick, *Protocols, Not Platforms: A Technological Approach to Free Speech*, KNIGHT FIRST AMENDMENT INST. (Aug. 21, 2019), https://knightcolumbia.org/content/protocols-not-platforms-a-technological-approach-to-free-speech [https://perma.cc/7WSW-QX76].

[114] *See* Cohen, *supra* note 17, at 153–75 (identifying four functional types of entitlements).

[115] Smith, *supra* note 42, at 1175 (pointing at the potential appearance of "a category mistake").

[116] Thomas Merrill & Henry Smith, *Optimal Standardization in the Law of Property: The* Numerus Clausus *Principle*, 110 YALE L.J. 1, 3 (2000); Smith, *supra* note 42, at 1175.

autonomy. Meaningful consent justifies that the state holds the parties' future selves to their promises.[117] Margaret Radin calls this World A and contrasts it with World B—that of modern contractual reality.[118]

Actual user-platform, developer-platform, and platform-platform interactions look, feel, and work very differently from what the contractual ideal assumes.[119] Platforms rely on terms of service articulated in boilerplate to set the rules under which others may access their networks. Facebook, for example, refers to these terms as "Community Standards,"[120] while YouTube calls them "Community Guidelines" and "Advertiser-Friendly Content Guidelines."[121]. Platforms regularly condition their services on users' authorization to use their data for personalized advertising.[122] The app stores have created similar frameworks for third-party developers.[123] Platforms rely on terms of service to define the affordances they grant developers via APIs, which enable interconnection between databases and networks. Facebook, for instance, required that developers "agreed (i) not to compete with Facebook's core services and (ii) not to facilitate the growth of potential rivals to Facebook."[124]

The circumstances in which platforms' terms of service operate and their legal effects give them characteristics that transcend their usual purely

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[117] Heidi M. Hurd, *The Moral Magic of Consent*, 2 LEG. THEORY 121, 123–24 (1996); Kaiponanea T. Matsumura, *Binding Future Selves*, 75 LA. L. REV. 71, 83–84 (2014) (developing a "different selves" rationale to explain contract enforcement across temporal identity changes).

[118] MARGARET JANE RADIN, BOILERPLATE 3, 8 (2014).

[119] BRETT M. FRISCHMANN & EVAN SELINGER, RE-ENGINEERING HUMANITY 71 (2018); David A. Hoffman, *Defeating the Empire of Forms*, VA. L. REV. 1367, 1377–78 (2023); Michael Simkovic & Meirav Furth-Matzkin, *Proportional Contracts*, 107 IOWA L. REV. 229, 236–54 (2021).

[120] *Community Standards*, META, https://www.facebook.com/communitystandards/ [https://perma.cc/YR2K-GCV6] (last visited May 19, 2025).

[121] *Our Policies*, YOUTUBE, https://www.youtube.com/howyoutubeworks/our-policies/ [https://perma.cc/2MZ3-9WVV] (last visited May 12, 2026).

[122] *See, e.g., Terms of Service* § 2, META, https://www.facebook.com/legal/terms [https://perma.cc/SE7D-MEHW]; Nikolas Guggenberger, *Consent as Friction*, 66 B.C. L. REV. 353, 365–69 (2025) (describing the practice as "surveillance by adhesion").

[123] *App Review Guidelines*, APPLE DEVELOPER, https://developer.apple.com/app-store/review/guidelines/ [https://perma.cc/GZ8U-KH57] (last visited May 19, 2025); *Developer Policy Center*, GOOGLE PLAY, https://play.google.com/about/developer-content-policy/ [https://perma.cc/3E4J-TGFA] (last visited May 19, 2025).

[124] First Amended Complaint at 4–5, 12–14, FTC v. Facebook, No. 1:20-cv-03590, (D.D.C. Aug. 19, 2021), Dkt. No. 75-1, https://storage.courtlistener.com/recap/gov.uscourts.dcd.224921/gov.uscourts.dcd.224921.75.1_5.pdf.

contractual classification.[125] They materialize as property-like entitlements.[126] First, consider the minimal threshold for contractual assent. All too often, it is challenging to discern meaningful affirmations of agreement, let alone genuine expressions of autonomy in this context.[127] Despite these deficits and almost insurmountable cognitive challenges in processing heaps of boilerplate,[128] however, courts have largely upheld boilerplate as legally binding contracts.[129] Indeed, courts have found enforceable agreements where counterparties clicked "I agree" and even elevated acquiescence to assent where counterparties had only constructive knowledge of the terms and nonetheless continued to use a service or access information.[130] Only in exceptional circumstances have courts resorted to reasonable expectations and rejected standard terms as unconscionable—generally, limited to cases involving unsophisticated parties.[131] This ability to invoke state backing[132] for quasi-

[125] *See also* Danielle D'Onfro, *Contract-Wrapped Property*, 137 HARV. L. REV. 1058, 1075–1125 (2024) (observing a blurring of contract and property through contractual encroachment on property).

[126] Mark Lemley, *Terms of Use*, 91 MINN. L. REV. 459, 470–72 (2006).

[127] RADIN, *supra* note 118, at 21, 89–90; concerning privacy, see WILLIAM MCGEVERAN, PRIVACY AND DATA PROTECTION LAW 474 (2d ed. 2023).

[128] *See generally* RADIN, *supra* note 118; Yannis Bakos et al., *Does Anyone Read the Fine Print? Consumer Attention to Standard-Form Contracts*, 43 J. LEG. STUD. 1, 3 (2014) ("only one or two in 1,000 shoppers access a product's EULA for at least 1 second"); Lauren Henry Scholz, *Fiduciary Boilerplate: Locating Fiduciary Relationships in Information Age Consumer Transactions*, 46 J. CORP. L. 173 (2020); Simkovic & Furth-Matzkin, *supra* note 119 (highlighting boilerplates' attentional toll).

[129] See, e.g., B.D. v. Blizzard Ent., Inc., 292 Cal. Rptr. 3d 47, 58–62 (2022) (discussing various methods of assent to an online contract); Deni Assocs. of Fla. v. State Farm Fire & Cas. Ins. Co., 711 So.2d 1135, 1140 (Fla. 1998) (rejecting the doctrine of reasonable expectations); Hill v. Gateway 2000, Inc., 105 F.3d 1147, 1148 (7th Cir. 1997) (pointing out that a contract "need not be read to be effective"); ProCD, Inc. v. Zeidenberg, 86 F.3d 1447, 1452–53 (7th Cir. 1996) (finding buyer's acceptance of delivered goods after meaningful time to review the product); RADIN, *supra* note 118, at 21–23.

[130] *See* CHARLES L. KNAPP ET AL., PROBLEMS IN CONTRACT LAW: CASES AND MATERIALS 206 (10th ed. 2023); Uri Benoliel & Shmuel I. Becher, *The Duty to Read the Unreadable*, 60 B.C. L. REV. 2255 (2019); Charles L. Knapp, *Is There a "Duty to Read"?*, 66 HASTINGS L.J. 1083 (2015); Scholz, *supra* note 128, at 173–75.

[131] *See*, *e.g.*, C & J Fertilizer, Inc. v. Allied Mut. Ins. Co., 227 N.W.2d 169, 176 (Iowa 1975) (holding insurance companies to customers' reasonable expectations); Gerber v. Twitter, Inc., No. 4:23-cv-00186, 2024 WL 5173313 (N.D. Cal. Dec. 18, 2024) (holding a clause in Twitter's terms of service unconscionable).

[132] *See* Calabresi & Melamed, *supra* note 94, at 1090–91, n.4 (emphasizing the need of "a minimum level of state intervention" of entitlements, which may but does not need to include force).

unilateral domain governance resembles the exclusionary strategy of property regimes.[133] It "propertizes" platforms, as Mark Lemley observes.[134]

Second, and logically following from the lack of meaningful consent, *some entitlement* must have been implicitly pre-allocated to platforms for them to bind anyone who merely accesses information.[135] Without such a pre-allocated domain, platforms could factually refuse to provide services, but they could not legally bind those who access their networks.[136] Much less could they define the parameters of access. And terms of service are generally not negotiable; users, developers, and even most rival platforms face take-it-or-leave-it options.[137] This recognition of pre-allocated information silos in plain sight as exclusive domains, subject to access permission and platforms' ability to act as gatekeepers, suggests the implicit recognition of an underlying property-like entitlement.[138]

Third, boilerplate and property reveal parallel approaches to dealing with complexity.[139] As Henry Smith observes, boilerplate, like property, breaks complex arrangements into manageable and independent chunks.[140] Boilerplate's individual definitions, terms, and clauses can be exchanged without rewriting the entire contract.[141] Drafters can specialize in different areas of law and collaborate more easily, while non-drafters can dedicate their full attention to the operational side of their business.[142] Admittedly, boilerplate contracting can produce highly complex arrangements, often to the detriment of less sophisticated parties. But this cuts *in favor* of the analogy, rather than against it: the resulting complexity is made possible precisely by boilerplate's modular nature. Again, boilerplate contracting appears property-esque.

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[133] Lemley, *supra* note 126, at 470–72.
[134] *Id.* (referring to websites).
[135] *Id.*
[136] *Id.*
[137] *See* Guggenberger, *supra* note 122, at 365–66. *See generally*, Friedrich Kessler, *Contracts of Adhesion—Some Thoughts about Freedom of Contract*, 43 COLUM. L. REV. 629, 632 (1943) (observing that "standardized contracts are frequently contracts of adhesion; they are *à prendre au à laisser*").
[138] This works despite the emerging reorientation of the CFAA.
[139] Smith, *supra* note 42, at 1179–90.
[140] *Id.* at 1190–91.
[141] *Id.*
[142] *Id.* at 1188.

2. Intellectual Property and Trade Secrets

Intellectual property conveys exclusive rights to intangible assets, including inventions and creative works. Trade secrets law—whether or not formally recognized as property[143]—serves a similar function for confidential information that is reasonably protected and has independent economic value.[144] Intellectual property, particularly patent law and trade secrets, protects core platform functions.[145] For example, when Sergey Brin and Lawrence Page invented methods facilitating online indexing and search,[146] Google received exclusive protection for twenty years from filing.[147] Likewise, the process of placing advertisements—the heart of Google Search's revenue generation—received patent protection.[148] In 2024 alone, the United States Patent and Trademark Office granted Alphabet, Google's parent company, 2,698 patents, up from 2,579 the year before.[149] These patents establish far-reaching duties for all non-owners to exclude themselves. For example, unlike copyright

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[143] *See* Mark A. Lemley, *The Surprising Virtues of Treating Trade Secrets as IP Rights*, 61 STAN. L. REV. 311 (2008).

[144] 18 U.S.C. § 1839(3); Uniform Trade Secrets Act § 1(4) (Unif. L. Comm'n 1985).

[145] SHAPIRO & VARIAN, *supra* note 19, at 271–74; Daniel McIntosh, *We Need to Talk about Data: How Digital Monopolies Arise and Why They Have Power and Influence*, 23 J. TECH. L. & POL'Y 185, 189 (2019); Peter S. Menell, *Economic Analysis of Network Effects and Intellectual Property*, 34 BERKELEY TECH. L.J. 221, 224–25 (2019) ("[T]he availability, scope, and remedies for intellectual property protection for network features of systems technologies and platforms [e.g., interface specifications] provide a key strategic asset for controlling network markets."); *see, e.g.,* Meta Platforms, Inc., Annual Report (Form 10-K) 9, 44–46 (Jan. 30, 2025), https://www.sec.gov/Archives/edgar/data/1326801/000132680125000017/meta-20241231.htm [https://perma.cc/UAE3-UKQQ] (observing that Meta "rel[ies] on a combination of patents, trademarks, copyrights, trade secrets" and warning of risks to the company's assets related to reduced intellectual property protection); Alphabet, Inc., Annual Report (Form 10-K) 13 (Feb. 5, 2025), https://www.sec.gov/Archives/edgar/data/1652044/000165204424000022/goog-20231231.htm [https://perma.cc/5NR2-HBWJ] (stating that the company's "intellectual property rights are valuable, and any inability to protect them could reduce the value of our products, services, and brands as well as affect our ability to compete"); *see also* Greg R. Vetter, *The Collaborative Integrity of Open-Source Software*, 2004 UTAH L. REV. 563, 586–94 (2004) (discussing intellectual property protection for software and source code).

[146] Information extraction from a database, U.S. Patent No. 6,678,681 (filed Mar. 9, 2000) (issued Jan. 13, 2004); Method for node ranking in a linked database, U.S. Patent No. 6,285,999 (filed Jan. 9, 1998) (issued Sept. 4, 2001).

[147] As Brin and Page were still students at Stanford University, some of the early patents were assigned to Stanford University.

[148] *See* U.S. Patent No. 7,778,872 (filed Mar. 29, 2002); U.S. Patent No. 8,078,494 (filed Jul. 6, 2010).

[149] *Number of patents in the United States granted to Alphabet Inc. from 2010 to 2024*, STATISTA (Nov. 28, 2025) https://www.statista.com/statistics/897763/alphabet-inc-patents-usa-registered/ [https://perma.cc/VXJ5-AL5U]; *see also* McIntosh, *supra* note 145, at 190.

law, patent law does not recognize a fair use regime.[150] Even essential patents and related licensing conditions generally hinge on voluntary agreements.[151] Mandated antitrust-based limitations on patents have remained extremely rare.[152]

Beyond protecting core features, patent law enables platforms to control network boundaries and information flows. Application Programming Interfaces (APIs), which enable different software systems to communicate and share data, are essential for interoperability between networks. While API interfaces themselves rarely qualify for patent protection, platforms can restrict competitors' implementation of functions necessary for network interconnection—from data processing methods to algorithmic techniques.[153]

In contrast, copyright law currently plays only a subordinate role in network enclosure,[154] as the Supreme Court has recognized fair use protections for third-party use of source code in programming APIs.[155] This recognition is crucial for enabling interoperability, even when platforms have strong incentives to keep their networks proprietary.[156] After all, many key innovations—from the development of PCs, to cross-platform file transfers between Apple and PC, and most importantly, the emergence of the internet—would have been

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[150] Katherine J. Strandburg, *Patent Fair Use 2.0 Bend or Break - The Patent System in Crisis*, 1 UC IRVINE L. REV. 265, 266 (2011); Henry E. Smith, *Semicommons in Fluid Resources*, 20 MARQ. INTELL. PROP. L. REV. 209–10 (characterizing fair use as establishing a semicommons).

