Essential Data

Certain firms in the Internet economy may exclude competitors by refusing to deal data. Such conduct may impede innovation. But antitrust law lacks a coherent response to monopoly of data. This Comment proposes a policy inspired by duties to share. Over a century ago, courts devised an “essential facilities” doctrine that required monopolists to share inputs essential to competition with rivals. These inputs included phone lines and bridges. I contend that the essential facilities doctrine sometimes should require open access to data.

This Comment proceeds in two Parts. Part I describes the problems with data monopolies and provides an example of an essential data dispute. The Part goes on to explain the essential facilities doctrine and identify criticisms that led to the doctrine’s rejection. It closes by describing an essential data claim. Part II contends that criticisms of the essential facilities doctrine attenuate when a dataset becomes the facility to which a rival seeks access.

I. ONLINE DATA AND ESSENTIAL FACILITIES

Part I has three sections. Part I.A explains the role of data in the online economy and provides an example of an essential data claim. Part I.B introduces the essential facilities doctrine, as well as the doctrine’s demise. Part I.C sets forth the elements of an essential data claim and situates the concept in commentary and precedent.

A. Online Data

Sometimes data cause disputes. A company called PeopleBrowsr faced one late in 2012. According to PeopleBrowsr, its service helped clients monitor and analyze conversations online and relied on data from a social network called
Twitter.1 PeopleBrowsr also claimed that it had used Twitter data for years.2 But Twitter told PeopleBrowsr that the social network would revoke access to its data at the end of November 2012.3 Twitter alleged that its business model had evolved.4 According to PeopleBrowsr, Twitter thought the monitoring company no longer “fit.”5

PeopleBrowsr alleged that a Twitter shutoff “would [have] devastate[d] PeopleBrowsr’s business.”6 So the company stated that it negotiated with Twitter for access.7 PeopleBrowsr said that negotiations failed and then it sued.8 Shutoff, PeopleBrowsr said, would violate California competition law.9 “[C]ompetition in the market for analysis of Twitter data” would founder and innovation in the data’s use would slow.10 Not so, Twitter said: shutoff preserved the incentives of entrepreneurs to innovate and violated neither California nor federal antitrust law.11 Twitter, the company said, “has the right to control its data.”12

This Comment challenges that and similar claims. Refusals to deal data can help firms free ride on rivals’ investments and maintain monopolies by excluding competitors.13 But courts supply no consistent response to the antitrust questions that data pose: PeopleBrowsr and Twitter settled and

1. Complaint ¶ 5, PeopleBrowsr, Inc. v. Twitter, Inc., No. CGC-12-526393 (Cal. Super. Ct. Nov. 27, 2012) (“By analyzing its 1000-day data mine of tweets, PeopleBrowsr empowers individual web users and organizations to find value in the massive volumes of data produced on Twitter. It also provides organizations deep insight regarding consumers’ reactions to products and services . . . .”).
2. Id. ¶ 4.
4. Defendant Twitter, Inc.’s Notice of Motion and Motion to Dismiss Plaintiffs’ Complaint at 1, PeopleBrowsr, Inc. v. Twitter, Inc., No. 4:12-cv-06120-EMC (N.D. Cal. Mar. 6, 2013).
5. Complaint, supra note 1, ¶ 114.
6. Id. ¶ 122.
7. Id. ¶ 120.
8. Id. ¶ 121.
9. Id. ¶ 155.
10. Id. ¶ 160.
11. Defendant Twitter, Inc.’s Notice of Motion and Motion to Dismiss Plaintiffs’ Complaint, supra note 4, at 9-12.
12. Id. at 11.
13. See infra Part II.A.
PeopleBrowsr got access for about eight months. Two software developers a decade apart sued online marketplaces for withholding data and got no answer on their antitrust claims. The Federal Trade Commission in 2011 reportedly opened an inquiry into claims that Twitter hobbled a potential rival by revoking access to data. The Commission never filed a complaint.

B. The Essential Facilities Doctrine and Its Critics

Antitrust law generally preserves the “right[s] of trader[s] or manufacturer[s]” to choose the “parties with whom [they] deal.” But in “limited circumstances” a refusal to deal violates Section 2 of the Sherman Act, which prohibits monopolization. Under the essential facilities doctrine, a duty to deal arises when a monopolist refuses to share inputs essential to competition despite the feasibility of doing so.

The essential facilities doctrine dates at least to 1912, when “a group of railroad operators obtained . . . the only railroad bridges across the Mississippi River at St. Louis.” Because the “most extraordinary” topography of the region rendered it “impossible for any railroad company to pass through . . . without using [the group’s] facilities,” the Supreme Court required that the group deal with outsiders on “just and reasonable terms.”


20. MCI Commc’ns Corp. v. AT&T, 708 F.2d 1081, 1132-33 (7th Cir. 1983).


The Supreme Court never adopted the essential facilities doctrine by
name. But lower courts and commentators drew on the doctrine. The
Court in 1972 made a power company share transmission wires with the
company’s rivals. A decision of the Court a decade later required two ski
mountains to continue offering a joint ticket after one sought to withdraw.

