

# TECHNOLOGICAL “DISRUPTION” OF THE LAW’S IMAGINED SCENE: SOME LESSONS FROM *LEX*

## *INFORMATICA*

Margot E. Kaminski<sup>†</sup>

### ABSTRACT:

Joel Reidenberg in his 1998 Article *Lex Informatica* observed that technology can be a distinct regulatory force in its own right and claimed that law would arise in response to human needs. Today, law and technology scholarship continues to ask: does technology ever disrupt the law? This Article articulates one particular kind of “legal disruption”: how technology (or really, the social use of technology) can alter the imagined setting around which policy conversations take place—what Jack Balkin and Reva Siegal call the “imagined regulatory scene.” Sociotechnical change can alter the imagined regulatory scene’s architecture, upsetting a policy balance and undermining a particular regulation or regime’s goals. That is, sociotechnical change sometimes disturbs the imagined paradigmatic scenario not by departing from it entirely but by constraining, enabling, or mediating actors’ behavior that we want the law to constrain or protect. This Article identifies and traces this now common move in recent law and technology literature, drawing on Reidenberg’s influential and prescient work.

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<sup>†</sup> Associate Professor of Law, Colorado Law. Director of the Privacy Initiative at Silicon Flatirons. Many thanks to Ryan Calo, Julie Cohen, Rebecca Crootof, and Meg Jones for helpful comments. Immeasurable thanks to the late Joel Reidenberg for his kindness, support, scholarship, and leadership in the field. Mistakes are my own.

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## I. INTRODUCTION

In 1996, as the keynote at an early cyberlaw conference, Judge Frank Easterbrook famously characterized internet law as “the law of the horse.”<sup>1</sup> Throwing down the gauntlet for generations of technology lawyers and professors to come, Judge Easterbrook explained that what was then known as cyberlaw was, like most studies of objects or actors affected by the law, a collection of questions from disparate areas of legal practice. “Any effort to collect these strands” into a law school class—or, by implication, a discipline—“is doomed to be shallow and to miss unifying principles.”<sup>2</sup>

He was wrong.

In 1998, Joel Reidenberg provided a set of unifying principles and practices for technology law.<sup>3</sup> Many of those principles still hold true today. Although its borders may have changed and its corpus(es) of substantive law expanded, technology law as a discipline is very much alive and thriving.

This Article begins by charting the core lessons of *Lex Informatica*: the unifying principles of technology law. As Reidenberg observed in 1998, technology can itself be a distinct regulatory force, crafted by extra-legal players in extra-legal institutions. Designing law for technology requires understanding and engaging with extra-legal forces, players, and institutions. Writing at a time when frontier metaphors infused a lot of the early scholarship,<sup>4</sup> Reidenberg claimed instead that law would be not evadable but inevitable, arising as the natural consequence of human social practices and needs.<sup>5</sup>

1. Frank H. Easterbrook, *Cyberspace and the Law of the Horse*, 1996 U. CHI. LEGAL F. 207, 208 (1996).

2. *Id.* at 207.

3. Joel R. Reidenberg, *Lex Informatica: The Formulation of Information Policy Rules Through Technology*, 76 TEX. L. REV. 553 (1997).

4. See, e.g., John Perry Barlow, *A Declaration of the Independence of Cyberspace*, (Feb. 8, 1996), <https://www.eff.org/cyberspace-independence>; David R. Johnson & David Post, *Law and Borders—The Rise of Law in Cyberspace*, 48 STAN. L. REV. 1367 (1996).

5. Reidenberg, *supra* note 3, at 553–54 (comparing the necessary evolution of technology law to the evolution of *Lex Mercatoria* and calling for “ground rules” to “offer

This Article next turns to recent dialogue from the field of law and technology, which is now decidedly less existential in nature. Rather than trying to justify its own existence, recent law-and-technology scholarship focuses on identifying what makes a particular question interesting, versus the practice of law as usual.<sup>6</sup> In other words, it asks: does technology ever disrupt the law?<sup>7</sup> And if so, when and how?

