INTEROPERABILITY IN ANTITRUST LAW & COMPETITION POLICY



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By Laura Alexander & Randy Stutz

As the concepts of network effects, tipping, and lock-in have grown in importance with the rise, growth, and current ubiquity of platforms, data analytics, and computer software in the modern economy, competition concerns have followed. Considered through the lens of competition policy generally and antitrust law specifically, interoperability emerges as an indispensable part of the answer to these competition concerns, but one that requires careful implementation to navigate the inevitable frictions with intellectual property, privacy, and other doctrines that rub up against antitrust and competition policy. To the extent courts, regulators, and policymakers contemplate interoperability as a cure for network effects and other market failures, they will need to think carefully about how to strike the balance between sacrificing privacy and mandating interoperability, using the right combination of antitrust and regulation.

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Interoperability is increasingly recognized as a core legal and regulatory concept for the modern internet economy. This is befitting in light of the rise, growth, and current ubiquity of platforms, data analytics, and computer software in the economy, which have elevated the importance of the concepts of network effects, tipping, and lock-in. Hard questions involving interoperability were preordained to follow.

In this article, we consider some of these hard questions through the lens of competition policy generally and antitrust law specifically. Interoperability emerges as an indispensable part of the answer to the competition concerns raised by network effects, tipping, and lock-in, for prospective regulation and retrospective enforcement. But one that requires careful thought in implementation to navigate inevitable frictions with intellectual property, privacy, and other doctrines that rub up against antitrust and competition policy.

I. THE SEEDS OF AN INTEROPERABILITY DISCUSSION: NETWORK EFFECTS, TIPPING AND LOCK-IN

The rudiments of the competition concepts underpinning the modern internet economy are well understood. First and foremost is positive network effects. According to "Metcalfe's Law," the proportional value to a network of a user's investment in joining the network is the square of the number of users who do so. In other words, a network that increases tenfold in size increases a hundredfold in value. That means that when a network has a \$1 value to a single user and increases to 10 users, the *network's* total value increases to \$100.² Facebook's 2.8 billion users, and \$858 billion market cap, are sufficiently illustrative. An endless stream of platform-based network sponsors, from Uber to Tinder, are now vying for comparable ratios in niche segments of the internet economy.

If positive network effects are strong and consumers' preferences for network attributes are relatively homogenous, the product markets susceptible to network effects can be prone to "tipping," which is the tendency of one network-based product that gains the early lead to pull away from rival products and never look back.³ The early competition, followed by definitive victory, that marked the triumph of VHS over Beta Max and the QWERTY keyboard over its progenitors are well-trodden examples.⁴ Google's rise to dominance in internet search, and Facebook's rise in social networking, appear to be modern examples.

Tipping can lead to durable monopoly when conditions are ripe for lock-in. Lock-in occurs in network markets when the collective switching costs of all network users are high. Consider a software-based market, like the market for mobile operating systems that power the mobile phones on which many of us are reading the latest CPI Antitrust Chronicle. A rival operating system seeking to lay claim to our device du jour and our attention would face high collective switching costs in the form of significant difficulties coordinating a move to superior technology.

Such a rival would not only have to persuade readers like us to make the switch, but also app developers and publishers like CPI, device manufacturers, and other hardware and software complementors who have invested in the incumbent operating system. And worse yet for the would-be rival, the collective switching costs cannot be overcome through an orderly migration; they have to be overcome collectively. It will be more than ten times as hard to persuade 10 people to switch to an incompatible new network than to persuade one person to switch, but the rival will need to convince all 10 or most of them, for nobody will want to be the first to give up the incumbent network benefits and risk getting stranded.⁵

Worryingly, the lock-in effects caused by high collective switching costs can lead to the entrenchment of inferior products, as the QW-ERTY keyboard example illustrates.⁶ Lock-in also can lead to "holdup" or "installed-base opportunism," which is a variant on the familiar form of monopoly exploitation whereby a firm, after cementing dominance, unilaterally alters its terms of trade to extract maximum wealth from its

² Carl Shapiro & Hal R. Varian, Information Rules 184 (1999).