[151] Guggenberger, *supra* note 112, at 308–09; Herbert Hovenkamp, *FRAND and Antitrust*, 105 CORN. L. REV. 1683, 1684 (2020); A. Douglas Melamed & Carl Shapiro, *How Antitrust Law Can Make FRAND Commitments More Effective Collection: Unlocking Antitrust Enforcement*, 127 YALE L.J. 2110, 2117–18 (2018).

[152] Menell, *supra* note 145, at 304–06.

[153] *See* U.S. Patent No. 5,960,411 (filed Sep. 12, 1997) (method for one-click purchasing); U.S. Patent No. 8,255,526 (filed Nov. 20, 2009) (social graph modeling); U.S. Patent No. 5,933,811 (filed Aug. 20, 1996) (targeted ad delivery); U.S. Patent No. 10,425,386 (filed May 10, 2017) (API access control in multi-tenant systems); *see also id.* at 316–19 (delineating the parsimony and proportionality principles).

[154] Cohen, *supra* note 17, at 156.

[155] Google LLC v. Oracle Am., Inc., 593 U.S. 1, 26–40 (2021).

[156] Mark A. Lemley & Pamela Samuelson, *Interfaces and Interoperability After Google v. Oracle*, 100 TEX. L. REV. 1, 45 (2021); *see also* Lemley & McGowan, *supra* note 12, at 533–34; Menell, *supra* note 145, at 225 ("Control of interface specifications and other network features of computer technologies through intellectual property protection has become the key to market dominance in a growing number of important Information Age markets.").

unthinkable without permissionless or "adversarial interoperability."[157] Yet the legal footing of this principle remains precarious.[158] By sidestepping the question of whether API source code is copyrightable, the Court effectively reduced interoperability to a case-by-case assessment of fair use.[159] Forum shopping could bring future disputes before the Federal Circuit, which has previously sided with parties asserting copyright claims.[160] And even when such claims ultimately fail on doctrinal grounds, the fair use standard still enables platforms to impose substantial litigation costs on those seeking interconnection.[161] Moreover, trade secrecy protection remains an option for controlling APIs and preventing interoperability.

Finally, platforms operate on source code and rely on algorithms to organize their vast networks. These inner mechanics plausibly constitute trade secrets,[162] rendering any unauthorized disclosure a criminal offense.[163] Beyond directly enclosing information, trade secret protections yield spillover effects on labor markets. The broader the legal protections for secrecy, the less potential there is for knowledge exchange via employee turnover. Patent, trade secrecy, and, to some extent, copyright protections insulate platforms from interference with their core functionalities and lend their control over networks durability.

3. Privacy and Data Protection

Misguided privacy and data protection frameworks create a third layer of legal fencing around platform networks. This occurs in two steps. The first involves the link these frameworks create between an individual and data about that individual. Both the United States and EU privacy regimes center on notions of individual control, operationalized through functionally ineffective regulatory

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[157] Cory Doctorow, *Interoperability: Fix the Internet, Not the Tech Companies*, ELECTRONIC FRONTIER FOUNDATION (Jul. 11, 2019), https://www.eff.org/deeplinks/2019/07/interoperability-fix-internet-not-tech-companies [https://perma.cc/W5QC-952G] (coining the term "adversarial interoperability"); Lemley & Samuelson, *supra* note 156, at 45–48 (detailing the history of interoperability's contributions to major innovation).

[158] *See* Lemley & Samuelson, *supra* note 156, at 2, 42–44.

[159] *Id.*

[160] *Id.*

[161] *Id.*

[162] WeRide Corp. v. Kun Huang, 379 F. Supp. 3d 834, 842–47 (N.D. Cal. 2019); *see also* Matt Stieb, *Facebook's Ad Algorithm Discriminates Even When It's Not Told To, Study Finds*, INTELLIGENCER (Apr. 5, 2019), https://nymag.com/intelligencer/2019/04/facebooks-ad-algorithm-is-a-fully-functional-racism-machine.html [https://perma.cc/S475-T493].

[163] 18 U.S.C. § 1832.

mechanisms of choice or consent, complemented by general privacy torts.[164] Depending on the jurisdiction, these control rights are protected by property, liability, or inalienability rules under the Calabresi-Melamed framework.[165] Rightly foregrounding the significance of privacy's "relational entitlement to exclude," Lauren Scholz suggests classifying privacy rights generally as quasi-property.[166] This first step alone, however, does not grant platforms property-like entitlements. On the contrary, it creates property-like entitlements for individuals against platforms.

In a second step, however, platforms can assume these entitlements through individuals' continued use (under the United States notice and choice framework), informed consent (under sector-specific United States laws and the European General Data Protection Regulation), or other justifications.[167] Platforms then become privy to the link between the individual and the data about them. Whether one considers this doctrinally as a transfer of the entitlement, a license, or a momentary permission, the platform is now within the exclusive zone. Others—especially competitors—remain outside; control-based privacy frameworks continue to impose a duty on them to exclude themselves from the data relation. As a result, platforms gain a legally protected quasi-property-like position themselves, which encloses data within their networks.

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[164] Neil Richards & Woodrow Hartzog, *The Pathologies of Digital Consent*, 96 WASH. U. L. REV. 1461, 1464 n.9, 1472, 1499–1500 (2019); Neil Richards & Woodrow Hartzog, *Taking Trust Seriously in Privacy Law*, 19 STAN. TECH. L. REV. 431, 444 (2016); Daniel J. Solove & Woodrow Hartzog, *The FTC and the New Common Law of Privacy*, 114 COLUM. L. REV. 583, 590–95 (2014); Daniel J. Solove, *Introduction: Privacy Self-Management and the Consent Dilemma*, 126 HARV. L. REV. 1880, 1883 (2013).

[165] *See* Calabresi & Melamed, *supra* note 94, at 1090, 1092–93, 1111–15 (stressing the importance of the actual enforcement); Guggenberger, *supra* note 122, at 385–86.

[166] Lauren Henry Scholz, *Privacy as Quasi-Property*, 101 IOWA L. REV. 1113, 1115 (2016). *See also* Paul M. Schwartz, *Property, Privacy, and Personal Data*, 117 HARV. L. REV. 2056, 2069–76, 2090–116 (2004). *See generally* Salomé Viljoen, *A Relational Theory of Data Governance*, 131 YALE L.J. 573, 603–16 (2021) (delineating data's relational dimension).

[167] For the legal bases for data processing in the EU, see Regulation 2016/679, of the European Parliament and of the Council, art. 6(1), 2016 O.J. (L 119) 1.

4. Trespass and Anti-Hacking Laws

Trespass law has traditionally protected physical spaces from unlawful intrusion, recognizing the home as a person's "castle and fortress."[168] Functionally, trespass embodies property's exclusion strategy more than any other doctrine—it is, quite literally, the legal mechanism that tells others to stay off one's lawn. With the rise of the internet, this principle has been extended into the digital realm. While the extent of the doctrine's adoption online has remained contested, the basic principle "get off my lawn" became "get off my platform."

However, common law trespass does not act alone. Statutory anti-hacking laws complement and expand it. The Computer Fraud and Abuse Act (CFAA), originally passed in 1986, prohibits "intentionally access[ing] a computer without authorization or exceed[ing] authorized access, and thereby obtain[ing] . . . information from any protected computer."[169] Anti-hacking laws in all fifty states provide similar protections.[170] Hacking into a computer system or network of computers and gaining relevant information constitutes a crime.[171] The law works as a deterrent, complementing firewalls and other technical means employed by owners and operators of computer systems to secure their information.[172] Yet the law reaches far beyond preventing hackers from accessing information; it effectively establishes a property-like regime.[173]

Based on the CFAA's core function to prevent unauthorized access, Orin Kerr argues that trespass norms, which generally protect real property, should and inevitably do define the law's reach.[174] The unilateral power to exclude others or specify the conditions under which they are welcome provides the

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[168] Semayne's Case (1604) 77 Eng. Rep. 194, 198 (KB) (holding "[t]hat the house of every one is to him as his castle and fortress, as well for his defence against injury and violence, as for his repose").

[169] 18 U.S.C. § 1030(a)(2)(C).

[170] Orin S. Kerr, *Norms of Computer Trespass*, 116 COLUM. L. REV. 1143, 1144 (2016).

[171] 18 U.S.C. §1030(a)(2).

[172] Kadri, *Digital Gatekeepers*, *supra* note 17, at 958 (emphasizing the deterrent function in the legislative history).

[173] *Id.* at 954–55; Kadri, *Platforms as Blackacres*, *supra* note 17.

[174] Kerr, *supra* note 170, at 1153–61; Orin S. Kerr, *Trespass, Not Fraud: The Need for New Sentencing Guidelines in CFAA Cases*, 84 GEO. WASH. L. REV. 1544, 1554–56 (2016) (identifying two kinds of protected goods: confidentiality of data and the integrity of data); Orin S. Kerr, *Cybercrime's Scope Interpreting "Access" And "Authorization" in Computer Misuse Statutes*, 78 N.Y.U L. REV. 1596, 1605–07, 1617–19 (2003) (observing substantive parallels and identifying trespass terminology in state laws).

basis for this analogy.[175] Drawing from work by Jennifer Granick and James Grimmelmann on the concept of authorization,[176] Thomas Kadri expounds the central role of the operators' sovereignty over their virtual environment.[177] "It's all about consent," Kadri explains.[178]

That said, the CFAA's reach is in flux. In *hiQ Labs v. LinkedIn*, the Ninth Circuit grappled with the question of whether LinkedIn could prevent hiQ Labs from scraping otherwise publicly accessible information to conduct market analyses.[179] In a departure from earlier jurisprudence, the court prevented LinkedIn from restricting hiQ Labs' access to the professional network's publicly displayed user profiles.[180] The Supreme Court vacated and remanded the case "for further consideration in light of *Van Buren*,"[181] in which the Court held that "an individual 'exceeds authorized access' [only] when he accesse[d] a computer with authorization but then obtain[ed] information located in particular areas of the computer . . . that are off limits to him."[182] Merely exceeding permissible limits on the purposes for obtaining information is not criminally sanctioned at the federal level.[183] Effectively, the Court established a "gates-up-or-down approach."[184]

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[175] Kerr, *supra* note 170, at 1153 ("The Internet has its own kind of trespass law that closely resembles its physical-world cousin. In cyberspace, the relevant law is found in computer misuse statutes such as the CFAA. The CFAA and its state equivalents ban unauthorized access to a computer. At a broad level, the purpose of those statutes is easy to describe: Unauthorized access statutes are computer trespass statutes.") (footnotes omitted).

[176] Jennifer Granick, *Towards Learning from Losing Aaron Swartz*, CTR. FOR INTERNET & SOC'Y AT STAN. L. SCH. (Jan. 14, 2013), http://cyberlaw.stanford.edu/blog/2013/01/towards-learning-losing-aaron-swartz [https://perma.cc/9TYR-THRF] (observing that access control is in the "eye of the beholder"); James Grimmelmann, *Consenting to Computer Use*, 84 GEO. WASH. L. REV. 1500, 1501 (2016) ("The issue is not whether X is allowed, but whether X is allowed by *the computer's owner*.").

[177] Kadri, *Digital Gatekeepers*, *supra* note 17, at 960–61.

[178] *Id.* at 961–62.

[179] hiQ Labs, Inc. v. LinkedIn Corp., 938 F.3d 985, 989 (9th Cir. 2019).

[180] *Id.* at 1004–05; *see* Kadri, *Digital Gatekeepers*, *supra* note 17, at 954.

[181] LinkedIn Corp. v. hiQ Labs, Inc., 141 S. Ct. 2752 (2021) (mem.).

[182] Van Buren v. United States, 593 U.S. 374, 396 (2021). hiQ Labs, Inc. and LinkedIn Corp. eventually reached a settlement, prohibiting hiQ from scraping LinkedIn's content in violation of the platform's terms of service, hiQ Labs, Inc. v. LinkedIn Corp., No. 3:17-cv-03301, ECF No. 406 (N.D. Cal. Dec. 8, 2022).

[183] Van Buren, 593 U.S. at 390–91.

[184] Id.

Even as the Court has limited platforms' ability to govern their networks via the CFAA, anti-hacking laws will likely continue to play a significant role in converting platforms into properties or "blackacres."[185] First, it remains unclear what exactly courts count as publicly accessible websites. Second, platforms may still be able to exclude entire groups, such as researchers or competitors, based on their identity rather than their conduct. Third, the recent controversy focused on scraping for analytical purposes, rather than real adversarial interoperability by horizontal competitors[186]—the central question defining the extent to which competitors have access to incumbents' "data silos."[187] Fourth, common law trespass claims may attract renewed attention where the CFAA recedes.[188] Finally, and arguably most consequentially, *Van Buren*'s doctrinal constraints apply only to federal anti-hacking laws.[189] Declining to extend *Van Buren*'s logic, courts have already construed state anti-hacking statutes to include conduct that merely exceeds permissible purposes.[190] Thus, even after *Van Buren*, the CFAA remains a powerful reinforcement of networks' legal enclosure. And where the CFAA recedes, terms of service can easily expand further.

5. Intermediary Liability Shield

Communication platforms, which constitute a substantial portion of all online platforms—and a disproportionate share of monopolistic ones—benefit from a liability shield for third-party-generated content. Under ordinary defamation or privacy law principles, platforms that exercise editorial control by organizing, filtering, or moderating third-party content may face liability for publishing or distributing infringing material. Although nominally a mere liability modification to encourage content moderation, Section 230 of the Communications Act categorically insulates platforms from these claims,[191]

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[185] Kadri, Platforms as Blackacres, supra note 17.

[186] See discussion infra Section III.B.2.

[187] Kadri, Digital Gatekeepers, supra note 16, at 971–74.

[188] See eBay, Inc. v. Bidder's Edge, Inc., 100 F. Supp. 2d 1058, 1067, 1069–70 (N.D. Cal. 2000); Kerr, supra note 169, at 1149 n.23. But see also Best Carpet Values, Inc. v. Google LLC, 90 F.4th 962, 967–970 (9th Cir. 2024) ("hold[ing] that there is no cognizable property interest in website copies that may serve as the basis for a trespass to chattels claim under California law").

[189] Commonwealth v. Derr, 293 A.3d 671, 679 (Pa. Super. Ct. 2023).

[190] Id.