Today, little remains of the essential facilities doctrine. Commentators
weakened the doctrine with three criticisms. First, monopolists could not
extract additional profits from consumers by refusing to deal. So
efficiency and not exclusion likely motivated behavior scrutinized by the
essential facilities doctrine. Second, the doctrine weakened incentives to compete:
dominant firms would not erect infrastructure lest a court appropriate the
investment for a rival’s use. Finally, the doctrine placed courts into the role of
regulators, though they lacked the capacity to administer the sharing that the
document required. These concerns held sway: the Supreme Court in 2004
denied “[]ever recogniz[ing]” the doctrine of essential facilities.

C. Essential Data

This Comment argues that a claim to essential data—data essential to
competition—should require the same elements as a claim to an essential
facility. First, the monopolist must control and deny access to the data that the
plaintiff seeks. Second, competition must fail without the data. Third, the

that the Court has never recognized an essential facilities doctrine); see Aspen Skiing Co. v.
Aspen Highlands Skiing Corp., 472 U.S. 585, 611 n.44 (1985) (requiring ski mountains to
continue offering a joint ticket but finding it unnecessary to consider the essential facilities
document).

24. See, e.g., MCI, 708 F.2d at 1132-33; Hecht v. Pro-Football, Inc., 570 F.2d 982, 992 (D.C. Cir.
1977); see also Phillip Areeda, Essential Facilities: An Epithet in Need of Limiting Principles, 58
ANTITRUST L.J. 841, 847-52 (1990) (providing an overview of three Supreme Court cases
often cited to support the essential facilities doctrine); Brett Frischmann & Spencer Weber
Waller, Revitalizing Essential Facilities, 75 ANTITRUST L.J. 1, 6-8 (2008) (discussing the
traditional essential facilities doctrine).


27. ROBERT BORK, THE ANTITRUST PARADOX 229 (1978); Richard A. Posner, Exclusionary


29. Areeda, supra note 24, at 853; Michael Boudin, Antitrust Doctrine and the Sway of Metaphor, 75


31. See MCI Commc’ns Corp. v. AT&T, 708 F.2d 1081, 1132-33 (7th Cir. 1983).
plaintiff must lack means to duplicate the data.\textsuperscript{33} Fourth, the monopolist must have means to share the data.\textsuperscript{34} Fifth and finally, an essential facility plaintiff must demonstrate the defendant’s monopoly power in an antitrust market.\textsuperscript{35}

Several recent claims fit this description. One is Twitter’s attempt to disconnect PeopleBrowsr, discussed at the beginning of this Part. A second relates to a 2000 dispute between eBay and Bidder’s Edge, an aggregator of auction prices\textsuperscript{36}: eBay, which reportedly controlled eighty-seven percent of auction traffic,\textsuperscript{37} refused to deal with an ecosystem firm that made tools for users to access auction prices.\textsuperscript{38} A third concerns a dispute that reached federal court in 2012\textsuperscript{39}: Craigslist, a dominant provider of online classifieds, sued 3Taps, a start-up that obtained and shared data based on Craigslist’s classifieds.\textsuperscript{40}

Each dispute started with data created by users of a monopolist’s platform. Competitors could not duplicate the data because of network effects: each user who used the monopolist’s platform made that platform more valuable to every other user. So no competing dataset emerged. For example, the set of messages that Twitter controlled faced no competition from a rival network: users who

\textsuperscript{32} See Twin Labs., Inc. v. Weider Health & Fitness, 900 F.2d 566, 570 (2d Cir. 1990).
\textsuperscript{33} See MCI, 708 F.2d at 1132.
\textsuperscript{34} See id. at 1133.
\textsuperscript{39} Complaint, Craigslist, Inc. v. 3Taps, Inc., 942 F. Supp. 2d 962 (N.D. Cal. 2013) (No. CV-12-03816 CRB), 2012 WL 7061539.
\textsuperscript{40} Id.
wanted to listen went where people were talking. The set of prices that eBay controlled faced no competition from a rival auction: sellers went where people were buying. The disputes in each case involved refusals to deal monopolized inputs protected by barriers to entry. Those circumstances invite the application of the essential facilities doctrine.

II. RESPONDING TO CRITICS OF THE ESSENTIAL FACILITIES DOCTRINE

This Part contends that criticisms of the essential facilities doctrine attenuate when rivals invoke the doctrine against a defendant that has withheld data. Refusals to deal data may raise monopoly profits and lower consumer welfare. Essential data remedies benefit consumers without depriving innovators of incentives to invest. Finally, courts may administer access to data more easily than access to physical facilities.