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stability and predictability so that participants have enough confidence for their communities to thrive, just as settled trading rules gave confidence and vitality to merchant communities”).

6. See *infra* note 7.

7. Even framing the question this way is controversial as disruption implies a one-way arrow of influence of law on technology. Also, when we refer to “technology,” we rarely mean an object and almost always mean social adoption and uses of technology. The recent and ongoing debate about technological exceptionalism and technological determinism in the field asks whether a particular technology has special qualities that make it disruptive to the law or whether there are other ways to characterize “disruption.” See, e.g., Ryan Calo, *Robotics and the Lessons of Cyberlaw*, 103 CALIF. L. REV. 513, 515 (2015) (“Robotics is shaping up to be the next transformative technology of our time. And robotics has a different set of essential qualities than the Internet. . . . The essential qualities of robotics will drive a distinct conversation [about the law.]”); Jack M. Balkin, *The Path of Robotics Law*, 6 CALIF. L. REV. CIR. 45, 45 (2015) (“I do not think it is helpful to speak in terms of ‘essential qualities’ of a new technology that we can then apply to law. On the contrary, we should try not to think about characteristics of technology as if these features were independent of how people use technology in their lives and in their social relations with others. Because the use of technology in social life evolves, and because people continually find new ways to employ technology for good or for ill, it may be unhelpful to freeze certain features of use at a particular moment and label them ‘essential.’”); Meg Leta Jones, *Does Technology Drive Law? The Dilemma of Technological Exceptionalism in Cyberlaw*, 2018 U. ILL. J. L. TECH & POL’Y 249, 253 (“I argue that technology does not drive law either. Technology is not the locus of legal agency. When testing the theory of technological exceptionalism, no technology has even been exceptional. We must figure out a new way to answer the question, ‘are driverless cars new?’ Because, [sic] technological exceptionalism is not up to the task. Instead of analyzing whether technologies are or will be exceptional and in addition to analyzing how the law can and should respond to exceptional or conservative technological advances, this Article argues that cyberlaw research should consider the way in which technologies, practices, and social arrangements are constructed within certain legal contexts: the legal construction of technology.”); Margot E. Kaminski, *Legal Disruption: How Technology Disrupts the Law* (Mar. 17, 2017) (unpublished manuscript) (on file with author) [hereinafter *Legal Disruption*]; Margot E. Kaminski, *Authorship, Disrupted: AI Authors in Copyright and First Amendment Law*, 51 U.C. DAVIS L. REV. 589, 590–91 (2017) [hereinafter *Authorship, Disrupted*] (“To the extent new technology (or really, the social practice of a new technology) disrupts the law, it does so because of how it encounters existing features of the law, both doctrinal and theoretical. The law, in constructing—that is, building the meaning of—new technological developments and their social uses, takes a central part in its own disruption. Conceiving of technology as some outside force that acts upon the law can lead to a technology-centric approach in which one tries to identify what features of a particular technology are legally disruptive. This kind of disruption narrative gets it wrong. A particular feature of a particular technology disrupts the law only because the law has been structured—doctrinally and theoretically—in a way that makes that feature relevant. The disruptive effects (if any) of a technology become manifest when they encounter, interface

This Article is part of a larger project, one piece in a puzzle that will probably take decades to assemble.<sup>8</sup> The Article focuses on one particular version of what I have called “legal disruption”: how technology, or really the social use of technology, can change the law’s “imagined regulatory scene.”<sup>9</sup> That is, each law or policy conversation takes place around an understood imagined setting, with technology, or the lack thereof, often playing a central role. When the social adoption of technology alters the forces in one of these imagined scenes, it can upset the policy balance and undermine the goals of a particular regulation or regime.

Although scholars and policymakers regularly discuss this form of “disruption,” few have identified it as a particular class of analytical move, identified its prevalence in the literature, or discussed that move’s implications and consequences. This Article draws on the lessons of *Lex Informatica* to provide guidance for identifying and addressing technological “disruption” of the law’s imagined scenes—the paradigmatic cases that judges and regulators use to evaluate and interpret the law.