³ Michael L. Katz & Carl Shapiro, Systems Competition and Network Effects, 8 J. ECON. PERSPECTIVES 93, 106 (1994).

⁴ See *id.*; Shapiro & Varian, *supra* note 2, at 184.

⁵ Shapiro & Varian, supra note 2, at 184–85; see also Peter S. Menell, Rise of the API Copyright Dead?: An Updated Epitaph for Copyright Protection of Network and Functional Features of Computer Software, 31 Harv. J. L. & Tech. 305, 458 (2018).

⁶ See Shapiro & VARIAN, *supra* note 2, at 185 (noting that the alternative Dvorak layout is used by speed typists and recounting reports that QWERTYUIOP was originally chosen as the top row to *slow down* typists to reduce incidences of typewriter jams, while still allowing salesmen to rapidly type "Type Writer" in customer demonstrations); *but see* Jimmy Stamp, *Fact or Fiction? The Legend of the Qwerty Keyboard*, SMITHSONIAN MAGAZINE (May 3, 2013) (questioning veracity of these accounts and discussing evidence suggesting QWERTY keyboard layout was designed to accommodate telegraph operators translating morse code).

customers or suppliers.⁷ Or, the mere prospect of lock-in can discourage savvy customers, input suppliers, or complementors from investing or innovating in and around the network *ex ante*, particularly if foresight reveals an existential threat posed by the network owner's financial incentives coupled with its monopoly or monopsony power.⁸ Lock-in also can discourage would-be horizontal rivals from attempting to compete for those customers or suppliers, if such rivals likewise recognize *ex ante* that they can't win for losing to the incumbent.⁹

II. INTEROPERABILITY AND ANTITRUST

Enter interoperability. Interoperability considerations factor importantly into competition policy in network markets prone to tipping. Such considerations often arise in tipped network markets because of two interrelated challenges: (1) "the inexorable tension between platforms and applications,"¹⁰ and (2) the need to integrate data sets across platforms that "significantly affect the efficient use of data and, resultantly, public and private welfare."¹¹ The first challenge typically presents as the basis for a theory of competitive harm. The second challenge often presents as question of remedial policy.

A. The Denial of Interoperability as Harm to Competition

In a common theory of competitive harm, the denial of interoperability serves as the dominant network owner's mechanism for excluding rival applications developers and other complementors from its network. Analogous, but distinct, theories of competitive harm have informed antitrust actions premised on the denial of access to essential facilities¹² and abuses of the standard-setting process by owners of standard-essential patents (SEPs).¹³ Interoperability is conceptually distinct from the essential facilities doctrine and SEP licensing because it does not require the party on whom it is imposed to provide anything, except the ability to interface, to another party. The essential facilities doctrine and duty to deal cases more broadly apply where a monopolist controls an essential input and denying that input to rivals would make it impossible for them to compete.

By forcing the monopolist to share the input, antitrust law seeks to facilitate or protect competition in the upstream and downstream markets. Similarly, because standard setting gives holders of standard-essential patents a monopoly on a critical input to standard-compliant products, standard setting organizations' patent policies, supported by antitrust law, can require those patent holders to license their patents to rivals on fair, reasonable and non-discriminatory (FRAND) terms, again to enable competition in the upstream or downstream market. With interoperability, however, the dominant player typically does not sell anything to the party seeking to interoperate; it is asked only to provide existing or potential rivals the ability to interact and share information with it.

Interoperability also is distinct from data portability and right to repair, because it is bilateral and not rooted in a notion of consumer protection. Data portability is the right of a user to move his data from one platform to another.¹⁴ Right to repair is about the consumer's right to control

8 See id.

9 Shapiro & Varian, supra note 2, at 184 ("In many information industries, collective switching costs are the biggest single force working in favor of incumbents.").