Data essential to competition—essential data—can exist when firms act alone or with others. Courts have forced access in the latter case but not the former. Firms that act alone may originate data or build platforms for others to originate data. Microsoft and Intel, for example, originated technical data essential to competition in downstream markets. Marina Lao has argued for access to data in such a case. This Comment extends the case for access to

41. Each additional market participant increases that market’s liquidity. Better prices result. A rival market with fewer participants will offer lower prices (for sellers) or higher prices (for buyers) than the incumbent. These inferior prices will induce buyers and sellers to trade on the incumbent market, further depriving the rival of liquidity. See Daniel M. Gray, The Essential Role of Regulation in Promoting Equity Market Competition, 1 BROOK. J. CORP. FIN. & COM. L. 395, 397 (2007).

42. MCI Commc’ns Corp. v. AT&T, 708 F.2d 1081, 1132-33 (7th Cir. 1983).


46. Lao, supra note 35, at 558-59 (2009) (arguing that a “theoretically sound basis for antitrust intervention” exists because sharing interoperability information permits competition for “a
platforms: that is, to firms whose data monopolies derive from users who must originate data to consume the functionality that the firms' technology enables.

A. Motive to Refuse

Critics of the essential facilities doctrine begin by asking why monopolists would refuse to deal. Single monopoly profit theory holds that monopolists may extract monopoly rents from a market without selling to consumers. Assuming there is a competitive market for the end product whose input the monopolist controls, monopolists may charge downstream firms one fee or royalty per product and thereby induce downstream firms to produce only the monopoly quantity. The monopolist could do no better if it sold to consumers itself.

Data monopolists in emerging industries lie beyond this model. First, one dataset can supply zero or infinite final goods and services. When 3Taps gets data from Craigslist ads, 3Taps can serve that data to anyone who wants to see goods and services listed for sale on Craigslist's exchange. Second, a data monopolist may lack the ability to monitor the quantity of final goods and services produced using the monopolist's data. When Bidder's Edge scrapes prices from eBay, eBay may never learn that a user has viewed those prices on Bidder's Edge. As a result, uncertainty may blur the final demand curve that a data monopolist faces.

If the monopolist cannot predict final demand and must make sunk investments in order to enter the final market, the monopolist may prefer temporarily to deal with a downstream rival. The rival's success or failure provides a proxy for otherwise unobservable final demand. If the data monopolist retains the ability to terminate the rival's access, then the monopolist has obtained a costless option on a downstream market. For example, PeopleBrowsr said that it started analyzing Twitter data on the basis of the social network's promise to make that data available. Twitter, necessary" that facilities' "natural monopoly characteristics or strong network effects" would otherwise bar).

47. See, e.g., 3B AREEDA & HOVENKAMP, supra note 28, ¶ 773c ("[A] monopolist cannot earn double profits by monopolizing a second, vertically related market."); BORK, supra note 27, at 229 ("[V]ertically related monopolies can take only one monopoly profit"); Posner, supra note 27, at 524.

48. Complaint, supra note 1, ¶¶ 27-33 ("PeopleBrowsr Built a Valuable Business in Reliance on Twitter's Commitment to Keep Access to Its Data Open.").
PeopleBrowsr said, refused to share data only after PeopleBrowsr demonstrated the existence of a lucrative market for analytics.\textsuperscript{49}

So a data monopolist might pursue a strategy of free riding that ends with a refusal to deal. That means that uncertainty about market opportunities makes real the monopolist that Judge Richard A. Posner could imagine only "with difficulty": the monopolist who "entic[e] new firms into its market only to destroy them."\textsuperscript{50} If a plaintiff cannot bring an essential data claim to mitigate the threat of exclusion, then the risk of entry—and, therefore, the cost of innovation—will rise.

Data monopolists might also refuse to deal in order to protect their monopolies. A monopolist may fear that a downstream rival's tools will eventually supplant the monopolist's product altogether.\textsuperscript{51} If the monopoly product provides to users data produced by a network, then refusal to share those data may impede a rival that seeks to develop a competing product. For example, according to Craigslist's rivals, they cannot promise market prices to buyers without Craigslist's data.\textsuperscript{52} Or a social network's rival might choose to challenge the network by first attracting users with messages passed on the incumbent network.\textsuperscript{53} Refusing to deal data forecloses such a tactic.

Data monopolists may have multiple motives for refusing to deal data to potential competitors. Courts should not automatically ascribe to those refusals the procompetitive explanations put forward by critics of the essential facilities doctrine.\textsuperscript{44}