## II. UNIFYING PRINCIPLES FOR LAW AND TECHNOLOGY: THE INSIGHTS OF *LEX INFORMATICA*

Reidenberg’s core insight in *Lex Informatica* is that the law is not the only source of rules or rulemaking.<sup>10</sup> Technological architecture is its own distinct regulatory force.<sup>11</sup> This insight has serious implications for the law. It means

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with, and are given particular meaning within the law.”); Rebecca Crootof & BJ Ard, *Structuring Technolaw*, 34 HARV. J.L. & TECH. 348, 348–49 (2021) (“The conventional approach is to tackle these quandaries by identifying something about a technology or its use that is ‘exceptional’ and argue that this distinction necessitates new law or even a new legal regime; or, alternatively, that a lack of exceptional characteristics implies that the technology can be adequately governed by extant rules. But while these focused studies are individually useful, the exceptionalist approach fosters siloed and potentially incomplete analyses, masks the repetitive nature of the underlying questions, and thereby results in the regular reinvention of the regulatory wheel.”).

8. See, e.g., *Legal Disruption*, *supra* note 7; *Authorship, Disrupted*, *supra* note 7.

9. Jack M. Balkin & Reva B. Siegel, *Principles, Practices, and Social Movements*, 154 U. PA. L. REV. 927, 928 (2006) (“[L]egal principles are intelligible and normatively authoritative only insofar as they presuppose a set of background understandings about the paradigmatic cases, practices, and areas of social life to which they properly apply. A principle always comes with an imagined regulatory scene that makes the meaning of the principle coherent to us. When that background understanding is disturbed the principle becomes ‘unstuck’ from its hermeneutic moorings; it no longer seems clear how the principle applies or even whether it should apply.”).

10. Reidenberg, *supra* note 3, at 554 (“Technological capabilities and system design choices impose rules on participants.”).

11. *Id.* at 555 (describing “technological constraints as a distinct source of rules”).

that there are alternate sources and sites of “rulemaking” that impact technology users as much as, and often more so than, the law. It also means that technology isn’t understood to be value-neutral, authoritative, or inevitable. It reflects choices. It’s political.<sup>12</sup>

Take, for example, internet browsers. Unlike a physical book or magazine, browsers are configured to record a user’s web browsing patterns.<sup>13</sup> This sets a default rule that personal data will be collected—a default that can be overridden only if the technology is designed to allow for it.<sup>14</sup> As we have seen in the twenty-plus years since Reidenberg published his article, information collection and use have had significant policy consequences, from contributing to digital market manipulation to affecting democratic self-governance at its core.<sup>15</sup>

Reidenberg was the first to say that architecture mattered.<sup>16</sup> Technology *is* policy. And architectural policy choices are made usually not by lawmakers but by technologists.<sup>17</sup> Policies are baked into technologies, establishing defaults. Sometimes those defaults are immutable, and sometimes they allow for customization or user choice. Rather than being enforced by the courts, this *Lex Informatica* often enforces automatically—with all the benefits and problems “perfect” enforcement entails.<sup>18</sup>

12. See Langdon Winner, *Do Artifacts Have Politics?*, 109 DAEDALUS 121 (1980) (famously discussing the ways in which objects can be characterized as embodying political choices).

13. Reidenberg, *supra* note 3, at 571.

14. *Id.* (“[C]ustomizations through reconfigurations are only possible if the architectural standards support the deviations.”).

15. See, e.g., Neil M. Richards, *Intellectual Privacy*, 87 TEX. L. REV. 387 (2008); NEIL M. RICHARDS, *INTELLECTUAL PRIVACY: RETHINKING CIVIL LIBERTIES IN THE DIGITAL AGE* (2015); Julie E. Cohen, *What Privacy is For*, 126 HARV. L. REV. 1904 (2013); Ryan Calo, *Digital Market Manipulation*, 82 GEO. WASH. L. REV. 995 (2014).