11 Michal S. Gal & Daniel L. Rubinfeld, *Data Standardization*, 94 NYU L. Rev. 737, 739 (2019) ("It is thus not surprising that barriers to data portability and interoperability have been identified as major barriers to the efficient operation of our data-intensive economy.").

12 For a recent example, see Viamedia, Inc. v. Comcast Corp. et al., No. 18-2852 (7th Cir. Feb. 24, 2020), currently before the United States Supreme Court on petition for certiorari.

13 For a deeply problematic recent example, see, e.g. FTC v. Qualcomm, Inc., 969 F.3d 974 (9th Cir. 2020) (overturning district court decision in favor of FTC in antitrust case premised on SEP abuse).

14 Under the California Consumer Privacy Act ("CCPA"), for example, users have a right to get their data "in a readily useable format that allows the consumer to transmit this information from one entity to another entity without hinderance." California Consumer Privacy Act of 2018, CA Civ. Code § 1798.100, *et seq.* (2018).

⁷ See Carl Shapiro & Mark A. Lemley, The Role of Antitrust in Preventing Patent Holdup, 168 PENN. L. REV. 2019, 2027 (2020).

¹⁰ Philip J. Weiser, *Regulating Interoperability: Lessons from AT&T*, Microsoft, *and Beyond*, 76 ANTITRUST L.J. 271, 286 (2009) ("The basic question is when can application developers trust that platform owners will treat them in a fair, reliable, and forthright fashion? If the answer is 'never' or 'not under certain circumstances,' there will be increasing pressure on government regulators, antitrust courts, and other institutions to facilitate cooperation between these two sets of actors.").

his own devices, including the right to fix them when they break.¹⁵ Interoperability, on the other hand, is about the boundaries and interactions between competitors, and how they impact competition, not about protecting consumers or their rights *per se*. And interoperability is more than just a transfer of goods or information from one platform to another, it is an ongoing alignment of data and systems *between* two platforms.¹⁶

Nevertheless, a network owner's denial of interoperability can raise many of the same kinds of competition concerns as a facility owner's denial of access to an essential facility and a SEP-owner's refusal to license a FRAND-encumbered SEP. A vertically integrated firm that owns and controls the network may, for example, employ an "open early closed late" strategy. That is, it may encourage and invite applications providers and other complementors to interoperate on the network to help attract participants in the network's formative years, only to deny access to such providers and complementors once it has matured and developed a large installed user base that is locked in.¹⁷ The vertically integrated network owner may choose to deploy interoperability restrictions defensively, to protect its proprietary upstream or downstream products from outside challenges, or offensively, where it can save costs or reap additional profits by forcing the user base off of the complementors' products and onto its proprietary products or partners' products instead.

The competition concern is that the network owner's rivals—like the essential-facility owner's or SEP owner's rivals—may be driven from the market or relegated to obsolescence, harming the consumers or suppliers who otherwise would have benefitted from lower prices, higher output, greater choice or quality, or increased innovation. However, exclusion of rivals from a network, through denial of interoperability, goes further by depriving consumers and other network participants of the benefits of positive network effects—that is, of the added value to the network itself that the excluded rivals would have provided.¹⁸

B. Interoperability as Remedy: Antitrust and Regulation

As a remedial tool, interoperability sounds in the familiar regulatory concept of "network access" or "interconnection," which has been a mainstay of telecommunications policy. When network effects render free-market competition at the platform level untenable, interoperability remedies offer "policy-induced competition"¹⁹ at the developer level, a perhaps imperfect but still formidable alternative means of allowing market forces to help generate the "considerable amounts of innovation and wealth creation" that would otherwise be misappropriated or deterred because of an unlevel playing field.²⁰

In telecom, the FCC has deployed interoperability remedies as a regulatory strategy, but often in tandem with antitrust law. The agency's modern approach has been traced to a dispute over the "Hush-A-Phone," a suctioned, 1950's gizmo that could be attached to telephone hand-sets to muffle background noise during phone calls.²¹ After the FCC, at the urging of the AT&T Bell System, banned the product as a "foreign attachment" to AT&T's network, the D.C. Circuit overturned the agency's decision, holding that the network owner could not restrict the use of reasonable attachments to the network.²² The agency has since embraced interoperability as a remedial principle in a variety of settings.