\begin{itemize}
\item \textsuperscript{49} Id. ¶ 92 ("After encouraging PeopleBrowsr and other developers to develop innovative products that opened up lucrative new markets analyzing Twitter data, Twitter has now acted to take control of those markets.").
\item \textsuperscript{50} Olympia Equip. Leasing Co. v. W. Union Tel. Co., 797 F.2d 370, 376 (7th Cir. 1986).
\item \textsuperscript{51} See, e.g., United States v. Microsoft Corp., 253 F.3d 34, 64 (D.C. Cir. 2001) (finding that the developer of an operating system violated Section 2 of the Sherman Act by excluding technologies with the potential to challenge the operating system's monopoly).
\item \textsuperscript{52} Defendant 3Taps, Inc.'s First Amended Counterclaim at 46-49, Craigslist, Inc. v. 3Taps, Inc., 942 F. Supp. 2d 962 (N.D. Cal. 2013) (No. CV-12-03816 CRB), 2012 WL 8233034.
\item \textsuperscript{53} Nick Bilton, Hatching Twitter: A True Story of Money, Power, Friendship, and Betrayal 244 (2013) (describing a potential Twitter rival that planned "to build a Twitter-network clone that could be used to divert people away from Twitter to an entirely new service"); see also Dennis W. Carlton & Michael Waldman, The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries, 33 RAND J. Econ. 194, 207 (2002) ("[T]he monopolist will sometimes deter entry into the primary market in period 2 by behaving in a manner that causes cohort 1 consumers to purchase complementary units from the monopolist.").
\item \textsuperscript{54} See, e.g., Bork, supra note 27, at 231; David J. Gerber, Note, Rethinking the Monopolist's Duty to Deal: A Legal and Economic Critique of the Doctrine of 'Essential Facilities,' 74 Va. L. Rev. 1069, 1084 (1988) ("The law should presume that efficiency motivates monopolists absent any anticompetitive incentive for refusals to deal.").
\end{itemize}
B. Incentives to Invest

Critics next charged that the essential facilities doctrine distorted firms' incentives to invest. The prospect of future antitrust liability "could significantly reduce the incentive of entrepreneurs to innovate in areas ... involving essential facilities." The Supreme Court's *Trinko* decision adopted this argument, which has since met with approval in courts of appeal.

However, antitrust law does not offer clear guidance about when a defendant's argument about reduced incentives will suffice to rebut an essential facilities claim. The Supreme Court last ruled for an essential facilities plaintiff in *Aspen Skiing Co. v. Aspen Highlands Skiing Co.* *Aspen's* unanimous Court held that the prospect of profits from "exclusionary" conduct does not justify a refusal to deal. But as Einer Elhauge asserts, "[m]onopolization doctrine currently uses vacuous standards and conclusory labels that provide no meaningful guidance about which conduct will be condemned as exclusionary." So data monopolists' claims that refusals to deal protect "incentives of companies to innovate and compete," or reduce "free-riding on [the monopolist's] substantial investment of time, effort, and expense," presuppose the sufficiency of business justifications that antitrust law has yet to accept.

56. Gregory J. Werden, *The Law and Economics of the Essential Facility Doctrine*, 32 ST. LOUIS U. L.J. 433, 473 (1987); see also Caswell O. Hobbs III et al., *Panel Discussion: Exclusionary Conduct*, 57 ANTITRUST L.J. 723, 742 (1988) ("[The monopolist] got out in front when it wasn't at all clear that the [essential] facility was going to work, and now someone else wants to come along and help themselves [sic].").
57. Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, 540 U.S. 398, 407-08 (2004) ("[Forced sharing] may lessen the incentive for the monopolist, the rival, or both to invest in those economically beneficial facilities.").
58. See, e.g., Novell, Inc. v. Microsoft Corp., 731 F.3d 1064, 1072 (10th Cir. 2013); Cablevision Sys. Corp. v. FCC, 597 F.3d 1306, 1322 (D.C. Cir. 2010); MetroNet Servs. Corp. v. Qwest Corp., 383 F.3d 1124, 1131 (9th Cir. 2004).
60. *Id.* at 608 (declaring to find business justification in defendant's interest in "reducing competition in the Aspen market over the long run").
62. Defendant Twitter, Inc.'s Notice of Motion and Motion to Dismiss Plaintiffs’ Complaint, *supra* note 4, at 11.
63. Complaint, *supra* note 39, ¶ 144.
Moreover, the incentive claim rests on the ex ante expectations of entrepreneurs, but the experience of the data monopolists identified in this Comment suggests that facility ownership did not motivate entry into the markets that the monopolists came to dominate. For example, Twitter launched a tool to connect; early monetization discussions revolved around advertising. Craigslist began as its founder’s events circular; the site remained “wedded to the idea that [it] was a community service” years after its launch. eBay’s first revenues came from transaction fees, and its business plan predicted future revenue from software licensing.

This could change. Data licensing revenues at Twitter rose almost fifty percent in 2013, to $70 million. In April 2014 the company bought Gnip, a data reseller. LinkedIn, a social network for professionals, received most of its 2013 revenue from hiring professionals who bought access to the network’s data.