[191] 47 U.S.C. § 230(c)(1) stipulates that interactive computer services shall not be considered as the publisher or speaker of user generated content; 47 U.S.C. § 230(c)(2) provides a safe harbor against any liability for content moderation.

effectively establishing yet another property-like entitlement protected by a property rule.[192]

Consider two perspectives illustrating Section 230's propertizing function. First, Section 230 enables unfettered internal governance without constraints imposed by liability for hosted content.[193] Effectively, this decoupling of domains from their environment constitutes an extreme version of the exclusion strategy—one that ignores centuries of precedent constraining nuisances emitted from a property into the public.[194] Drawing on Roman legal principles, Renaissance-era English jurisprudence and legal commentary had already formalized the law of nuisance.[195] In 1610, *Aldred's Case* provided the now canonical articulation of the doctrine of *sic utere tuo ut alienum non laedas* ("use your own [property] without injuring another").[196]

These limitations on the use of property had become necessary to preserve the value of other properties, especially as tensions among competing land uses heightened in the wake of early urbanization and nascent industrialization.[197] American courts readily adopted the basic logic of nuisance law and applied it to both tangible and intangible emissions. By and large, courts on both sides of the Atlantic then gradually modified the doctrine to balance the societal value

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[192] See Calabresi & Melamed, supra note 94, at 1092; Cohen, supra note 17, at 163–64.

[193] Kate Klonick, The New Governors: The People, Rules, and Processes Governing Online Speech, 131 HARV. L. REV. 1598, 1604–09 (2018) (identifying Section 230 as a central element of platform self-governance).

[194] Rebecca Tushnet, Power Without Responsibility: Intermediaries and the First Amendment, 76 GEO. WASH. L. REV. 986, 988 (2008) (observing that "intermediaries possess power over individual speakers, but they have no corresponding responsibility").

[195] See, e.g., Daniel Coquillette, Mosses From an Old Manse: Another Look at Some Historic Property Cases About the Environment, 64 CORN. L. REV. 761, 766–76, 780–81 (1979); Noga Morag-Levine, The Case of Proclamations (1610), Aldred's Case (1610), and the Origins of the Sic Utere/Salus Populi Antithesis, 40 L. & HIST. REV. 383, 405–06 (2022); Elmer E. Smead, Sic Utere Tuo Ut Alienum Non Laedas A Basis of the State Police Power, 21 CORN. L. REV. 276, 276–80 (1936).

[196] Aldred's Case (1610) 9 Co. Rep. 57b, 59a, 77 Eng. Rep. 816, 821 (KB); JOHN BAKER, INTRODUCTION TO ENGLISH LEGAL HISTORY 455 (5th ed. 2019); Coquillette, *supra* note 195, at 773–76; *see also* Morag-Levine, *supra* note 195, at 383, 403, 405–06 (providing the cited translation and recounting the doctrine's history); Smead, *supra* note 195, at 276–80. *But see also* Oliver Wendell Holmes, *Privilege, Malice, and Intent*, 8 HARV. L. REV. 1, 3 (1894) (criticizing the doctrine "as hollow deductions from empty general propositions").

[197] Cohen, *supra* note 2, at 21 ("To permit anyone to do absolutely what he likes with his property in creating noise, smells, or danger of fire, would be to make property in general valueless."); Coquillette, *supra* note 195, at 764.

of the contested activity against the resulting harm to the plaintiff before granting relief.[198] Some, however, have upheld the traditional approach.[199]

Breaking not only with principles of publisher and distributor liability, but also with the basic logic of nuisance law's limitations on exclusive governance,[200] Section 230 completely eliminated any liability of platforms, whether in the form of injunctive relief or damages. From this perspective, the Communications Act expanded others' duty to exclude themselves, even in the face of potential significant harm. This turns platforms into "lords" of their networks.[201]

Second, applying the Calabresi-Melamed framework, distinguishing between property, liability, and inalienability rules further illuminates Section 230's propertizing function. Recall that the liability shield protects against injunctions without compensation. This corresponds to rule three in the framework.[202] It grants platforms an "entitlement [to pollute] protected by a property rule, for only by buying [them] out at [their] price can [harmed parties] end the pollution."[203] Pollution in this analogy stands for the spread of defamation and privacy violations, among others.[204] Although property may be protected by any type of rule, where a property rule protects an entitlement, this entitlement logically exhibits some property-like characteristics. Both perspectives demonstrate that Section 230 constitutes a fifth layer of property-like insulation, imposing far-reaching duties on others to exclude themselves from platforms' networks.

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[198] MERRILL ET AL., *supra* note 56, at 948–49; Guido Calabresi, *Some Thoughts on Risk Distributions and the Law of Torts*, 70 YALE L.J. 499, 534–37 (1961); Coquillette, *supra* note 195, at 782–99; Danielle D'Onfro, *Companies as Commodities*, 48 FLA. ST. U. L. REV. 1, 44–46 (2020); Robert Ellickson, *Alternatives to Zoning: Covenants, Nuisance Rules, and Fines as Land Use Controls*, 40 U. CHI. L. REV. 681, 720–22 (1973).

[199] MERRILL ET AL., *supra* note 56, at 948–49.

[200] Crucially, *sic utere* governs private nuisance, requiring an injury to real property; public nuisance demands a showing of special damages. *See id.*

[201] Lindsay Jones & Tim Samples, *On the Systemic Importance of Digital Platforms*, 25 U. PA. J. BUS. L. 141, 177–80 (2023).

[202] Calabresi & Melamed, *supra* note 94, at 1092, 1116.

[203] *Id.* at 1116.

[204] *See* Omri Ben-Shahar, *Data Pollution*, 11 J. LEG. ANALYSIS 104, 105 (2019) (characterizing "data emissions" as pollution); A. Michael Froomkin, *Regulating Mass Surveillance as Privacy Pollution: Learning from Environmental Impact Statements*, 2015 U. ILL. L. REV. 1713, 1742–45 (2015).

B. Constructing Demsetzian Platforms

The five layers of network enclosure construct what this Article terms "Demsetzian platforms"—organizational entities optimized to capture spillover benefits from network participation.[205] The various entitlements constructing these platforms perfectly satisfy Demsetz's conditions for the formation of property rights: enormous network externalities can be internalized while boundary enforcement costs remain minimal. Crucially, the legal framework does not just regulate platforms; it defines their existence as entities structured around network control.

This conceptualization of platforms' legal construction builds on Sanjukta Paul's insight that allocated coordination rights shape firms' boundaries.[206] In her article challenging Ronald Coase's transaction cost analysis,[207] Paul demonstrates that antitrust law, rather than merely transaction-cost efficiency, drives the nature of the firm by selectively permitting some individuals (inside the firm) to cooperate while forcing others (outside the firm) to compete.[208] Her analysis shows how selective permission for coordination distributes power.

A comparable mechanism is at work in digital networks. Just as antitrust law creates firms by selectively permitting internal coordination while requiring external competition, network enclosure constructs organizational entities by enabling internal aggregation of network effects while establishing duties for users and competitors to exclude themselves. Outsiders can participate in networks and reap the network utility only with platforms' consent. Effectively,

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[205] *See* Marshall W. Van Alstyne, Geoffrey G. Parker & Sangeet Paul Choudary, *Pipelines, Platforms, and the New Rules of Strategy*, HARV. BUS. REV. Apr. 2016, at 54, 57–58; Bietti, *supra* note 20, at 169 (identifying platforms as "actively constructed political spaces, shaped by politics and state law"); Cohen, *supra* note 17, at 143–45, 153–75 (observing that "[p]latforms represent infrastructure-based strategies for introducing friction into networks" and emphasizing the role of entitlements). The argument resembles aspects of the network neutrality debate at the internet service provider-level, see Frischmann & Lemley, *supra* note 20, at 295–98.

[206] Paul, *supra* note 15.

[207] Ronald H. Coase, *The Nature of the Firm*, 4 ECONOMICA 386, 388 (1937) (explaining the boundaries of firms by reference to differences in transaction costs within firms and in markets).

[208] Paul, *supra* note 15, at 388, 401–09.

the economic internalization of (positive) network effects creates the organizational entities we know as digital platforms.[209]

The five layers of network enclosure work cumulatively to create unprecedented conditions for internalization. While each layer contributes individually to exclusion, their combined impact exceeds the sum of their parts. The internalization effect compounds across layers: terms of service establish comprehensive governance frameworks; intellectual property and trade secret protections add durability to core features;[210] anti-hacking laws provide criminal enforcement; privacy regimes establish tradeable data entitlements; and Section 230 removes most external restraints on internal governance. Together, these property-like entitlements create the legal conditions for platforms to capture network externalities.

This multifaceted legal architecture enables Demsetzian platforms to internalize network externalities comprehensively. Unlike the original Demsetzian example—hunting grounds for fur-bearing animals[211]—where externalities were singular and unidirectional, digital network externalities emerge from complex interactions between users, developers, advertisers, and content creators. Each relationship generates different types of spillover value: social connections create engagement externalities, data aggregation produces algorithmic improvements, and content creation generates advertising value. The five-layer framework captures all these diverse value streams simultaneously, enabling platforms to achieve levels of internalization that would have been impossible under any single legal mechanism.

Platforms' property-like entitlements maximize internalization through deliberate structural design choices. First, legislators and courts have consistently chosen property rules over liability rules across all five layers of enclosure, enabling platforms to exclude others completely rather than merely

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[209] To be clear, rights to exclude can drive property value significantly, even without network effects, see Jonathan Klick & Gideon Parchomovsky, *The Value of the Right to Exclude: An Empirical Assessment*, 165 U. PA. L. REV. 917, 945–65 (2017).

[210] *See* Lemley & McGowan, *supra* note 12, at 603 ("Intellectual property law demonstrates an even greater relationship between legal doctrine and network effects. In a fundamental sense, the structure of intellectual property law determines the strength of network effects in a number of markets. Certainly, proprietary ownership of de facto standards in the computer industry is an artifact of intellectual property law.").

[211] Demsetz, *supra* note 5, at 350–53.

collecting damages for unauthorized use.[212] Even violations of platforms' terms of service—that is, contract breaches—routinely support injunctive relief rather than mere monetary damages as would be typical in contract law.[213] Second, the frameworks emphasize exclusivity over governance-based approaches, creating broad zones of corporate control rather than granular permissions and prohibitions of specific uses. Finally, legal institutions have systematically avoided limiting the extraction of network value—for example, by imposing interoperability requirements or mandating access obligations.[214] Together, these property design choices create the comprehensive exclusion necessary for platforms' unprecedented levels of externality internalization.

To be clear, despite all this, platforms' property-like entitlements do not internalize all externalities. Indeed, one layer—Section 230—deliberately protects against the internalization of negative externalities arising from user-generated content, such as defamation and harassment. No doubt, these externalities could be internalized.[215] And platforms would even be the least-cost avoiders.[216] However, this selective approach is perfectly compatible with Demsetzian logic: internalize externalities where benefits exceed costs, externalize externalities where enforcement would be cost-prohibitive.

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[212] Where platform commons like Wikipedia have emerged, they rely on the same exclusionary framework, while voluntarily choosing to open access to their content. *See* Yochai Benkler, *Coase's Penguin, or, Linux and The Nature of the Firm*, 112 YALE L.J. 369, 446 (2000) (referring to this technique as "institutional jiujitsu"); David McGowan, *Legal Implications of Open-Source Software*, 2001 U. ILL. L. REV. 241, 287–88 (2001) (emphasizing the need for exclusion).

[213] Injunctions are a form of equitable relief that is typically only available to the extent monetary damages prove insufficient. *See, e.g.*, hiQ Labs, Inc. v. LinkedIn Corp., No. 3:17-cv-03301, ECF No. 406 (N.D. Cal. Dec. 8, 2022).

[214] *But see*, *e.g.*, Regulation 2022/1925 of the European Parliament and of the Council (Digital Markets Act), art. 6(7), 2022 O.J. (L 265) 1 (EU).

[215] A small subset of these harms is internalized—notably through carve-outs from Section 230 immunity, like FOSTA-SESTA, or specific types of statutory liability like the Take IT Down Act. *See* Jess Miers, *A Takedown of the Take It Down Act*, TECHN. & MKTG. L. BLOG (Jun. 5, 2025), https://blog.ericgoldman.org/archives/2025/06/a-takedown-of-the-take-it-down-act.htm [https://perma.cc/7BZC-GW8G] (delineating and criticizing the reach of the Take It Down Act). Traditional publisher and distributor liability, for example, would internalize significantly more externalities.

[216] *See* GUIDO CALABRESI, THE COSTS OF ACCIDENTS 135–73 (1970) (observing that "[a] pure market approach to primary accident cost avoidance would require allocation of accident costs to those acts . . . which could avoid the accident costs most cheaply"); *see also* Calabresi, *supra* note 198, at 505–07 (arguing that "the proper party to bear the risk is the party whose insurance costs are lower").

Platforms would need to pre-screen all content or abandon curation altogether to avoid uncapped liability for defamation and privacy violations. The former would insert significant friction into communicative processes; the latter would render platforms useless.[217] In this sense, Section 230 represents strategic boundary-drawing that further optimizes internalization—capturing network value while avoiding the costs of comprehensive content liability.[218] Externalities that remain entirely unaddressed confirm rather than the Demsetzian logic underlying platform construction, even where the result is reduced overall social welfare. In this category fall broad negative social effects, like misinformation or institutional deterioration, or widespread spillovers that are challenging to define, like non-participants' fear of missing out.[219] The necessary boundary-drawing would be impossible or cost-prohibitive.

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As the previous sections have shown, five layers of legal protection create comprehensive duties for non-owners to exclude themselves from digital networks. These layered entitlements carve out domains of exclusive control, propertizing networks in a manner similar to the legal enclosure of common

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[217] *See* Mark A. Lemley, *The Contradictions of Platform Regulation*, 1 J. FREE SPEECH L. 303, 308–09 n.22, 325 (2021) ("Any proposal to apply the First Amendment to platforms should probably be called the Mandate Online Receipt of Extreme Pornography (MORE PORN) Act, because if it passed, platforms like Facebook and Twitter would be forced to allow anyone to post or send pornography that wasn't legally obscene").

[218] *See* P. S. Atiyah, *Liability for Railway Nuisance in the English Common Law: A Historical Footnote*, 23 J.L. & ECON. 191, 195–96 (1980) (observing that common law nuisance claims against railways were statutorily barred for analogous reasons).