18 See Marina Lao, Networks, Access, and Essential Facilities: From Terminal Railroad to Microsoft, 62 SMU L. Rev. 557, 558 (2009).

19 Gerald R. Faulhaber, Policy-Induced Competition: The Telecommunications Experiments, 15 INFO. ECON. & POL'Y 73 (2006).

20 Weiser, *supra* note 10, at 291.

22 Hush-A-Phone Corp. v. United States, 238 F.2d 266, 269 (D.C. Cir. 1956).

¹⁵ See United States Federal Trade Commission, *Nixing the Fix: An FTC Report to Congress on Repair Restrictions*, at 54 (May 2021) (describing how existing right to repair law "gives consumers the right to make repairs on their own or through an independent repair shop" and explaining how manufacturer policies "have made it difficult for consumers to exercise this right."), available at https://www.ftc.gov/system/files/documents/reports/nixing-fix-ftc-report-congress-repair-restrictions/nixing_the_fix_report_final_5521_630pm-508_002.pdf.

¹⁶ Gal & Rubinfeld, *supra* note 11, at 739 (distinguishing data portability—"the ability to transfer data without affecting its content"—from interoperability—"the ability to integrate two or more datasets").

¹⁷ Scott A. Sher & Bradley T. Tennis, *Exploiting Others' Investments in Open Standards*, Comp. Pol'y Int'l Antitrust Chron. 1, No. 1, at 3–4 (2016) ("[T]herein lies the danger: that a firm will employ an open policy in order to gain dominance and then impose less favorable interconnection terms once dominance has been achieved.") (quoting Testimony of Carl Shapiro, Antitrust Modernization Commission, *Exclusionary Conduct* 15-16 (Sept. 29, 2005)).

²¹ Joseph Farrell & Philip J. Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age*, 7 Harv. J.L. & Tech. 85, 93 (2003).

In the subsequent breakup of the Bell System, the FCC and the Antitrust Division of the Department of Justice brought their collective resources to bear in instituting structural and behavioral relief to promote interoperability in the long-distance market. The relief came after many years of failed regulatory efforts to promote equal network access for alternative long-distance carriers, while AT&T continued to maintain dominant market share. The structural separation of the Bell System's long-distance service and local networks was imposed under the auspices of the Sherman Act, while the behavioral obligations mandating equal access to interconnection were overseen and enforced by the FCC.²³ A district court oversaw both remedies, which were imposed via consent decree.

The synergistic approach undertaken in addressing the Bell System's network-driven, long-distance monopoly has been a data point in leading many commentors, including our organization, the American Antitrust Institute, to advocate generally for a complementary approach to antitrust and regulation, and for capitalizing on the institutional policing and other capabilities of the governmental and private actors responsible for carrying out each.²⁴

There are many instances, for example, where an antitrust approach is susceptible to coverage gaps that regulation can fill. First and foremost, antitrust law may have difficulty reaching some of the most prominent network sponsors in in the internet economy as a jurisdictional matter. The common carrier exemption threatens to free many of them from antitrust exposure altogether.²⁵ Moreover, there remains the concern that some courts may read dicta in the U.S. Supreme Court's *Trinko* decision as limiting, inappropriately in our view, antitrust law's application in regulated industries.²⁶

Second, certain forms of competitive misconduct in network markets may be difficult to prosecute. When a network owner denies interoperability to nascent rivals, for example, the exclusionary effects may be subtle, impairing innovation over the long run by deterring startups.²⁷ A dearth of timely, actionable proof, coupled with unfavorable case law, creates the risk of rampant "false negatives."