The application of any essential data doctrine to those who invest in pursuit of data monopolies will require finesse. But essential facilities precedents supply a framework for such a future: the Supreme Court’s refusal-to-deal precedents impose sharing only after reviewing a monopolist’s reasons for exclusion. Whether those reasons may include monopoly profits, if the

64. BILTON, supra note 53, at 109.
profits require exclusion and motivate investment, remains an unresolved question.\textsuperscript{71} Partial answers exist; courts and scholars view with skepticism justifications advanced by monopolists who deal with some, but not with rivals.\textsuperscript{72} Moreover, courts may scrutinize proffered justifications for pretext, safeguarding ex ante incentives only where those incentives are endangered.\textsuperscript{73}

C. Administrability

Finally, critics questioned courts' capacity to identify and remedy anticompetitive refusals to deal.\textsuperscript{74} This administrability critique asserted that generalist judges' reviews of novel practice and complex economics for "exclusionary" conduct became risky affairs.\textsuperscript{75} And once judges condemned refusals to deal, they could not enforce remedies without taking on the burdens of a regulator.\textsuperscript{76}

Essential data remedies escape some of these criticisms. First, the nonrivalrous character of data "facilities" relieves courts of the analytical effort otherwise required to prevent "congestion through competing uses" of physical facilities with finite capacity.\textsuperscript{77} Second, the data monopolist faces costs of

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\item \textsuperscript{71} Elhauge, \textit{supra} note 61, at 310; see Novell, Inc. v. Microsoft Corp., 731 F.3d 1064, 1075-77 (10th Cir. 2013).
\item \textsuperscript{72} See Olympia Equip. Leasing Co. v. W. Union Tel. Co., 797 F.2d 370, 377 (7th Cir. 1986); Elhauge, \textit{supra} note 61, at 312.
\item \textsuperscript{73} See, e.g., Aspen Skiing, 472 U.S. at 609.
\item \textsuperscript{74} See Hovenkamp, \textit{supra} note 55, at 339 (arguing that the essential facilities doctrine "requires a court to set terms and conditions of the sale, thus turning it into a kind of regulatory agency"); Frank H. Easterbrook, \textit{Essay: The Chicago School and Exclusionary Conduct}, 31 HARV. J.L. & PUB. POL'Y 439, 442 (2008) ("Anyone who thinks that judges would be good at detecting the few situations in which cooperation would do more good than harm has not studied the history of antitrust.").
\item \textsuperscript{75} Frank H. Easterbrook, \textit{On Identifying Exclusionary Conduct}, 61 NOTRE DAME L. REV. 972, 977-78 (1986) ("Judges hearing antitrust cases have a lousy record in separating economic wisdom from fallacy."); see also Novell, Inc., 731 F.3d at 1075 (describing the complexity of identifying exclusionary practice); Elhauge, \textit{supra} note 61, at 255 (critiquing the "vacuous" standards used to determine which actions are exclusionary).
\item \textsuperscript{76} See, e.g., Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, 540 U.S. 398, 408 (2004) ("Enforced sharing . . . requires antitrust courts to act as central planners, . . . a role for which they are ill suited."); Areeda, \textit{supra} note 24, at 853; Frank H. Easterbrook, \textit{Correspondence: Workable Antitrust Policy}, 84 MICH. L. REV. 1696, 1700-01 (1986).
\item \textsuperscript{77} Spencer Weber Waller, \textit{Areeda, Epithets, and Essential Facilities}, 2008 WIS. L. REV. 359, 373; see Frischmann & Waller, \textit{supra} note 24, at 13 ("For partially non-rivalrous resources of finite capacity, the cost-benefit analysis is more complicated because of the possibility of congestion through competing uses and users."); cf. Hecht v. Pro-Football, Inc., 570 F.2d 982, 992-93 (D.C. Cir. 1977) ([T]he antitrust laws do not require that an essential facility
sharing that likely approach zero;\textsuperscript{78} any nonzero costs likely arise from markets for commoditized infrastructure, such as servers, bandwidth, or processors. Therefore, no sustained judicial inquiry into industry idiosyncrasies or extant plant characteristics would be necessary to determine the sharing costs borne by data monopolists.\textsuperscript{79}

Finally, courts can preserve incentives to invest by permitting data monopolists to recover their average total costs.\textsuperscript{80} Courts have long paired cost recovery with the essential facilities doctrine.\textsuperscript{81} The standard—which includes a reasonable return on capital—"reflects equilibrium in the market for investment."\textsuperscript{82}

The argument that innovators and their backers require higher than reasonable returns to capital presumes that one firm—but not others—can identify a superior investment opportunity. Theories of efficient capital markets, however, deny that such opportunities for arbitrage exist.\textsuperscript{83} Together, these observations suggest that courts may more easily administer access to data than to physical facilities.
**D. Consumer Welfare**

The benefits of access to data should also enter the analysis of courts confronted with claims to essential data. In no markets do monopoly prices produce static deadweight loss more than in markets for information.\(^8^4\) Further, refusals to deal essential data stall innovation. Data power many applications: Twitter data have predicted social unrest and power outages and directed humanitarian aid.\(^8^5\) In that regard, data resemble technologies that support multiple rounds of innovation.\(^8^6\)