[219] *See* Leonardo Bursztyn et al., *When Product Markets Become Collective Traps: The Case of Social Media*, 115 Am. Econ. Rev. 4105, 4105–4106 (2025) ("[T]he size of the network may also affect the utility of potential nonusers. Such externalities to nonusers can be driven by mechanisms such as social exclusion or a fear of missing out (FOMO). As the total number of platform users increases, marginal users may participate because they want to avoid the negative externalities imposed on nonusers but may still have negative overall utility from the platform's existence . . . Negative nonuser utility can . . . give rise to *product market traps*: a situation similar to a Prisoner's Dilemma where some users would prefer the product not to exist, yet they find it optimal to consume it. In such traps, some users' utility is negative but would have been even more negative had they not used the product, which is why they continue using it. Such traps can arise from social forces even with fully rational expectations and without behavioral frictions, such as a lack of self-control and naïveté . . . Our main finding is that 60 percent and 46 percent of active TikTok and Instagram users in our sample, respectively, have positive willingness to pay (WTP) to have others, including themselves, deactivate TikTok and Instagram, respectively . . . Users have an average WTP, rather than a willingness to accept, of $24 and $6 to have others, including themselves, deactivate TikTok and Instagram, respectively.") (citations omitted); Jones & Samples, *supra* note 201, at 180–93; Andrew K. Przybylski et al., *Motivational, Emotional, and Behavioral Correlates of Fear of Missing Out*, 29 COMPUTS. IN HUM. BEHAV. 1841, 1846–47 (2013).

meadows in England some 500 years ago.[220] Following the long tradition of "coding capital,"[221] network enclosure internalizes network externalities and allocates the value of network effects to individual platforms, excelling at one essential function of property logic.

CONFRONTING THE PARADOX

Network enclosure, not network effects alone, facilitates industrial concentration online.[222] Consider the English language. It creates enormous network effects by enabling communication among roughly 1.5 billion speakers.[223] Yet no single entity controls access to or extracts the network's value. The difference: English remains an open standard.[224] Digital networks, by contrast, have been enclosed.

As Part II has illustrated, network enclosures successfully internalize network externalities. Yet this very success creates a paradox. When internalization works too well, it facilitates market concentration, which systematically undermines property's other essential functions of promoting liberty and modularity. This Part demonstrates why network enclosures fuel platform monopolies, reveals how concentration systematically undermines modularity and liberty, suggests reforms that reconcile property's functions,

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[220] *See* PISTOR, *supra* note 20, at 29–33 (describing the transformation of common land into private property and marketable commodities); Boyle, *supra* note 18, at 33–52 (focusing on intellectual property and pointing out that "'the enclosure movement' . . . was actually a series of enclosures that started in the fifteenth century and went on, with differing means, ends, and varieties of state involvement, until the nineteenth century"). *See generally* J. A. YELLING, COMMON FIELD AND ENCLOSURE IN ENGLAND, 1450–1850 (1977) (describing the English enclosure movement as a long iterative process with setbacks); Smith, *Semicommon Property Rights and Scattering in the Open Fields*, *supra* note 31, at 134–44 (identifying English open fields as semicommons); Grimmelmann, *supra* note 12, at 2817–22 (delineating the internet as an example of well-calibrated semicommons).

[221] *See* PISTOR, *supra* note 20, at Preface ("This book tells the story of the legal coding of capital.").

[222] Lemley & McGowan, *supra* note 12, at 489–91, 602–06 (observing that the mere existence of network effects is not outcome-determinative). *See generally* Sandeep Vaheesan, *The Profound Nonsense of Consumer Welfare Antitrust*, 64 ANTITRUST BULL. 479, 487–88 (2019) (critiquing presumptions of naturalization of the market in antitrust law).

[223] GREWAL, *supra* note 111, at 21–25 (identifying language as a mediating standard); Lessig, *supra* note 111.

[224] *See* Masnick, *supra* note 113; Thomas Merrill & Henry Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1, 48 (2000).

and closes by addressing limitations and trade-offs associated with these reforms.

A. From Network Enclosure to Platform Monopolies

This Section theorizes the exclusion strategy's heightened propensity for monopoly online, demonstrates how platforms' entitlements particularly favor large incumbents over nascent challengers, and shows that democratic oversight has systematically failed to counterbalance property's concentrating tendencies.

1. Property's Propensity for Monopoly

Property and monopoly share core characteristics.[225] Both are inherently exclusive and reflect elements of control and power. Lee Anne Fennell, for instance, describes "the very essence of the fee simple . . . [as] a perpetual spatial monopoly."[226] Others identify property as "only another name for monopoly."[227] Yet despite these similarities, individual property rights rarely translate into market-level monopolies.[228] The reason is simple: if I must exclude myself from my neighbor's bike, I can use one of the roughly 120 million remaining bikes in the United States.[229] Put differently, the objects of property rights are usually substitutable.[230] This holds generally even for intellectual property.[231]

Network effects, however, fundamentally alter this dynamic. Unlike traditional property, which internalizes relatively fixed externalities—enjoying planted crops, for example—network externalities grow almost exponentially with network size. As Bell Telephone Laboratories researchers demonstrated in

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[225] *See* Fennell, *supra* note 11, at 1466–79; Thomas Merrill, *The Property Strategy*, 160 U. PA. L. REV. 2061, 2090 (2012); Posner & Weyl, *supra* note 11, at 60–70; Wyman, *supra* note 11, at 25–38; *see also* Rose, *supra* note 90, at 749–61 (identifying holdout and monopoly problems as potential consequences of privatization).

[226] Fennell, *supra* note 11, at 1472.

[227] Posner & Weyl, *supra* note 11. *But see* Wyman, *supra* note 11, at 25–33.

[228] Merrill, *supra* note 225, at 2090.

[229] Rhys Smith, *Cycling Statistics*, RUNREPEAT (Aug. 22, 2023), https://runrepeat.com/cycling-statistics [https://perma.cc/3B8M-4VJH].

[230] *See* Merrill, *supra* note 225, at 2090.

[231] Mark A. Lemley, *Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1066 (1997).

the 1970s, network utility depends on desired, reachable connections between participants.[232] Later work distinguished two key mechanisms.[233] Networks with a single class of participants produce "direct" network effects, as in messaging services where utility depends on total users. Networks with complementary participants create "indirect" network effects, forming multi-sided markets where, for example, buyers care about the presence of sellers and *vice versa*.[234] This dynamic dramatically increases the propensity of spatial monopolies to underwrite market monopoly.

The mathematics of network value is striking.[235] Networks can enable $n*(n-1)/2$ direct connections, where n is the number of participants.[236] Accounting for sub-networks—think Facebook with its groups—implies an even steeper function: up to 2^n-n-1 unique subsets of network participants can emerge.[237] To illustrate the enormous scale at issue, a group of just 100 participants theoretically allows for more than one nonillion unique subsets of users—a number with thirty zeros.[238] While other functions estimate flatter utility growth[239] and, regardless, only a tiny fraction of these subsets can ever materialize in practice, that fraction suffices to explain why large networks are enormously more useful and, thus, more valuable than smaller ones.

These basic models of network utility equate increasing network reach with super-linear utility gains, overlooking crucial practical constraints. First, the

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[232] Artle & Averous, *supra* note 13, at 90, 97–99 ("Our result shows that a growth process in the demand for telephones can be explained jointly by the distribution of incomes and the cumulative public-good property inherent in the telephone system."); Rohlfs, *supra* note 13, at 16–17 (observing that "[t]he utility that a subscriber derives from a communications service increases as others join the system" and providing a "much more detailed analysis of the demand side of the market than attempted by Artle and Averous").

[233] Michael L. Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 J. ECON. PERSP. 93, 95–100 (1994). *See also* Lemley & McGowan, *supra* note 11, at 488–95 (identifying actual and virtual network effects, and distinguishing them from mere positive feedback effects).

[234] Rochet & Tirole, *supra* note 19, at 990–94.

[235] *See* Christopher S. Yoo, *Network Effects in Action*, *in* GAI REP. DIGIT. ECON. 159, 162–66 (Joshua D. Wright & Douglas H. Ginsburg eds., 2020).

[236] SHAPIRO & VARIAN, *supra* note 19, at 184 (discussing Metcalfe's Law).

[237] David Reed, *That Sneaky Exponential—Beyond Metcalfe's Law to the Power of Community Building*, CONTEXT MAG. (1999), https://www.deepplum.com/dpr/locus/gfn/reedslaw.html [https://perma.cc/T3YW-TX5H].

[238] Based on the formula 2^N-N-1, as articulated by David Reed. *Id.*

[239] *See* Bob Briscoe et al., *Metcalfe's Law is Wrong—Communications Networks Increase in Value as They Add Members—but by How Much?*, 43 IEEE SPECTR. 34, 38–39 (2006) (building on work in linguistics and approximating the utility of networks at n log [n]).

marginal utility of additional connections decreases at some point because human attention is limited—as is computational power and energy—and unable to sustain infinite connections and interactions with others.[240] Second, network effects can turn negative. Once our attentional capacity is exceeded, additional interactions manifest as information overload and distraction.[241] Networks can also create unwanted connections or expose participants to undesired content. Many people may prefer not to encounter their parents or work colleagues on dating platforms, for example. Such encounters may deter usage and honest self-presentation, undermining the network's core function. Similarly, the presence of misinformation and harassment-spewing participants can reduce utility to others.[242] Third, growing traffic can congest networks, jamming effective communication.[243] The exact limit of a network's increasing marginal utility varies among individual participants and depends on the type of network, the interactions it enables, and its management. Despite these practical limitations, however, networks' utility functions remain astonishingly steep: empirical approximations of Facebook's and Tencent's actual utility, for example, are proportionate to the square of their user base[244]—a fact that profoundly shapes competitive dynamics.

Conventional wisdom in industrial organization holds that network effects drive platform concentration.[245] As Carl Shapiro and Hal Varian summarized, "[n]etwork externalities make it virtually impossible for a small network to thrive," since new networks must overcome "the collective switching costs . . .

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[240] *See* R.I.M. Dunbar, *Neocortex Size as a Constraint on Group Size in Primates*, 22 J. HUM. EVOL. 469, 478–91 (1992); Patrik Lindenfors et al., *'Dunbar's Number' Deconstructed*, 17 BIOLOGY LETTERS 2–3 (2021).

[241] *See* Cal Newport, Digital Minimalism: Choosing a Focused Life in a Noisy World 3–25 (2019).

[242] Guggenberger, *supra* note 112, at 280.

[243] Barbara van Schewick, *Network Neutrality and Quality of Service: What a Nondiscrimination Rule Should Look Like*, 67 STAN. L. REV. 1, 41–43 (2015).

[244] Xing-Zhou Zhang et al., *Tencent and Facebook Data Validate Metcalfe's Law*, 30 J. COMP. SCI. & TECH. 246, 248 (2015) (relying on revenue as a proxy, which necessarily only accounts for the value platforms extract).

[245] *See* Nicholas Economides, *The Economics of Networks*, 14 INT'L J. IND. ORG. 673 (1996); Katz & Shapiro, *supra* note 233; Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424 (1985); Geoffrey G. Parker & Marshall W. Van Alstyne, *Two-Sided Network Effects: A Theory of Information Product Design*, 51 MGMT. SCI. 1494 (2005); Jean-Charles Rochet & Jean Tirole, *Two-Sided Markets: A Progress Report*, 37 RAND J. ECON. 645 (2006); Rochet & Tirole, *supra* note 19; Marc Rysman, *Competition between Networks: A Study of the Market for Yellow Pages*, 71 REV. ECON. STUD. 483 (2004).

of all users."[246] This observation rests on twin dynamics. First, the chicken-egg problem: platforms need users to attract users, and the super-linear relationship between participants and utility creates significant entry barriers for any nascent competitor. Second, users face mirror-image switching costs when leaving an incumbent platform. They would need to give up their existing connections unless users can either migrate their entire social graph—an enormous collective action problem—or multi-home across platforms.

Multi-homing comes with its own constraints, however. Platforms actively discourage it through technical incompatibility and design friction, and, in the case of Apple's app store, for example, it would require an additional Android smartphone.[247] For platforms with indirect network effects, cross-subsidization between market sides further entrenches incumbency.[248]

To be clear, even entirely internalized network externalities do not guarantee (durable) monopoly power. Product differentiation, varying user preferences, and the relative significance of complementary products and services without network effects can sustain competition even in networked industries. Moreover, nascent platforms may bypass network barriers by targeting central nodes, such as celebrities or large-volume sellers, expecting ordinary participants to follow these "hubs."[249] Despite these qualifications, the historical record speaks clearly: today's largest digital platforms have maintained their dominant positions, grounded in internalized network effects, for fifteen to twenty-five years.

Empirical research across industries confirms these dynamics. Researchers have documented "large, significant, and positive" indirect network effects on Taobao.com, Alibaba's consumer marketplace, with seller presence affecting buyer participation far more than the reverse.[250] Historical technology battles

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[246] Shapiro & Varian, *supra* note 19.

[247] *But see In re* Google Play Store Antitrust Litig., 147 F.4th 917, 932–33 (9th Cir. 2025) (affirming injunction mandating access for competing Android app stores).

[248] Geoffrey G. Parker & Marshall W. Van Alstyne, *InterNetwork Externalities and Free Information Goods*, PROC. 2D ACM CONF. ELEC. COM. 107, 107 (2000); Rochet & Tirole, *supra* note 19, at 992, 1014–18.

[249] Raz Agranat & Michal Gal, *Hub Power and Hub(Uses): Power Dynamics in Platform Ecosystems*, 87 ANTITRUST L.J. 327, 344–50 (2026).