16. Reidenberg was followed by Lawrence Lessig in his famous *Code* and his pathetic (regulated) dot theory. Lawrence Lessig, *The Law of the Horse: What Cyberlaw Might Teach*, 113 HARV. L. REV. 501 (1999) [hereinafter *The Law of the Horse*]; Lawrence Lessig, *The New Chicago School*, 27 J. LEGAL STUD. 661, 662 (1998); LAWRENCE LESSIG, *CODE VERSION 2.0* (2006) [hereinafter LESSIG, CODE].

17. Reidenberg, *supra* note 3, at 569.

18. *Id.* at 569, 576 (discussing PICS-based content filtering as “self-executing” law); see also Edward K. Cheng, *Structural Laws and the Puzzle of Regulating Behavior*, 100 NW. U. L. REV. 655, 716 (2006) (“[D]o we really want a structured society? Are the liberty costs too great? Breaking down the liberty arguments, we see that they largely counsel caution. . . . Structure can infringe on privacy and raise the specter of a police state . . . with Type I structures, which force compliance through surveillance and the constant threat of enforcement. . . . Type II structures may raise accountability concerns because they regulate behavior behind the scenes.”); Harry Surden, *Structural Rights in Privacy*, 60 SMU L. REV. 1605, 1616 (2007) (“One could thus imagine an explicit technological rule built into an automobile’s computer system which limited the maximum speed of the vehicle to a particular value—say 100 miles per hour.

Yet Reidenberg was not a tech determinist.<sup>19</sup> He did not subscribe to the view that technology was ungovernable or that the influence of technology on law flowed only one way. Information technology was, to him, resolutely not some mythological ungovernable frontier. Reidenberg didn't just trust the market. He had faith in good lawmaking, good institutions, and good law.

*Lex Informatica* affirmatively calls for law to engage directly with technological design. Comparing the new rules of information flows to the norms and customs of sea merchants during the Middle Ages, Reidenberg charts a progressive view that repeated practices naturally become customs, which become agreements, which become law.<sup>20</sup> That is, there is a certain inevitability to law, per Reidenberg. The internet isn't a no-lawyer's land; it's populated by people who need stability, norms, rules, and consequences. People *need* the law and *grow* the law; it isn't imposed upon them.<sup>21</sup> This was not a popular or common view in late 1990s cyber scholarship.<sup>22</sup>

Reidenberg was also a pioneer in talking about the importance of law in fostering consumer trust. It has since become common to talk about technology and trust.<sup>23</sup> Nobody wants to get into a driverless car if they know

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In the presence of such a structural constraint, and assuming the inability to circumvent the limitation, the speeding behavior could thus be prevented ex-ante, rather than incrementally deterred. In this scenario, the structural constraint is not only self-enforcing—the constraint itself has the ability to detect and prevent violations—it is non-violable.”); Christina Mulligan, *Perfect Enforcement of Law: When to Limit and When to Use Technology*, 14 RICH. J. L. & TECH. 1, 3 (2008) (“When considering whether to use technology to enforce law, a decision-maker should make four determinations. First, is the aversion to using the technology an aversion to the method of enforcing the law or a disagreement with the underlying substantive law? Second, will the technology effectively enforce the law? Third, is the use of the technology constitutional? And finally, does the technology trigger any other philosophical concerns?”); James Grimmelman, *Regulation by Software*, 114 YALE L.J. 1719, 1739 (2005) (“Scholarship on regulatory modalities has convincingly demonstrated that it is often good social policy, rational, and efficient for people to act with indifference to legal rules. Law, extended into such realms, disrupts efficient social norms in those cases in which it is applied. Because software can reach so many more transactions than can law, it can disrupt more cases. And because software, unlike law, is immediate, the effects of each disruption are more severe.”).

19. For a discussion of technology determinism, see Jones, *supra* note 7.

20. Reidenberg, *supra* note 3, at 553 (“Custom and practices evolved into a distinct body of law known as the ‘Lex Mercatoria,’ which was independent of local sovereign rules and assured commercial participants of basic fairness in their relationships.”).

21. *Id.* at 554 (“Principles governing the treatment of digital information must offer stability and predictability so that participants have enough confidence for their communities to thrive, just as settled trading rules gave confidence and vitality to merchant communities.”).