Third, conduct violations under the antitrust laws are policed *ex post*, not *ex ante*. That is, an antitrust challenge to exclusionary behavior by a network owner can only be initiated after competition has been harmed. Yet, if the excluded rival is a nascent firm struggling to survive, a lengthy, costly enforcement proceeding is likely to be cold comfort, particularly in dynamic internet markets.²⁸

Finally, to the extent that antitrust actions require behavioral rather structural remedies, agencies and courts are often ill-suited to the task of implementing and monitoring such remedies, for a variety of reasons.²⁹ This is particularly true when measured against the institutional capabilities of regulators.

By contrast, regulation has shortcomings of its own, which antitrust enforcement can counterbalance. For example, regulation often is accomplished through rulemakings, which frequently require authorities to prospectively delimit conduct to be encouraged and discouraged or required and proscribed. Particularly as novel developments occur in regulated industries undergoing changes due to new technologies or shifting consumer preferences, such rules can become obsolete or ineffectual.³⁰ In these circumstances, antitrust law's targeted, case-by-case, retrospective approach can be a feature rather than a bug, including because it can employ structural rather than behavioral relief. The law is often nimbler in responding and adjusting to changes and uncertainties than regulatory rules.

25 See, e.g. FTC v. AT&T Mobility LLC, 835 F.3d 993 (9th Cir.2016).

26 Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, 540 U.S. 398 (2004).

30 Shelanski, supra note 24, at 719.

²³ United States v. AT&T Co., 552 F. Supp. 131, 224 (D.D.C. 1982), aff'd sub nom. Maryland v. United States, 460 U.S. 1001 (1983).

²⁴ See American Antitrust Institute, Repeal of Network Neutrality Eliminates Important Antitrust-Regulation Partnership, Deprives Competition and Consumers of Needed Safeguards (Dec. 22, 2017), https://www.antitrustinstitute.org/wp-content/uploads/2018/08/AAI_Net-Neutrality-Repeal-Comm_F.pdf; see also Dennis W. Carlton & Randal C. Picker, *Antitrust and Regulation, in* Economic Regulation and Its Reform: What Have We Learned? (Nancy L. Rose ed., 2014); Howard A. Shelanski, *The Case for Rebalancing Antitrust and Regulation*, 109 MicH. L. Rev. 683 (2011); Philip J. Weiser, *The Relationship of Antitrust and Regulation in a Deregulatory Era*, 50 Antitrust Bull. 549 (2005).

²⁷ See John M. Newman, Antitrust in Digital Markets, 72 Vanderbilt L. Rev. 1497, 1515-1516 (2019).

²⁸ See Kevin Caves & Hal Singer, When the Econometrician Shrugged: Identifying and Plugging Gaps in the Consumer-Welfare Standard, 26 GEO. MASON L. REV. 395, 398 (2018).

²⁹ See John E. Kwoka & Diana L. Moss, Behavioral Merger Remedies: Evaluation and Implications for Antitrust Enforcement, 57 ANTITRUST Bull. 979, 994, 1010 (2012).

Moreover, when industries undergo disruptions and shifts of this kind, antitrust enforcement can be an essential "backstop" during the transition from monopoly to competition.³¹ When markets in such positive transition phases are subject to price regulation or access regimes, the risk of harm caused by over- or under-regulation becomes significantly higher, and regulators can often do far better for consumers and other intended beneficiaries by forbearing, and instead allowing competitive forces to determine market outcomes, subject to assurances that strong antitrust enforcement will prevent distortions in the competitive process.³²

In thinking about interoperability as a potential competition remedy in tipped network markets, many of the same considerations in balancing antitrust and regulation, and maximizing their respective advantages, come into play. As Gal and Rubinfeld, who advocate for data standardization as a means of promoting interoperability, have ably explained, the stakes are quite high. Without data interoperability in the modern internet economy, we risk a "'Tower of Babel' of different databases," limited potential data uses, interference with new business models, elevated costs for not only small and medium-sized enterprises but also large enterprises, the balkanization of data within particular sectors, spillovers undermining the improvement of analytical tools, and even fundamental threats to the competitive advantages of firms and nations.³³

Yet, there may be instances where antitrust law is ill-equipped to deliver interoperability, for want of a violation. Where, for example, a network sponsor obtains dominance through a first-mover advantage and strong positive network effects alone, an antitrust interoperability remedy will be unavailable assuming the network owner has not otherwise violated the law, no matter how socially beneficial such a "remedy" might be. Absent new antitrust legislation, only a regulatory approach could hope to achieve interoperability benefits in these circumstances.