[250] Junhong Chu & Puneet Manchanda, *Quantifying Cross and Direct Network Effects in Online Consumer-to-Consumer Platforms*, 35 MKTG. SCI. 870, 883 (2016).

reveal similar patterns: in the format wars, network effects explained 70–86% of the variation in relative sales between VHS and Betamax.[251] According to another estimate, a 10% increase in CD titles had the same impact as a 5% price cut on player adoption.[252] Similar findings span from technological compatibility[253] to advertising-funded platforms,[254] consistently demonstrating how network effects facilitate winner-take-all markets.[255]

However, while well-supported and coherent, these models obscure a crucial institutional detail: they assume the internalization of network externalities, overlooking that only legal enclosure enables this capture in the first place. Network effects do not inherently create monopolies; rather, they amplify property's exclusionary potential and thus propensity for monopoly when platforms control networks. The crucial question is not about the extent of network effects, but who gets to capture their value—a question determined by legal architecture, not technological inevitability. Given the complex and changing nature of networks' layered enclosure,[256] this assumption represents more than a simple logical shortcut. It obscures the centrality of institutions and diminishes the validity of any generalizable conclusions.[257]

When platforms capture network externalities facilitated by legal enclosure, two additional mechanisms intensify the dynamics of concentration. First, digital exclusion, supported by algorithmic enforcement, scales much more efficiently than physical enclosures.[258] This renders effective control and governance relatively cost-effective, even for networks spanning billions of participants. Second, exclusive access creates self-reinforcing data advantages:

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[251] Sangin Park, *Quantitative Analysis of Network Externalities in Competing Technologies: The VCR Case*, 86 REV. ECON. & STAT. 937, 943 (2004).

[252] Neil Gandal et al., *The Dynamics of Technological Adoption in Hardware/Software Systems: The Case of Compact Disc Players*, 31 RAND J. ECON. 43, 53–58 (2000).

[253] Harikesh Nair et al., *Empirical Analysis of Indirect Network Effects in the Market for Personal Digital Assistants*, 2 QUANT. MKTG. & ECON. 23, 47 (2004) ("network advantage factor explains the remaining 22%" of the [log] relative sales of standard compatible PDAs); Hiroshi Ohashi, *The Role of Network Effects in the US VCR Market, 1978-1986*, 12 J. ECON. & MGMT. STRATEGY 447, 463–69 (2003) (explaining the advantage of VHS format over the competing format Beta).

[254] Rysman, *supra* note 245, at 499–504 (showing positive effects of usage on advertising). For a literature review, see Chu & Manchanda, *supra* note 250, at 872.

[255] *See, e.g.*, Autor et al., *supra* note 19, at 648–51.

[256] Yoo, *supra* note 16, at 2212.

[257] *See* Thomas W. Merrill & Henry E. Smith, *What Happened to Property in Law and Economics?*, 111 YALE L.J. 357, 358 (2001).

[258] *See* Ellickson, *supra* note 28, at 1332–34 (delineating the costs of physical boundary-drawing relative to property scale).

proprietary user interactions improve algorithms, which attract more users, generating more data—a feedback loop unavailable to competitors. Google Search exemplifies both dynamics: marginal boundary enforcement costs approach zero while exclusive query data creates insurmountable quality advantages.[259]

2. Entitlements' Entrenchment of Monopoly

Network enclosures do not merely allocate the value of a scaling resource; they systematically entrench incumbent power. While these legal frameworks appear facially neutral, they generate scale-dependent advantages that compound over time. Terms of service exemplify this dynamic. All platforms rely on contractual terms to govern user relationships, but state enforcement of these terms becomes exponentially more valuable with network scale. This creates a widening moat: once platforms achieve scale, the same legal framework that enabled their growth becomes a bulwark against challengers.

A narrow concern about outright anticompetitive provisions—most-favored-nation clauses and anti-steering terms, for example—misses the deeper structural issue: state enforcement itself creates a scalable subsidy in the form of delegated power, regardless of the terms' content.[260] While courts typically emphasize private ordering in contracting, the Supreme Court has occasionally recognized the transformative role of state backing.[261] When platforms achieve sufficient scale, their terms of service functionally cease to be mere individual private agreements and become market-defining standards. State backing of these terms creates a powerful entrenchment mechanism: platforms with large networks can leverage state enforcement power to engage in *de facto* private regulation, while smaller competitors' terms lack the scale to achieve similar market-defining effects.[262]

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[259] *See* United States v. Google LLC, 747 F. Supp. 3d 1, 117–25 (D.D.C. 2024).

[260] *See* KNAPP ET AL., *supra* note 130, at 12; Vaheesan, *supra* note 222, at 485.

[261] *See, e.g.*, Shelley v. Kraemer, 334 U.S. 1, 19 (1948) (distinguishing between discriminatory private agreements and the state's lending of "the full coercive power of government to petitioners, on the basis of race or color, the enjoyment of property rights").

[262] *See* Nachbar, *supra* note 26, at 88–92 (arguing that "the Supreme Court developed . . . a comprehensive understanding of antitrust's role in the constitutional allocation of regulatory

Intellectual property and trade secret protection similarly favor incumbents over challengers.[263] While these protections apply equally in theory, nascent competitors cannot afford litigation against incumbents. This creates asymmetric power: incumbents can use IP claims to limit knowledge exchange and hinder follow-on innovation; startups lack effective tools to prevent the appropriation of their innovation.[264]

The entrenchment runs deeper. Even time-limited intellectual property protection enables platforms to secure decisive advantages during market tipping,[265] making those advantages durable.[266] Google's foundational search patents, though long expired,[267] helped establish network dominance that continues to generate competitive advantages today. Once platforms achieve such dominance through initial IP protection—as with early API decisions granting broad exclusivity over interface code[268]—subsequent legal corrections cannot undo entrenched network advantages.

Privacy and data protection frameworks provide additional scale-dependent advantages. While privacy regulations appear to constrain all platforms equally through consent mandates, transparency obligations, and procedural requirements, they tend to favor those with existing data advantages and compliance resources. As Anita Allen observes, certain privacy policies "could concentrate monopolistic power of existing platforms, as smaller platforms would confront barriers to acquiring the quantities of data needed for competition."[269] This side-effect does not reflect an inherent conflict between privacy and competition, but stems from control-based privacy regimes

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authority . . . : the federal government regulates interstate commerce; state governments regulate intrastate commerce, and private entities may regulate nothing"). *But see* Daniel A. Crane, *The Magna Carta of Free Enterprise' Really?*, 99 IOWA L. REV. BULL. 17 (2013).

[263] *See* McIntosh, *supra* note 145, at 189–91 ("It is only after a company's rise to dominance and wealth that it seeks to bolster its position with intellectual property rights.").

[264] See Jeanne C. Fromer, Machines as the New Oompa-Loompas: Trade Secrecy, the Cloud, Machine Learning, and Automation Symposium, 94 N.Y.U. L. REV. 706, 712 (2019).

[265] Lemley & McGowan, supra note 12, at 603–04. But see McIntosh, supra note 145, at 189–91 ("It is only after a company's rise to dominance and wealth that it seeks to bolster its position with intellectual property rights.").

[266] See HAROLD FELD, CASE FOR THE DIGITAL PLATFORM ACT 25 (Roosevelt Inst. & Pub. Knowledge 2019); Menell, supra note 145, at 225.

[267] See Part II.A.2.

[268] See Oracle Am., Inc. v. Google Inc., 750 F.3d 1339 (Fed. Cir. 2014); Menell, supra note 145, at 318.

[269] Anita L. Allen, Dismantling the "Black Opticon": Privacy, Race, Equity, and Online Data-Protection Reform, YALE L.J. F. 907 (2022).

grounded in property principles with scalable compliance requirements.[270] This entrenchment works through two main mechanisms. First, privacy compliance imposes significant fixed costs, from legal expertise to technical infrastructure, that disproportionately burden smaller platforms while representing only marginal expenses for large incumbents. Second, data protection restrictions limit smaller platforms' ability to scale by acquiring the user data they need to compete with incumbents that already possess vast datasets.

Finally, Section 230 is often celebrated as a vital protection for nascent platforms, shielding them from potentially crippling liability for user-generated content.[271] This narrative obscures the statute's disproportionate benefit to incumbents. Protecting Meta from liability like the $787.5 million *Dominion v. Fox News* settlement,[272] for example, is worth precisely that to Meta. For a startup with a $50 million valuation, the same shield provides far less value: the startup's limited assets already cap its exposure. Moreover, nascent platforms with less reach are less likely to generate harmful content at the scale that triggers massive judgments. Viewed through this lens, Section 230 not only eases market entry, as ordinarily proclaimed, but also preserves the accumulated network wealth of dominant platforms, entrenching their control over digital markets.

3. Democracy's Abdication to Monopoly

Even as network enclosure allocates a scaling resource and entrenches incumbent advantages, industrial concentration is not inevitable. Just as law redistributes wealth and income, it can reallocate and constrain market power. Yet, democratic institutions failed to do so. Rather than counteracting concentration in digital markets, policymakers systematically abdicated this

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[270] *See* Michal Gal, *"Do Our Privacy Laws Strengthen the Already Strong?"*, NETWORK L. REV. (Mar. 9, 2021), https://www.networklawreview.org/gal-privacy-competition/ [https://perma.cc/W8CH-7CNA].

[271] *See, e.g.*, Jeff Kosseff, The Twenty-Six Words that Created the Internet (2019).

[272] David Bauder, Randall Chase & Geoff Mulvihil, *Fox, Dominion Reach $787M Settlement over Election Claims*, AP News (Apr. 18, 2023), https://apnews.com/article/fox-news-dominion-lawsuit-trial-trump-2020-0ac71f75acfacc52ea80b3e747fb0afe [https://perma.cc/Q25E-9AYA].

role. Early internet-specific policy choices from the 1990s continue to cast a long shadow.

"For electronic commerce to flourish, the private sector must lead," the Clinton Administration's Framework for Global Electronic Commerce declared in 1997.[273] The Framework called for a "non-regulatory, market-oriented approach," with government "refrain[ing] from imposing new and unnecessary regulations, bureaucratic procedures, or taxes and tariffs on commercial activities that take place via the internet."[274] Private sector ingenuity and dynamism would propel economic development. While limiting government's role in shaping digital markets, the Administration assigned it an enabling function: providing a legal framework conducive to private innovation.[275]

Conceptually, the Framework reflected the then-dominant Washington Consensus, emphasizing private markets, competition, and open structures for innovation.[276] Where monopoly concerns arose, they focused exclusively on access to telecommunications infrastructure, in particular, "interconnect[ion] with the networks of incumbent telecommunication companies" and "[a]ttaching equipment to the network."[277] In contrast, the Framework largely ignored dysfunction in digital markets, touching mainly on intellectual property protection, privacy, and IT security. Where it did anticipate problems, the Administration favored "private fora to take the lead in areas requiring self-regulation."[278] Notably, the Framework did not address potential market concentration in the application layer, even as modern network theory had been well established by then.

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[273] William J. Clinton & Albert Gore, *The Framework for Global Electronic Commerce*, THE WHITE HOUSE (Jul. 1, 1997), https://clintonwhitehouse4.archives.gov/WH/New/Commerce/ [https://perma.cc/DXU2-G25R]. Some internet evangelists went much further. *See* John Perry Barlow, *A Declaration of the Independence of Cyberspace* (Feb. 8, 1996), https://www.eff.org/cyberspace-independence [https://perma.cc/8KQZ-8DDK] (observing that no government was welcome online, because it lacked the consent of the governed).

[274] Clinton & Gore, *supra* note 273.

[275] *But see* MARIANA MAZZUCATO, THE ENTREPRENEURIAL STATE: DEBUNKING PUBLIC VS. PRIVATE SECTOR MYTHS (2013) (emphasizing the role of state investments and planning in innovation online).

[276] See Boyle, *supra* note 18, at 41, 51; Anupam Chander, *The New, New Property*, 81 TEX. L. REV. 715, 725 (2003) (citing "support for private governance of domain names"); Jay P. Kesan & Rajiv C. Shah, *Fool Us Once Shame on You—Fool Us Twice Shame on Us: What We Can Learn from the Privatizations of the Internet Backbone Network and the Domain Name System*, 79 WASH. U. L.Q. 89, 167–88 (2001) (detailing the privatization of the domain system).

[277] Clinton & Gore, *supra* note 273.

[278] *Id.*

The Framework's faith in private governance extended to technical standards. While the Administration recognized that "standards will be needed to assure reliability, interoperability, ease of use, and scalability," it flatly rejected government involvement, endorsing instead a "non-bureaucratic system of development managed by technical practitioners."[279] This hands-off approach ushered in two decades of regulatory restraint. Internet-specific policy choices intersected with broader institutional failures, most consequentially timid antitrust enforcement.

Antitrust law has failed to counter the concentrating effects of property-like network enclosure. Four features of contemporary antitrust doctrine explain this failure: it systematically embraces monopoly profits as incentives for dynamic innovation, largely tolerates arrangements that extend market power beyond the relevant market, vigorously rejects structural considerations as grounds for enforcement, and shows restraint in merger control.

First, the perception of monopoly profits as a driver of innovation is deeply ingrained in contemporary doctrine. In *Trinko*, the Supreme Court unanimously rejected claims that Verizon violated Section 2 of the Sherman Act by denying competitors access to its infrastructure.[280] In its reasoning, the Court invoked concerns about the administrability of remedies and, most strikingly, celebrated monopoly as "an important element of the free-market system," explaining that "[t]he opportunity to charge monopoly prices—at least for a short period—is what attracts 'business acumen' in the first place."[281] The Court identified a fundamental tension: mandates to share proprietary infrastructure might "lessen the incentive . . . to invest in those economically beneficial facilities."[282] This logic, however, disregards crucial evidence showing how open infrastructure mandates spur follow-on innovation through permissionless experimentation in downstream markets.[283] The Court's exclusive focus on

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[279] Id.

[280] Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 416 (2004); Frank X. Schoen, Exclusionary Conduct after Trinko, 80 N.Y.U. L. REV. 1625, 1634–46 (2005).

[281] Trinko, 540 U.S. at 407.

[282] Id. at 407–08.

[283] See Geoffrey Parker et al., Platform Ecosystems: How Developers Invert the Firm, 41 MIS Q. 255, 256–57 (2017).

speculative links between incentives and innovation[284] overlooks how ecosystems and competitive environments drive innovation.[285] Under this framework, any intervention to redistribute network effects becomes counterproductive.

Second, lax merger control has facilitated rapid growth to monopoly by overemphasizing short-term price effects at the expense of competitive entry and long-term innovation. Facebook's acquisitions of Instagram and WhatsApp exemplify this dynamic. While internal communications revealed CEO Mark Zuckerberg viewed Instagram as building "networks that are competitive with our own,"[286] the FTC closed its investigation without challenge.[287] Merging these networks allowed Facebook to eliminate two promising challengers without competing for their users, while further increasing switching costs. The FTC's later challenge of the acquisitions as monopolization under Section 5 of the FTC Act has thus far been unsuccessful. While the district court acknowledged some of the FTC's concerns regarding the acquisition's initial competitive effects, it found that market conditions had changed, thereby undermining the FTC's market definition, and concluded that Facebook no longer possessed monopoly power.[288] The FTC has appealed,[289] but the outcome remains uncertain. The district court's reasoning illustrates a structural flaw in retrospective merger challenges: even if Meta engaged in anticompetitive conduct at the time of the acquisitions, subsequent market evolution—here, a convergence of features among Facebook, TikTok, and YouTube—can preclude liability.