Innovation scholars suggest that unqualified control of such technology "tends to hinder technical progress."\(^8^7\) First movers focus on past experiences\(^8^8\) or lack expertise to develop all applications.\(^8^9\) Improvers who would build on data may fail to secure permission to do so because monopolists hold divergent beliefs about an improvement's value.\(^9^0\)

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90. Merges & Nelson, *The Effect of Patent Scope Decisions*, supra note 86, at 5 ("Williamson's theory . . . surely would lead one to suspect that it would be very difficult to work out
Broad exclusion rights favor innovation and consumer welfare when "the overall potential for modifications and improvements based on the original achievement is relatively clear and bounded." Little suggests that essential data fit that description: AOL failed to recognize that transaction data could power the recommendation engine that Amazon built. Yahoo considered creating a spell check tool from users' search engine queries, but it was Google that actually pursued the project.

The welfare case for an essential data doctrine has caveats. I have simplified questions of access quality over which parties have litigated in the last twenty years. I have assumed that conduct that resembles both exclusion and justified competition excludes with frequency sufficient to justify scrutiny. But the prima facie case remains: revitalizing essential facilities in the context of data may speed innovation and increase consumer welfare.

CONCLUSION

This Comment has argued that criticisms of the essential facilities doctrine carry less weight when a dataset becomes the facility. In the data context, the essential facilities doctrine captures suspect conduct and better withstands criticisms linked to ex ante incentives. Remedies that enforce access to data would entail less judicial inquiry into costs of service and facility capacity. The case for any essential data doctrine will evolve with the objectives of aspiring data monopolists. But that case will always build on the allocative inefficiencies of information monopolies and their negative effects on innovation with data.

licensing arrangements regarding rights to what may be found or created prior to knowing just what the inventions or discoveries will turn out to be.

91. Id. at 7.
92. MAYER-SCHÖNBERGER & CUKIER, supra note 89, at 103 ("[T]he importance of data's reuse is not fully appreciated in business and society. . . . [M]any Internet and technology companies have been unaware until recently how valuable data's reuse can be.").
93. Id. at 105.
94. Id. at 112.
97. Cf. Frischmann & Waller, supra note 24, at 11-12 (arguing that infrastructure management regimes that incorporate "open access[]" and nondiscriminatory terms "facilitate[] competition downstream, innovation and experimentation with new uses, and often the generation of positive externalities").
Essential data implicate networks through which consumers connect and transact—activities fundamental to Internet economies. Courts and agencies should consider whether a doctrine devised to safeguard competition in the last century has become more salient in this one.