At the same time, there may be other instances where antitrust is well suited to help deliver interoperability. Where, for example, an unregulated network sponsor monopolizes a market by employing an "open early closed late strategy," and a prior course of dealing provides reasonable terms on which to allow interoperability, an antitrust action may be well suited to protecting and restoring competition. Or, perhaps an antitrust action supported by a sectoral regulator's supervisory assistance, as in the AT&T case, would be better suited still.

III. PRIVACY AS A CHALLENGE TO INTEROPERABILITY

As if to illustrate the difficulty and complexity in balancing antitrust and regulation in the modern economy, a conflict is brewing between the growing demand for interoperability and the growing demand for privacy. The need to protect consumer privacy is one of the justifications put forth by companies for denying interoperability in product design or operational policy. Apple, for example, touts its high privacy standards as a feature of its App Store, which is the exclusive portal for apps seeking to interoperate with Apple iOS phones.³⁴ When sincere, this justification is generally regarded as procompetitive and, accordingly, a defense to a charge that the company engaged in predatory innovation or otherwise sought to thwart interoperability to suppress competition. Companies, of course, may also be using privacy as a pretext, which presents an evidentiary issue for courts. And, perhaps most common, the concerns for consumer privacy may be real, but the suppression of competition is also a wanted benefit to the company acting on the concern. Courts contemplating interoperability as a remedy must also confront this tension; even if effective as a competition remedy, interoperability can pose privacy risks.

One high-profile example of the privacy risks from interoperability in recent years is the Facebook-Cambridge Analytica scandal. In that incident, Facebook allowed users to install a third-party app called "This Is Your Digital Life," which harvested data from its users with their permission, but also harvested information about the app users' friends without seeking permission from those friends.³⁵ The makers of This Is Your Digital Life subsequently sold the harvested data to Cambridge Analytica, which used the data for microtargeting political campaigns. When the collection and sale of the data came to light, Facebook users were outraged, leading to a significant drop in the company's market capitalization and trust by consumers. Facebook claimed the third-party company that sold the data to Cambridge Analytica had violated Facebook's terms of service by selling the data and cut the third-party off from future access to its network. Once Facebook allowed the third-party to interact with its users and their data, though, it gave up effective control over how that data was used. It could cut off interoperability with the original source, as it eventually did, but that only prevented future infringements on privacy and in no way remedied the breach that had already occurred.

32 See id. at 731-32.

33 Gal & Rubinfeld, supra note 11, at 741.

34 App Store, Apple.com (last visited May 17, 2021), https://www.apple.com/app-store/ ("And a big part of those experiences is ensuring that the apps we offer are held to the highest standards for privacy, security, and content.").

35 Matthew Rosenberg & Sheera Frenkel, Facebook's Role in Data Misuse Sets Off Storms on Two Continents, The New York Times (March 18, 2018).

³¹ See *id.* at 727–29.

IV. CONCLUSION

While the Cambridge Analytica scandal was about more than interoperability, it graphically illustrates some of the pitfalls of interoperability as either an antitrust remedy or regulatory policy, particularly for platforms where multiple users interact with each other on the platform. A user can consent to share his or her own information or allow a third-party app to interoperate with his information on the platform, but where that user's information is inseparable from the information of the other users with whom he or she interacts on the platform, permission from the original user is insufficient to protect user privacy. To the extent courts, regulators, and policymakers contemplate interoperability as a cure for network effects and other market failures, they will need to think carefully about how to implement interoperability without sacrificing privacy. Or, more likely, how to strike the balance between sacrificing privacy and mandating interoperability, using the right combination of antitrust and regulation.





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