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[284] Donald F. Turner, *The Scope of Antitrust and Other Economic Regulatory Policies*, 82 HARV. L. REV. 1207, 1216 (1969) (doubting the immediate link between the possibility of future forced divestiture and present competitive efforts).

[285] KETAN AHUJA, INNOVATING ANTITRUST LAW: HOW INNOVATION REALLY HAPPENS AND HOW ANTITRUST LAW SHOULD ADAPT 12–16 (2022), https://rooseveltinstitute.org/publications/innovating-antitrust-law/ [https://perma.cc/Z4YK-XLV9].

[286] Kurt Wagner & Josh Sisco, *Zuckerberg Defends Strategy Behind Instagram, WhatsApp Deals*, BLOOMBERG.COM (Apr. 15, 2025), https://www.bloomberg.com/news/articles/2025-04-15/meta-ceo-zuckerberg-testifies-on-emails-about-instagram-whatsapp-deals [https://perma.cc/PD4T-49Z9].

[287] *FTC Closes Its Investigation Into Facebook's Proposed Acquisition Of Instagram Photo Sharing Program,* FED. TRADE COMM'N (Aug. 22, 2012), https://www.ftc.gov/news-events/news/press-releases/2012/08/ftc-closes-its-investigation-facebooks-proposed-acquisition-instagram-photo-sharing-program [https://perma.cc/5TQB-UTTN].

[288] Fed. Trade Comm'n v. Meta Platforms, Inc., 811 F. Supp. 3d 67, 121–23 (D.D.C. 2025).

[289] *FTC Appeals Ruling in Meta Monopolization Case*, FED. TRADE COMM'N (Jan. 20, 2026), https://www.ftc.gov/news-events/news/press-releases/2026/01/ftc-appeals-ruling-meta-monopolization-case [https://perma.cc/Q9MH-ZBL9].

Weak merger oversight extends beyond this case. It has enabled platforms to absorb innovations that extend their reach, eliminate features that threaten their business models, and ultimately redefine the exit options for entrepreneurs and investors. Google's acquisition of Waze, for example, integrated innovative features into Google Maps;[290] its purchase of DoubleClick expanded its control to the entire advertising technology stack.[291] Facebook acquired promising social apps like tbh and Moves, only to shut down their potentially disruptive features.[292] As Mark Lemley and Andrew McCreary demonstrated, acquisitions have crowded out IPOs as preferred exit strategies, thereby distorting innovation toward incumbent compatibility rather than fostering competitive disruption.[293] Whether the 2023 Merger Guidelines or retrospective challenges, such as the ongoing FTC litigation against Meta, can reverse these patterns remains uncertain.

Third, antitrust doctrine has proven overly permissive toward arrangements that extend market power beyond network boundaries, including anti-steering provisions, most-favored-nation clauses, and other measures that raise rivals' costs.[294] *Ohio v. American Express Co.* exemplifies this tolerance.[295] In this 2018 decision, the Supreme Court upheld American Express's anti-steering provisions, which prohibited merchants from encouraging customers to use competing payment methods with lower fees. The Court not only accepted this contractual reinforcement of network-based market power but also reframed the antitrust inquiry to emphasize purported procompetitive justifications—such as benefits to the two-sided market as a whole—while giving insufficient

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[290] Umar Shakir, *Google Maps is Getting Even More like Waze*, VERGE (Jul. 31, 2024), https://www.theverge.com/2024/7/31/24209969/google-maps-destination-guidance-waze-camera-events [https://perma.cc/2TXD-2XVG].

[291] Steve Lohr, *This Deal Helped Turn Google Into an Ad Powerhouse. Is That a Problem?*, N.Y. TIMES (Sep. 21, 2020), https://www.nytimes.com/2020/09/21/technology/google-doubleclick-antitrust-ads.html [https://perma.cc/3X45-VDLA].

[292] *See* Colleen Cunningham et al., *Killer Acquisitions*, 129 J. POL. ECON. 649 (2020) (theorizing the deliberate destruction of competitors by acquisition).

[293] Mark A. Lemley & Andrew McCreary, *Exit Strategy*, 101 B.U. L. REV. 1, 61–72, 90–101 (2021).

[294] *See generally* Thomas Krattenmaker & Steven Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 YALE L.J. 209 (1986) (delineating deliberately rising competitors' costs as an anticompetitive strategy); Steven C. Salop & David T. Scheffman, *Raising Rivals' Costs*, 73 AM. ECON. REV. 267 (1983) (formalizing rising rivals' costs as a competitive strategy).

[295] Ohio v. Am. Express Co., 138 S. Ct. 2274 (2018).

weight to the exclusionary harm to competitors and innovation ecosystems. Rather than challenging arrangements that entrench network advantages, antitrust doctrine permits dominant platforms to leverage their internalized network effects into adjacent markets and relationships.[296]

Fourth, courts have strongly rejected no-fault liability—an approach based on purely structural considerations—in antitrust law.[297] Instead, they have strictly tied liability to specific anticompetitive conduct.[298] Under Section 1 of the Sherman Act, anticompetitive agreements naturally constitute the requisite element of conduct. For Section 2 of the Sherman Act, which addresses unilateral monopolization, the Supreme Court defined the necessary conduct as the "willful acquisition or maintenance of [monopoly] power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident."[299] In contrast to the EU's abuse-of-dominance framework, mere extraction of monopoly rent does not satisfy the Court's liability standard, even over extended periods.[300] Crucially, the statute's text prohibits monopolization without specifying conduct requirements, and the Court could have adopted a broader structural interpretation.[301] This narrow reading is particularly consequential where concentration results from companies' leveraging exclusivity granted by law.

Sector-specific regulatory frameworks have also failed to mitigate the structural effects of network enclosure. Traditional media regulation imposed structural limits designed to prevent concentration. Broadcast ownership rules, for example, cap any single entity's reach at 39% of the national television audience.[302] Historically, newspaper-broadcast cross-ownership restrictions prevented concentration across media types. Yet, the Telecommunications Act

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[296] Thomas Piraino, Identifying Monopolists' Illegal Conduct under the Sherman Act, 75 N.Y.U. L. REV. 809, 824 (2000).

[297] See United States v. Grinnell Corp., 384 U.S. 563, 570–71 (1966) ("The offense of monopoly under § 2 of the Sherman Act has two elements: (1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident.").

[298] Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 407 (2004); PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION ¶ 650a (5th ed. 2020).

[299] Grinnell, 384 U.S. at 570–71.

[300] Nikolas Guggenberger, Moderating Monopolies, 38 BERKELEY TECH. L.J. 119, 155 (2023).

[301] Turner, supra note 284, at 1219–20.

[302] 47 C.F.R. § 73.3555(e)(1).

of 1996 adopted a deregulatory approach to the internet, and courts have barred administrative agencies from applying existing broadcasting rules to digital platforms on First Amendment grounds.[303]

More fundamentally, Congress failed to extend proven regulatory approaches addressing market concentration to digital platforms.[304] Neither common carriage principles (requiring equal access to essential infrastructure)[305] nor neutrality requirements akin to network neutrality (preventing ISP discrimination against content providers)[306] were applied to platforms despite their similar gatekeeper functions. This allowed platforms to discriminate and extend their control into downstream markets, thereby exacerbating the market-level effects of platforms' property-like arrangements.

B. The Paradox, Demonstrated

Platform concentration systematically undermines property's two other essential functions, turning the exclusion strategy against itself. First, it destroys modularity, transforming what should be discrete, manageable chunks into sprawling, interdependent ecosystems that propagate systemic risks. Second, it defeats liberty, replacing voluntary exchange with structural coercion and breeding oligarchy.

1. Modularity, Undermined

When property theorists invoke modularity, they refer to legal modularity: how property structures entitlements into standardized, bounded chunks that

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[303] *See* Reno v. ACLU, 521 U.S. 844, 868–70 (1997).

[304] *See generally* MORGAN RICKS ET AL., NETWORKS, PLATFORMS, AND UTILITIES 7–241, 933–1163 (2022) (detailing how the time-tested approach to regulating access to and provision of infrastructure and essential services has not been applied to the application layer of the internet).

[305] *See* Biden v. Knight First Amend. Inst., 141 S. Ct. 1220, 1224 (2021) (Thomas, J., concurring) (opining that common carriage obligations for platforms are conceivably constitutional); Ganesh Sitaraman, *Deplatforming*, 133 YALE L.J. 497, 553–67 (2023) (demonstrating how reasonable deplatforming can occur under a common carriage regime for platforms); Blake E. Reid, *Uncommon Carriage*, 76 STAN. L. REV. 89, 150–57 (2024) (developing a "context-sensitive approach to platform regulation").

[306] *See* van Schewick, *supra* note 243.

hide complexity behind simple interfaces.[307] The *numerus clausus* principle exemplifies this.[308] Restricting property's forms to a limited menu enables information hiding and reduces transaction costs. Yet legal modularity cannot function in isolation from material reality. Property reduces complexity when legal boundaries track functional boundaries. A world in which legal entitlements are modular but property's material reference point, *the thing*—whether land, a movable good, an invention, or a creative work—is anti-modular would hardly yield the desired reduction in complexity.

Platform concentration undermines modularity at both levels. Property-like entitlements oriented toward internalization create legal anti-modularity by drawing property-like boundaries around entire ecosystems rather than discrete components—network-level entitlements encompassing billions of users, millions of apps, and vast data systems as single ownership units. And it prevents material modularity from functioning systemically. Even where components such as applications, data structures, and user accounts are potentially discrete and interoperable, ownership concentration locks them within proprietary systems, preventing them from operating independently across ownership boundaries. Absent material modularity, legal modularity loses effectiveness: there are no functional boundaries for legal boundaries to track. The result is anti-modularity compounding across both dimensions.

When legal boundaries encompass entire ecosystems rather than discrete components, participants must engage comprehensively with bundled systems instead of interacting with modular parts. Apple's App Store illustrates this dynamic for developers. Apple dictates content policies, privacy requirements, and payment systems for mobile developers. Through delegated state enforcement of these terms, Apple effectively governs access to the mobile internet and can use this power to shape markets and steer innovation.

Merchants face similar comprehensive requirements. They cannot simply offer products but must adopt Amazon's fulfillment services, advertising machinery, and rating system to compete effectively. Relying on their definitional power over terms of service, platforms create what amounts to customized governance enforced with property-like exclusivity, preventing the

[307] *See* Part I.B.
[308] *See* Part I.B.

standardization and information-hiding that modularity requires.[309] Rather than hiding complexity behind clean interfaces, ecosystem-level legal boundaries expose participants to comprehensive complexity. This impedes the cognitive load reduction that modularity is designed to provide.

Economic concentration further undermines modularity's objective of enhancing resilience by containing failures. Rather than distributing control among independent actors, platform dominance concentrates essential functions and decision-making in a handful of algorithmic architectures and executives. This creates monocultures susceptible to systemic risk and raises the stakes of individual choices.[310]

The 2021 Facebook outage and 2024 CrowdStrike failure illustrate the consequences of technical monoculture.[311] When Facebook's systems went offline, millions lost access to critical communication and services. When a CrowdStrike software update failed, thousands of flights were canceled, and hospitals experienced widespread technology disruptions—cascading failures stemming from concentrated technical architectures.

Managerial concentration creates similar vulnerabilities. When major platforms banned a sitting president from their networks in 2021, content-moderation decisions by a handful of executives became single points of failure for democratic discourse.[312] Platform concentration elevates individual decisions into systemic stakes—placing excessive reliance on the judgment of

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[309] *See* D'Onfro, *supra* note 125, at 1078, 1112–14 (emphasizing the informational costs of contractual overreach into the domain of property law); Merrill & Smith, *supra* note 43, at 802 (observing the need for standardization of *in rem* entitlements).

[310] Caleb N. Griffin, *Systematically Important Platforms*, 107 CORN. L. REV. 445, 509–14 (2022); Guggenberger, *supra* note 300, at 141–47; Jones & Samples, *supra* note 200, at 192–206; Kevin Werbach & David Zaring, *Systemically Important Technology*, 101 TEX. L. REV. 811, 814–49 (2023).

[311] *See* Carl Öhman & Nikita Aggarwal, *What If Facebook Goes Down? Ethical and Legal Considerations for the Demise of Big Tech*, 9 INTERNET POL'Y REV. 1 (2020), https://policyreview.info/pdf/policyreview-2020-3-1488.pdf [https://perma.cc/AS5P-D54L]; Jeffrey L. Tully et al., *Patient Care Technology Disruptions Associated with the CrowdStrike Outage*, 8 JAMA NETWORK OPEN e2530226 (2025), https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2836824 [https://perma.cc/ME97-MR3Y] (finding widespread outages in hospitals); Adam Satariano et al., *Chaos and Confusion: Tech Outage Causes Disruptions Worldwide*, N.Y. TIMES (Jul. 19, 2024), https://www.nytimes.com/2024/07/19/business/microsoft-outage-cause-azure-crowdstrike.html [https://perma.cc/7WHQ-28PY].

[312] Guggenberger, *supra* note 300, at 142–43.

too few people. Concentration thus eliminates modularity's resilience dividend and introduces systemic fragility.

To be sure, platforms do create internal modular elements—standardized product listings such as the Amazon Standard Identification Number, uniform APIs with clean interfaces, and consistent application admission criteria. Individual components often exhibit sophisticated technical modularity: apps are well-structured code, data structures have defined interfaces, and user accounts are discrete objects. Once market participants adopt a single ecosystem, cognitive load may even decrease as everything syncs seamlessly according to unified design principles, as any Apple user can attest.

This internal modularity, however, cannot achieve property's modular ambition. An app may be beautifully modular code, but it exists within Apple's or Google's proprietary ecosystem and cannot interoperate with competing platforms. A user's social graph may be discrete data, but it is locked within Facebook's network and cannot be ported to competitors. Material modularity becomes trapped within sprawling ownership silos, blocking the recombination and substitution that truly modular design would enable.