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Lea Brilmayer, J.D., LL.M., Howard M. Holtzmann Professor of International Law
Richard R.W. Brooks, Ph.D., J.D., Professor (Adjunct) of Law
† Robert Amsterdam Burt, M.A., J.D., Alexander M. Bickel Professor of Law
Steven G. Calabresi, B.A., J.D., Visiting Professor of Law (fall term)
Stephen Lisle Carter, B.A., J.D., William Nelson Cromwell Professor of Law
Amy Chua, A.B., J.D., John M. Duff, Jr. Professor of Law
Joseph M. Crosby, B.A., M.B.A., Associate Dean
Dennis E. Curtis, B.S., LL.B., Clinical Professor Emeritus of Law, Professorial Lecturer in Law, and Supervising Attorney
Harlon Leigh Dalton, B.A., J.D., Professor Emeritus of Law
Mirjan Radovan Damalka, LL.B., Dr.Jur., Sterling Professor Emeritus of Law and Professorial Lecturer in Law
Toni Hahn Davis, J.D., LL.M., Associate Dean
Drew S. Days, III, B.A., LL.B., Alfred M. Rankin Professor Emeritus of Law and Professorial Lecturer in Law
Jan Ginter Deutsch, LL.B., Ph.D., Walter Hale Hamilton Professor Emeritus of Law and Professorial Lecturer in Law
Aaron Dhir, LL.B., LL.M., Visiting Professor of Law (fall term)
Fiona M. Doherty, B.A., J.D., Clinical Associate Professor of Law and Supervising Attorney
Steven Barry Duke, J.D., LL.M., Professor of Law
Zev J. Eisen, J.D., Ph.D., Irving S. Rubenstein Visiting Associate Professor of Law (spring term)
† Robert C. Ellickson, A.B., LL.B., Walter E. Meyer Professor of Property and Urban Law (spring term)
Edwin Donald Elliott, B.A., J.D., Professor (Adjunct) of Law
William N. Eskridge, Jr., M.A., J.D., John A. Garver Professor of Jurisprudence
Daniel C. Esty, M.A., J.D., Hillhouse Professor of Environmental Law and Policy, School of Forestry & Environmental Studies; and Clinical Professor of Environmental Law and Policy, Law School
Owen M. Fiss, M.A., LL.B., Sterling Professor Emeritus of Law and Professorial Lecturer in Law
† James Forman, Jr., A.B., J.D., Clinical Professor of Law and Supervising Attorney
Emmanuel Gaillard, Ph.D., Visiting Professor of Law (spring term)
Lech Garlicki, Doctorate in Legal Sciences, Habil. in Legal Sciences, Visiting Professor of Law and Peter and Patricia Gruber Fellow in Global Justice (spring term)
Heather K. Gerken, B.A., J.D., J. Stacey Wright Professor of Law
† Paul Gewirtz, B.A., J.D., Potter Stewart Professor of Constitutional Law
Abbe R. Gluck, B.A., J.D., Associate Professor of Law
Robert W. Gordon, A.B., A.B., Chancellor Kent Professor Emeritus of Law and Legal History and Professor (Adjunct) of Law (fall term)
Gary B. Gordon, M.A., Ph.D., Professor (Adjunct) of Law (fall term)
Michael J. Graetz, B.A., LL.B., LL.D., Justus S. Hotchkiss Professor Emeritus of Law and Professorial Lecturer in Law (fall term)
† David Singh Grewal, J.D., Ph.D., Associate Professor of Law
Moshe Halberstam, B.A., Ph.D., Florence Regas Visiting Professor of Law (fall term)
Henry B. Hansmann, J.D., Ph.D., Oscar M. Ruebhausen Professor of Law
Robert D. Harrison, J.D., Ph.D., Lecturer in Legal Method
* Oona Hathaway, B.A., J.D., Gerard C. and Bernice Latrobe Smith Professor of International Law
Edward J. Janger, B.A., J.D., Maurice R. Greenberg Visiting Professor of Law (spring term)
Christine Jolls, J.D., Ph.D., Gordon Bradford Tweedy Professor of Law and Organization
Dan M. Kahn, B.A., J.D., Elizabeth K. Dollard Professor of Law and Professor of Psychology
† Paul W. Kahn, J.D., Ph.D., Robert W. Winner Professor of Law and the Humanities
Johanna Kalb, M.A., J.D., Visiting Associate Professor of Law
Amy Kapczynski, M.A., J.D., Associate Professor of Law
S. Blair Kauffman, J.D., LL.M., M.L.L., Law Librarian and Professor of Law
Aaron Seth Kesselheim, M.D., J.D., M.P.H., Visiting Associate Professor of Law (spring term)
Alvin Keith Klevorick, M.A., Ph.D., Deputy Dean, John Thomas Smith Professor of Law, and Professor of Economics
† Harold Hongju Koh, A.B., J.D., Sterling Professor of International Law
Issa Kohler-Hausmann, J.D., Ph.D., Associate Professor of Law
Anthony Townsend Kronman, J.D., Ph.D., Sterling Professor of Law
Mattias Kumm, 1st State Examination, J.S.D., Florence Regas Visiting Professor of Law (fall term)
Douglas Kysar, B.A., J.D., Joseph M. Field ’55 Professor of Law
Christine Landfried, Ph.D., Habilitation, Visiting Professor of Law (spring term)
John H. Langbein, LL.B., Ph.D., Sterling Professor of Law and Legal History
Anika Singh Leman, B.A., J.D., Clinical Associate Professor of Law
Margaret H. Lemos, B.A., J.D., Anne Urowsky Visiting Professor of Law (fall term)
Sanford V. Levinson, B.A., J.D., Visiting Professor of Law (fall term)
Yair Listokin, Ph.D., J.D., Professor of Law
Carroll L. Luch, M.S.W., J.D., Clinical Professor Emeritus of Law, Supervising Attorney, and Professorial Lecturer in Law
† Jonathan R. Macey, A.B., J.D., Sam Harris Professor of Corporate Law, Corporate Finance, and Securities Law