Three features explain why internal modularity cannot substitute for systemic modularity. First, internal modularity rests entirely on platforms' top-down design choices. However, platforms are neither impartial umpires nor infallible designers,[313] and appropriately setting boundaries for efficient modules is challenging and ideally iterative.[314] Second, even well-designed internal modularity cannot bridge ownership boundaries. The very interfaces that create modularity within ecosystems prevent cross-platform interoperability. Third, concentration transforms these limitations from technical constraints into market structure: when a handful of platforms control entire ecosystems, internal modularity creates additional lock-in effects.

These three features together prevent internal modularity from enabling permissionless innovation and stifle innovative recombination.[315] Where systemic modularity would enable recombination—building new systems from discrete, interoperable components—platform control forces developers to work within closed ecosystems with proprietary interfaces that cannot be freely

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[313] Khan, *supra* note 21, at 977, 1052–55.
[314] *See* BALDWIN & CLARK, *supra* note 6, at 76–80.
[315] *See* Yoo, *supra* note 67, at 21–24.

combined or extended. Moreover, platform control enables platforms to direct innovation toward ecosystem compatibility rather than disruptive alternatives, channeling resources and progress in directions that entrench their market position.[316] Modularity thus transforms from a foundation for competitive entry into a barrier protecting incumbents.

The collapse of modularity across legal and material dimensions produces system-level dysfunction extending beyond the three mechanisms just demonstrated. Modularity's information-hiding feature enables efficient decentralized decision-making and information aggregation through the price system—one of property's essential contributions to economic ordering. Platform concentration distorts this process.

Platforms simultaneously set or influence prices, curate product discovery through algorithmic ranking, and compete in markets they control, engaging in preferential placement and self-dealing that concentrates information flows. Rather than price signals aggregating dispersed knowledge through competitive market interactions, platform preferences determine what information reaches market participants and on what terms.[317] When platforms represent entire markets or significant portions thereof, external competitive arbitrage cannot correct these internal distortions.

The exclusion strategy's success in internalizing network externalities thus turns against itself, revealing the platform-property paradox: property-like entitlements create anti-modular industrial structures that undermine property's essential role in managing complexity and aggregating information efficiently.[318]

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[316] *See* Daron Acemoglu, *Distorted Innovation: Does the Market Get the Direction of Technology Right?*, 113 AEA PAPERS & PROCS. 1, 2–4 (2023); W. Brian Arthur, *Competing Technologies, Increasing Returns, and Lock-In by Historical Events*, 99 ECON. J. 116, 126–28 (1989) (discussing QWERTY typewriter keyboards and light water reactors as inferior technology that prevailed); Mark A. Lemley & Matthew T. Wansley, *Coopting Disruption*, 105 B.U. L. REV. 457, 476–518 (2025); *see generally* Kevin A. Bryan & Jorge Lemus, *The Direction of Innovation*, 172 J. ECON. THEORY 247 (2017); Hugo Hopenhayn & Francesco Squintani, *On the Direction of Innovation*, 129 J. POL. ECON. 1991 (2021).

[317] Cohen, *supra* note 17, at 146–47.

[318] This differs from property-as-monopoly critiques, conceptualizing exclusion itself as monopoly, *see, e.g.*, Posner & Weyl, *supra* note 11, at 61–63.

2. Liberty, Undermined

Property's essential function in promoting liberty operates through two conceptions: liberal liberty (maximizing choice) and republican liberty (securing independence). Platform concentration undermines both.[319]

At the individual level, concentration eliminates meaningful choice. Consider any business seeking to reach customers digitally.[320] In search, there is one dominant provider: Google.[321] In mobile app distribution, two: Apple's App Store and Google's Play Store.[322] In social media and video platforms, a handful of actors control access to audiences: Meta (Facebook and Instagram), YouTube, and TikTok. Liberal liberty requires alternatives. These concentrated markets eliminate them. A business cannot choose among multiple search engines, select from competing mobile distribution channels, or pick from social platforms with comparable reach. Even where two or three platforms share a market, businesses cannot meaningfully choose among them because they cannot afford to forgo access to any platform.

This elimination of alternatives creates dependence, undermining republican liberty at the individual level.[323] Businesses cannot reach mobile customers without platform permission[324]—access to Google's and Apple's app stores becomes mandatory, not voluntary. Advertising requires navigating Google's search ads or Meta's social platforms. For countless businesses, these platforms have become essential infrastructure.[325]

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[319] *See* Sara Calligaris et al., *Mark-Ups in the Digital Era* 13–18 (OECD Sci., Tech. & Indus. Working Paper, Paper No. 2018/10, 2018); Cohen, *supra* note 2, at 12 (observing that when exercised with coercive power, property becomes "sovereign power compelling service and obedience"); Jan De Loecker et al., *The Rise of Market Power and the Macroeconomic Implications*, 135 Q.J. ECON. 561, 567–605 (2020) (observing especially the largest firms have significantly increased their mark-ups over time and inferring rising market power).

[320] H. Subcomm. on Antitrust, Com. & Admin. L. of the H. Comm. on the Judiciary, *supra* note 20, at 28–30, 110–317.

[321] United States v. Google LLC, 747 F. Supp. 3d 1, 107–24, 136–39 (D.D.C. 2024).

[322] *In re* Google Play Store Antitrust Litig., 147 F.4th 917, 932, 947–50 (9th Cir. 2025).

[323] *See* PETTIT, *supra* note 77, at 22–23; K. SABEEL RAHMAN, DEMOCRACY AGAINST DOMINATION 80–86 (2017).

[324] Nugent, *supra* note 17, at 174–75 (observing that "[a]n online society is fundamentally a permissioned society") (emphasis omitted).

[325] Procaccini, *supra* note 25, at 421; Guggenberger, *supra* note 112, at 252–76.

The resulting asymmetry of power transforms even contracting itself. Platform terms cease to reflect voluntary exchange and become what Friedrich Kessler termed the power "to legislate by contract," a power he identified as a feudal artifact.[326] When platforms control essential infrastructure, this private governance extends beyond individual relationships to regulate entire economic sectors.[327] Market concentration thus elevates platform policies into unchecked "private regulation"—a development "anathema to our system of ordered liberty,"[328] particularly where platforms act both as players and umpires.[329]

At the systemic level, concentration also undermines both conceptions of liberty. It destroys the competitive markets that liberal liberty requires. Distributed ownership creates market competition, enabling participants to choose among alternatives through voluntary exchange. Platform concentration inverts this: consolidated control eliminates market-based alternatives, transforming voluntary exchange into structural coercion.

This systemic concentration also creates precisely what distributed ownership aims to prevent: single actors controlling essential resources. As Thurman Arnold, President Franklin Roosevelt's chief antitrust enforcer, noted about similar infrastructural concentration in his time, chokepoints act as "economic toll bridges," wielding "[t]he power . . . to levy what in fact are taxes" on economic opportunity.[330] Platforms exercise this infrastructural control over search, mobile distribution, social communication, and AI—creating the structural dependence that republican liberty aims to prevent. Crucially, platforms' power undermines republican liberty, whether or not it is exercised.

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[326] Kessler, *supra* note 137, at 640.

[327] Crémer et al., *supra* note 21, at 60–63 (identifying "platforms as regulators"). *See also* Jack M. Balkin, *Free Speech Versus the First Amendment*, 70 UCLA L. REV. 1206, 1219 (2023) (identifying "elaborate bureaucracies . . . for governing speech"); Evelyn Douek, *Content Moderation as Systems Thinking*, 136 HARV. L. REV. 526, 539–64 (2022) (urging an administrative understanding of content moderation).

[328] *See* Nachbar, *supra* note 26, at 70–74, 114 (explaining that "whether an act of control is appropriately described as 'regulatory' [versus 'proprietary'] is a function of the distance between the given exercise of control and a recognized property right").

[329] Crémer et al., *supra* note 21, at 60–63; Andrea Asoni, *Digital Platforms' Vertical Integration: Friend or Foe?*, 30 AUSTL. J. COMP. & CONSUMER L. 167 (2022); Khan, *supra* note 21, at 977, 1052–55 (emphasizing conflicts of interest arising from vertical integration).

[330] Arnold, *supra* note 24, at 95.

As Thurman Arnold explained, monopoly power "may sometimes be exercised benevolently, but, nevertheless, it is a dictatorial power . . . which is the antithesis of our democratic tradition."[331]

These liberty harms generate profound consequences for democratic self-governance. When platforms control essential infrastructure for democratic discourse—such as search engines that determine information discovery, social networks that shape public debate, and app stores that decide which tools citizens can access[332]—economic dependency becomes a form of political vulnerability.[333] Political candidates must navigate Meta's advertising policies to reach voters; news outlets depend on Google's algorithms for audience discovery; civic organizations rely on platform-controlled tools for democratic organizing. Platforms' power to exclude from digital markets thus becomes the power to exclude from democratic participation.[334]

Platforms' direct access to vast audiences amplifies this power. When legislation threatened to ban TikTok in 2025, the platform mobilized its 170 million United States users to pressure Congress and the administration.[335] The tactic ultimately secured a deal that averted a shutdown, demonstrating a mobilization capacity that eclipses traditional lobbying.[336]

Platform concentration also exhibits a classic feature of industrial concentration: altered economics of political influence.[337] In competitive industries, lobbying benefits often spill over across competitors, creating free-rider problems that reduce individual firms' incentives to invest resources in political influence.[338] Industry associations seeking to overcome this coordination problem face agency costs and cannot prevent competitors from

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[331] *Id.*

[332] Guggenberger, *supra* note 300, at 128–41.

[333] Procaccini, *supra* note 25, at 421 (equating power imbalances between social media platforms and users to those between employers and workers).

[334] *Id.*

[335] Richard Lawler, *TikTok Shuts Down in the US*, THE VERGE (Jan. 18, 2025), https://www.theverge.com/2025/1/18/24346961/tiktok-shut-down-banned-in-the-us [https://perma.cc/G8U6-KUNF].

[336] *See* David McCabe & Emmett Lindner, *TikTok Strikes Deal for New U.S. Entity, Ending Long Legal Saga*, N.Y. TIMES (Jan. 22, 2026), https://www.nytimes.com/2026/01/22/technology/tiktok-deal-oracle-bytedance-china-us.html [https://perma.cc/EE2H-95P4].

[337] George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3, 13 (1971).

[338] *Id.*

participating in their regulatory successes. Monopolists, by contrast, capture most of the returns from political expenditures.[339] The higher degree of internalization of returns on political investments, in turn, generates powerful incentives for further lobbying and campaign spending,[340] systematically distorting democratic processes and eroding liberty.

The exclusion strategy's success in internalizing network externalities thus turns against itself once more: platform concentration simultaneously undermines both liberal liberty (by eliminating choice) and republican liberty (by creating dependence) at individual and systemic levels. These dual liberty harms generate political vulnerability that distorts democratic self-governance and breeds oligarchy,[341] completing the second element of the platform-property paradox.

C. Reconciling Property's Functions

Reconciling property's essential functions requires a counterintuitive response: constraining, rather than maximizing, the internalization of network externalities.[342] When property's functions conflict, institutional design must balance internalization against modularity and liberty rather than maximizing any single function. In doing so, policymakers can draw from railroad, telegraph, and telecommunications regulation, which addressed concerns about concentration in networked markets. Conceptually, this Article reframes these tools as mechanisms that harmonize property's essential functions by constraining the capture of network effects through exclusion. Such compromises, as Thomas Merrill explains, make private property as an institution much more valuable.[343]

Three complementary approaches can achieve this rebalancing: curtailing exclusionary property-like entitlements, expanding digital commons, and

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[339] *See id.*

[340] *Id.*

[341] *See* Boyle, *supra* note 18, at 53–55 (invoking a richer founding-era understanding of monopoly rooted in intellectual property).

[342] *See* Merrill, *supra* note 228, at 2091–92.

[343] See id.

recalibrating protections for remaining entitlements. The following sections examine doctrinal reforms for each.

First, lawmakers and courts can scale back legal mechanisms that allocate exclusive control over networks to platforms.[344] Recent CFAA jurisprudence illustrates this approach. In *Van Buren* the Supreme Court established a "gates-up-or-down" rule, preventing platforms from leveraging criminal liability to fortify against terms of service violations. This narrower reading of the CFAA constrains the internalization of network externalities. Without the deterrent of criminal liability, platforms must invest more in drawing, monitoring, and policing digital boundaries. However, more action is needed, as platforms can shift to identity-based exclusions and state anti-hacking laws that have not adopted *Van Buren's* narrower approach.

Contractual exclusions require a different approach. Courts should invalidate terms of service provisions that enable dominant platforms to exclude competitors from network features and data without adequate business justification.[345] Like non-compete clauses—unenforceable in many jurisdictions when they primarily stifle competition[346]—contractual restrictions on scraping and interoperability should be deemed unenforceable when they primarily serve to preserve market position. While platforms may legitimately restrict access to protect user privacy, prevent system overload, or maintain data integrity, for example, courts should scrutinize whether these justifications are genuine or merely pretextual.[347] Common law common carrier requirements can provide a blueprint for such distinctions.[348] Federal and state authorities should reinforce this approach by treating such restrictions as unfair practices under existing consumer protection statutes.[349] This approach limits contractual enclosure of digital networks.

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[344] See Lemley & McGowan, supra note 12, at 606 (identifying intellectual property as an "'easy' case" for such curtailment).

[345] See id. at 608 (suggesting relying on "existing doctrines of contract law or equitable estoppel . . . to compel access to a standard-setting organization").

[346] KNAPP ET AL., supra note 130, at 716–20. The FTC previously banned non-compete clauses, 16 C.F.R. § 910 (Final Rule), but the rule's enforcement has been enjoined. See Ryan, LLC v. Fed. Trade Comm'n, 746 F. Supp. 3d 369 (N.D. Tex. Aug. 20, 2024).

[347] *See* Piraino, *supra* note 296, at 855–59.

[348] *See* Munn v. Illinois, 94 U.S. 113, 130–31 (1876); Sitaraman & Ricks, *supra* note 33, at 1073–99; Sitaraman, *supra* note 305, at 531–67.

[349] *See* 15 U.S.C. § 45(a)(1).

Policymakers should also strengthen antitrust enforcement and sector-specific regulation. Current antitrust law remains structurally inadequate to rebalance property's essential functions,[350] because industrial concentration itself, regardless of how it was achieved or how it is exercised, directly undermines modularity and liberty.[351] Structural approaches such as no-fault liability, as Donald Turner originally advanced, or regulatory concentration caps like those in traditional media regulation could provide effective countervailing forces.[352] Critics may object that structural interventions lack economic granularity and conflict with the Court's mandate "to protect, not to destroy, rights of property."[353] Yet the cases articulating this principle ordered structural remedies, the break-up of a conglomerate in *Standard Oil* and comprehensive access rights against the owner of a bridge in *Terminal Railroad*.[354] In doing so, the Court reconciled all of property's essential functions. Recent enforcement offers promise: one court has enjoined Google from paying developers and device manufacturers for exclusivity, barring developers from directing users to alternative download channels, and requiring developers to use Google's own billing system, and further mandated that Google grant rival app stores access to its app catalog.[355]

Second, policymakers should expand the digital commons by shifting network effects from the firm level to the market level.[356] Mandatory interoperability requirements, data portability rights, and selective data sharing mandates spread network value across competing platforms rather than

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[350] *See* Part I.B.

[351] *See* Turner, *supra* note 284, at 1219–20 (demonstrating similar harms, regardless of the source of monopoly).

[352] *See* Guggenberger, *supra* note 300, at 169–70; Turner, *supra* note 284, at 1219–20 (contending that antitrust should differentiate "between the acquisition of monopoly power . . . and the persistent retention of monopoly over a substantial period of time").

[353] Standard Oil Co. v. United States, 221 U.S. 1, 78 (1910); *see also* United States v. Terminal R.R. Ass'n of St. Louis, 224 U.S. 383, 409 (1912) (quoting *Standard Oil* for the same proposition).

[354] *Standard Oil*, 221 U.S. at 78; *Terminal Railroad Ass'n*, 224 U.S. at 409.

[355] Permanent Injunction, *In re* Google Play Store Antitrust Litig., 2024 WL 4438249 (N.D. Cal. Oct. 7, 2024).

[356] *See* Kades & Scott Morton, *supra* note 14, at 12–13, 33; *see also* Boyle, *supra* note 18, at 58–65 (urging a wider recognition of the public domain).

concentrating it within individual firms.[357] This approach strengthens modularity by creating standardized interfaces for information exchange. Email illustrates this principle: it succeeds as a modular system precisely because no proprietary legal boundaries enclose it. Participants interact with Simple Mail Transfer Protocol (SMTP) without understanding internet infrastructure or needing platform permission. Web developers similarly use HTTP and HTML without mastering proprietary requirements. Like these open protocols, mandatory interoperability for platform networks would create modular interfaces and enable competitive access.[358] The EU's Digital Markets Act exemplifies this strategy by requiring gatekeepers to provide data portability and interoperability for messaging services.[359] Most importantly, these mandates counter the winner-take-all dynamics of fully internalized network externalities.

Third, lawmakers and courts should recalibrate the structure and protection of remaining property-like platform entitlements. Entitlements can be protected through property, liability, or inalienability rules, and structured through either exclusion or governance strategies.[360] Existing scholarship examines these arrangements at the micro-level. Property rule advocates emphasize exclusion's contribution to decentralized decision-making and information aggregation.[361] Champions of liability rules focus on high transaction costs, holdout problems, and distributional concerns.[362] Both camps largely overlook structural implications—how these choices affect market

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[357] Kades & Scott Morton, *supra* note 14, at 12–13, 33; *see also* Thomas Piraino, *An Antitrust Remedy for Monopoly Leveraging by Electronic Networks*, 93 NW. U. L. REV. 1, 30–35 (1998) (arguing for access rights to essential networks).

[358] *See* Masnick, *supra* note 113; Yoo, *supra* note 67, at 42–61 (detailing the application of modularity theory on internet protocol policy and specifically the implications for open APIs).

[359] Council Regulation 2022/1925, on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act), arts. 6(7), 7, 2022 O.J. (L 265) 36–38.

[360] *See* Part II.B.

[361] *See, e.g.,* Smith, *supra* note 3, at 1754–63 (observing that "[c]ontrary to the thrust of recent pro–liability rule commentary, it is property rules rather than liability rules that truly decentralize decisionmaking"); Smith, *supra* note 5, at 457–67 ("develop[ing] an account of the costs and benefits of a spectrum—from exclusion to governance—of different methods of delineating rights and the different-sized resources over which they can be used").

[362] Calabresi & Melamed, *supra* note 94, at 1106–15 (explaining preferences for liability rules citing high transaction costs, holdout and freeloader concerns, and distributional goals); Louis Kaplow & Steven Shavell, *Property Rules Versus Liability Rules: An Economic Analysis*, 109 HARV. L. REV. 713 (1996) (distinguishing between harmful externalities, for which they largely support liability rules, and the taking of things, for which they endorse property rules).

concentration and monopoly power.[363] The double focus on exclusion in the digital economy—strong property-rule protection combined with exclusion-based entitlement structures—lies at the core of the excessive internalization of network externalities. As policymakers reconsider platform entitlements, this should tip the scale toward liability and inalienability rules on one hand, and governance strategies on the other.[364]

This rebalancing constrains platforms' ability to use property rules to exclude competitors entirely. Property rules grant injunctive relief that forecloses competitor access to their networks and data, enabling exclusive internalization of network externalities. Liability rules instead permit competitive access while requiring compensation for legitimate harms like server costs or security breaches. This shift would reduce platform enclosure while protecting genuine business interests.

Consider replacing property rule protection for terms of service violations with liability rules. Currently, when competitors enable interoperability or scrape platform data in violation of terms of service, platforms can seek injunctions that block such access.[365] Under liability rules, competitors could access networks by compensating for proven harms, but platforms could not obtain injunctions. These limitations should apply only to dominant platforms to avoid burdening nascent competitors. Lawmakers and courts should limit damage awards to actual harms like server costs and security expenses, to preclude punitive or excessive damages that function as *de facto* injunctions.

The same approach applies to anti-hacking provisions in common law trespass and the CFAA that currently support injunctive relief. For activities aimed at interoperability and data access rather than system disruption, liability rules should replace property-rule protections. This limits platforms' power to foreclose markets. Eliminating the CFAA's criminal liability in these cases would rein in the statute's over-deterrent effects and encourage legitimate adversarial interoperability.

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[363] Monopoly harm in the form of deadweight losses and innovation barriers extend beyond traditional transaction cost analysis.

[364] *See* Smith, *supra* note 4, at 1749–50 (observing that even expanding property regimes can shift toward "fine-grained governance rules").

[365] *See, e.g.*, hiQ Labs, Inc. v. LinkedIn Corp., 31 F.4th 1180 (N.D. Cal. Dec. 8, 2022).

Policymakers should also split Section 230's current immunity into two components: maintaining platforms' shield against damages while allowing victims to seek injunctions against the dissemination of infringing content.[366] This reform establishes enforceable rights against defamation, harassment, and other digital harms while preserving financial protection for platforms. By requiring the removal of harmful content rather than permitting its monetization, this approach internalizes some negative externalities and prevents illicit gains. Practical safeguards like fee shifting would reduce chilling effects on speech. Smaller platforms could be exempt from injunctive liability to avoid burdening nascent competitors and account for lower risks from content on smaller networks. This reform preserves the statute's core function without enabling the type of unfettered private governance that can be leveraged into market dominance.

Inalienable data protection rules could address the privacy layer of platform enclosures and mitigate the mutually reinforcing cycle between network effects and data advantages.[367] Instead of consent mechanisms that platforms appropriate, policymakers could establish direct prohibitions on certain data uses—like behavioral advertising or algorithmic profiling[368]—and permissions on others.[369] This prevents platforms from using consent frameworks to enclose data zones that exclude competitors.

Lawmakers and courts could also rely more heavily on governance strategies to structure remaining property-like entitlements. Governance regimes replace broad exclusionary boundaries with specific access rules, creating limited access rights that enable competitive use while constraining monopolistic capture. Expanding mandatory FRAND licensing for standard essential patents necessary for network interconnection would prevent platforms from using patent portfolios to exclude competitors entirely, creating governance-based access rights with specific licensing terms.

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[366] I am grateful to Anupam Chander for the idea on which this proposal builds.

[367] *See* Part III.A.

[368] *See* David Dayen, *Ban Targeted Advertising*, NEW REPUBLIC (Apr. 10, 2018), https://newrepublic.com/article/147887/ban-targeted-advertising-facebook-google [https://perma.cc/F3E5-MXR7].

[369] *See* Viljoen, *supra* note 166, at 634–53.

One might wonder whether compensating users for network contributions offers a simpler alternative.[370] Such compensation could address users' unpaid contributions and the potential underprovision of positive network externalities.[371] However, this approach requires assessing and dynamically updating network externalities in each platform relationship, creating insurmountable implementation problems.

To summarize, three complementary approaches can contribute to the reconciliation of property's essential functions: curtailing exclusionary property-like entitlements, expanding digital commons, and recalibrating protections for remaining entitlements. Each of the five layers of network enclosure offers room for reforms.

D. Limitations and Trade-offs

These remedies, while targeting excessive internalization of network effects—the fundamental mechanism behind platform concentration—face important constraints and trade-offs. First, legally induced internalization of network effects is not the only driver of digital concentration. Data characteristics and legal treatment, algorithmic economies of scale and scope, and capital availability all contribute to concentration independently. Moreover, digital networks rest on physical infrastructure with monopolistic characteristics, such as data centers and underwater cables. That said, redistributing network effects might indirectly address some of these alternative drivers. Recall that redistributing network effects can disrupt the

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[370] *See generally, e.g.*, Imanol Arrieta-Ibarra et al., *Should We Treat Data as Labor? Moving Beyond "Free"*, 108 AEA PAPERS & PROC. 38 (2018) (discussing compensation for data production as labor); Procaccini, *supra* note 25 (contending that labor law paradigms should govern network engagement).

[371] *See* Ahdieh, *supra* note 20, at 300 ("Network externalities in telephony, which prevent consumers' internalization of the social benefit of their telephone purchases, can be expected to produce a less than optimal number of telephone users. In securities markets, similarly, fewer traders will come to market than would be socially optimal, as long as the private gain from market participation lags the social gain.") (footnote omitted); Katz & Shapiro, *supra* note 233, at 96 ("Since social marginal benefits exceed private marginal benefits—that is, since there are *adoption externalities*—the equilibrium network size is smaller than the socially optimal network size, and the perfectly competitive equilibrium is not efficient").

mutually reinforcing cycle between data-induced network power and network-induced data power.

Second, limiting internalization of positive externalities creates economic costs. Most significantly, these restrictions reduce incentives for dynamic innovation.[372] This concern weighs heavily since dynamic innovation competition, rather than static price competition, drives long-term economic development.[373] Yet maximizing upfront incentives for dynamic innovation is not optimal.[374] Financial incentives exhibit diminishing returns, and innovation requires more than raw financial rewards.[375] Open ecosystems and ongoing competition are equally crucial ingredients.[376] Innovation cannot be compressed into a short period of competition for the market. High-spillover industries innovate more and faster.[377] Email, social media, and artificial intelligence all built on decades of infrastructure development—from physical cables to communication protocols to chip and computer evolution.[378] Reconciling property's functions may reduce upfront incentives but improves these other essential ingredients for innovation.

Third, concentrated control over network effects may provide genuine efficiency benefits. Unlike passive networks like language, digital networks require active management for coordination, security, and performance optimization. Certain innovations—such as large language models and global search systems—may require resources that only large platforms can marshal. However, many apparent coordination efficiencies may reflect infrastructure specifically designed for concentration rather than technical necessity. Distributed protocols, such as email and the internet itself, demonstrate that complex global networks can function effectively without centralized control. Any efficiency benefits of concentrated structures must be weighed against the substantial costs to modularity, liberty, and long-term innovation.

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372 Ahdieh, *supra* note 19, at 303–04.

373 *See* Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, *in* THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECON. AND SOC. FACTORS 609, 609–10 (1962); Paul M. Romer, *Endogenous Technological Change*, 98 J. POL. ECON. S71, S72–73 (1990).

374 *See* Fromer, *supra* note 264, at 712.

375 *See* Frischmann & Lemley, *supra* note 20, at 259–61 (emphasizing the role of temporal and geographic spillovers).

376 Boyle, *supra* note 18, at 44–49.

377 Frischmann & Lemley, *supra* note 20, at 259–61, 268.

378 *See* Tejas N. Narechania & Ganesh Sitaraman, *An Antimonopoly Approach to Governing Artificial Intelligence*, 43 YALE L. & POL'Y REV. 95, 108–28 (2024).

Fourth, curtailing exclusion may hinder both product and social differentiation, undermining market disruption in networked markets. Exclusion enables nascent competitors to distinguish their offerings from dominant platforms in two crucial ways. On the one hand, it allows for technical differentiation. Consider Snapchat's disappearing messages: if Snapchat had been required to make this feature interoperable with Facebook or Instagram, interoperability would have undermined its core value proposition. Exclusion was essential to ensure messages disappeared. This enabled Snapchat to build user behaviors around ephemeral content that could not have developed in an interoperable environment where content persistence was the norm.

On the other hand, exclusion enables social differentiation by creating distinct user communities.[379] Separate platforms separate social contexts—teens share content without parental visibility, professionals network separately from personal connections, niche communities form around specific interests. Forced interoperability could undermine these spaces by blurring audience boundaries users prefer to keep separate, reducing network value through unwanted connections. However, design choices can address these concerns. Interoperability requirements could be asymmetric, preserving exclusion for nascent challengers while restricting incumbents, and users could opt in to interoperability. Importantly, many innovations—third-party apps, LLM extensions—require access to existing networks rather than exclusion from them.

CONCLUSION

In digital markets, five layers of network enclosures successfully internalize network externalities, fulfilling one of property's three essential functions. Yet this success breeds failure. When internalization works too well, it facilitates concentration that systematically undermines property's other essential functions: promoting liberty and modularity. At its core, market concentration online is thus a property design problem. This is the platform-property paradox. Practically, it manifests as textbook monopoly harm and oligarchy. To mitigate

[379] Rohlfs, *supra* note 13, at 19 (discussing "community of interest groups" as a hook for product differentiation).

these harms, lawmakers and courts must reconcile property's essential functions. This includes curtailing exclusionary property-like entitlements, expanding digital commons, and recalibrating protections for remaining entitlements.