Daniel Markovits, D.Phil., J.D., Guido Calabresi Professor of Law
† Jerry Louis Mashaw, LL.B., Ph.D., Sterling Professor of Law
Mary Briene Matheron, B.S., Associate Dean
Tracey L. Meares, B.S., J.D., Walton Hale Hamilton Professor of Law
Noah Messing, B.A., J.D., Lecturer in the Practice of Law and Legal Writing
Alice Miller, B.A., J.D., Associate Professor (Adjunct) of Law (spring term)
† John D. Morley, B.S., J.D., Associate Professor of Law
Angela Onwuachi-Willig, B.A., J.D., Visiting Professor of Law (fall term)
Kathleen B. Overly, J.D., Ed.D., Associate Dean
Nicholas R. Parrillo, J.D., Ph.D., Professor of Law
† Jean Koh Peters, A.B., J.D., Sol Goldman Clinical Professor of Law and Supervising Attorney
Robert C. Post, J.D., Ph.D., Dean and Sol & Lilian Goldman Professor of Law
J.L. Pottenger, Jr., A.B., J.D., Nathan Baker Clinical Professor of Law and Supervising Attorney
† Claire Priest, J.D., Ph.D., Professor of Law
† George L. Priest, B.A., J.D., Edward J. Phelps Professor of Law and Economics and Kauffman Distinguished Research Scholar in Law, Economics, and Entrepreneurship
Asha Rangappa, A.B., J.D., Associate Dean
William Michael Reisman, B.A., J.S.D., Myres S. McDougal Professor of International Law
Judith Resnik, B.A., J.D., Arthur Liman Professor of Law
Cristina Rodriguez, M.Litt., J.D., Professor of Law
Roberta Romano, M.A., J.D., Sterling Professor of Law
Carol M. Rose, J.D., Ph.D., Gordon Bradford Tweedy Professor Emeritus of Law and Organization, and Professorial Lecturer in Law (fall term)
Susan Rose-Ackerman, BA, Ph.D., Henry R. Luce Professor of Jurisprudence (Law School and Department of Political Science)
Jed Rubenfeld, A.B., J.D., Robert R. Slaughter Professor of Law
Charles Frederick Sabel, A.B., Ph.D., Florence Regaz Visiting Professor of Law
Albie Sachs, Law, Ph.D., Visiting Professor of Law and Gruber Global Constitutionalism Fellow (fall term)
Wojciech Sadurski, Dipl. Postgraduate Studies, Ph.D., Visiting Professor of Law (spring term)
Peter H. Schuck, M.A., J.D., LL.M., Simon E. Baldwin Professor Emeritus of Law
Vicki Schultz, B.A., J.D., Ford Foundation Professor of Law and Social Sciences
Alan Schwartz, M.A., LL.B., Sterling Professor of Law
Scott J. Shapiro, J.D., Ph.D., Charles F. Southmayd Professor of Law and Professor of Philosophy
Robert J. Shiller, S.M., Ph.D., Professor (Adjunct) of Law (fall term)
Reva Siegel, M.Phil., J.D., Nicholas deB. Kazenbach Professor of Law
Norman I. Silber, Ph.D., J.D., Visiting Professor of Law (fall term)
James J. Silk, M.A., J.D., Clinical Professor of Law and Supervising Attorney
John G. Simon, LL.B., LL.D., Augusta E. Lines Professor Emeritus of Law and Professorial Lecturer in Law
Robert A. Solomon, B.A., J.D., Clinical Professor Emeritus of Law
Kate Stith, M.P.P., J.D., Lafayette S. Foster Professor of Law
Alec Stone Sweet, M.A., Ph.D., Leiter Professor of International Law, Politics, and International Studies
Mike K. Thompson, M.B.A., J.D., Associate Dean
Heather E. Tookes, B.A., Ph.D., Professor (Adjunct) of Law (fall term)
Tom R. Tyler, M.A., Ph.D., Macklin Fleming Professor of Law and Professor of Psychology
Neil Walker, LL.B., Ph.D., Sidney Austin-Robert D. McLean Visiting Professor of Law (fall term)
Patrick Weil, M.B.A., Ph.D., Visiting Professor of Law and Peter and Patricia Gruber Fellow in Global Justice (fall term)
James Q. Whitman, J.D., Ph.D., Ford Foundation Professor of Comparative and Foreign Law
Ralph Karl Winter, Jr., M.A.H., LL.B., Professor (Adjunct) of Law (spring term)
Michael J. Wishnie, B.A., J.D., Deputy Dean for Experiential Education, William O. Douglas Clinical Professor of Law, Supervising Attorney, and Director, Jerome N. Frank Legal Services Organization
John Fabian Witt, J.D., Ph.D., Allen H. Duffy Class of 1960 Professor of Law
Stephen Wizner, A.B., J.D., William O. Douglas Clinical Professor Emeritus of Law, Supervising Attorney, and Professorial Lecturer in Law
Gideon Yaffe, A.B., Ph.D., Professor of Law and Professor of Philosophy
Howard V. Zonana, BA, M.D., Professor of Psychiatry and Clinical Professor (Adjunct) of Law (spring term)

Lecturers in Law
Emily Bazelon, B.A., J.D.
James Dawson, B.A., J.D.
Gregg Gonsalves, B.S.
Linda Greenhouse, B.A., M.S.L., Joseph Goldstein Lecturer in Law
John Allen Grim, M.A., Ph.D.
Mary Evelyn Tucker, M.A., Ph.D.

Visiting Lecturers in Law
Guillermo Aguilar-Alvarez, Lice. en Derecho (J.D.)
Yao Banlatenmi, Ph.D., LL.M.
Mark Barnes, J.D., LL.M.
Richard Baxter, M.A., J.D., John R. Ruben/Sullivan & Cromwell Visiting Lecturer in Accounting
Stephen B. Bright, B.A., J.D., Harvey Karp Visiting Lecturer in Law
Jay Butler, B.A., J.D.
Lincoln Caplan, A.B., J.D., Truman Capote Visiting Lecturer in Law
Robert N. Chatigny, A.B., J.D.
Wayne Dale Collins, M.S., J.D.
Victoria A. Cundiff, B.A., J.D.

† On leave of absence, fall term, 2014.
‡ On leave of absence, spring term, 2015.