22. See, e.g., *supra* note 4.

23. See, e.g., Ian Kerr, *Personal Relationships in the Year 2000: Me and My ISP*, in RELATIONSHIPS OF DEPENDENCE AND INTERDEPENDENCE IN LAW 78, 110–11 (2002); Helen Nissenbaum, *Securing Trust Online: Wisdom or Oxymoron?*, 81 B.U. L. REV. 635 (2001); Ian R. Kerr, *The Legal Relationship Between Online Service Providers and Users*, 35 CAN. BUS. L.J. 419

driverless cars regularly crash. Users need rules and legal duties so that they can trust in the safety and security of the technologies they use. Back in the mid-1990s, however, it was more common in the United States to call for a wait-and-see approach to technologically enabled harms.<sup>24</sup> Reidenberg breaks this trend by calling proactively for “common ground rules to create trust and confidence.”<sup>25</sup>

Reidenberg emphasizes that technology can be both the problem and at least part of the solution. Once we acknowledge and identify a technology’s politics, Reidenberg explains, we can also use them to align practices with norms and the law.<sup>26</sup> For example, privacy-enhancing technologies (PETs) such as cryptography can allow users to make privacy-preserving choices.<sup>27</sup> Technical standards and filtering software can be used (albeit, often problematically) to screen for copyrighted or illegal content.<sup>28</sup> Reidenberg’s observations back in 1998 prefigure what is now a central element of privacy policymaking: a focus on system defaults and “Privacy by Design.”<sup>29</sup> They also prefigure a growing literature on automated enforcement in copyright law.<sup>30</sup>

Other themes of *Lex Informatica* still reverberate, especially the question of what to do about significant divergence in national policies. Reidenberg writes

(2001); DANIEL J. SOLOVE, *THE DIGITAL PERSON* 103 (2004) (proposing that companies which collect and utilize user personal information be treated as legal fiduciaries); Neil Richards & Woodrow Hartzog, *Taking Trust Seriously in Privacy Law*, 19 STAN. TECH. L. REV. 431 (2016); Jack M. Balkin, *Lecture, Information Fiduciaries and the First Amendment*, 49 U.C. DAVIS L. REV. 1183, 1221 (2016); ARI EZRA WALDMAN, *PRIVACY AS TRUST* 61–76 (2018); Jack M. Balkin, *The Fiduciary Model of Privacy*, 134 HARV. L. REV. FOR. 11 (2020). For a critique of the fiduciary model, see Lina M. Khan & David E. Pozen, *A Skeptical View of Information Fiduciaries*, 133 HARV. L. REV. 497 (2019).

24. See *supra* note 4.

25. Reidenberg, *supra* note 3, at 554.

26. He calls these “policy technologies.” *Id.* at 569, 575.

27. See *id.* at 574 (stating PETs can “facilitate the customized management of information rights in the face of existing technological default rules”).

28. *Id.* at 575–76 (describing the PICS technical standard); Dan L. Burk, *Algorithmic Fair Use*, 86 U. CHI. L. REV. 283, 302 (2019) (discussing the problems with relying on filtration software that often incorrectly flags “fair use” of copyrighted works as illegal).

29. See Ann Cavoukian, *Privacy by Design: The 7 Foundational Principles* (“Privacy by Design is a concept I developed back in the 90’s . . .”); WOODROW HARTZOG, *PRIVACY’S BLUEPRINT: THE BATTLE TO CONTROL THE DESIGN OF NEW TECHNOLOGIES* (2018); Ari Ezra Waldman, *Privacy’s Law of Design*, 9 U.C. IRVINE L. REV. 1239 (2019); Regulation (EU) 2016/679, of the European Parliament and the Council of 27 April 2016 on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC (General Data Protection Regulation), 2016 O.J. (L 119) 1 at art. 25 [hereinafter GDPR].

30. See Maayan Perel & Niva Elkin-Koren, *Accountability in Algorithmic Copyright Enforcement*, 19 STAN. TECH. L. REV. 473 (2016); Matthew Sag, *Internet Safe Harbors and the Transformation of Copyright Law*, 93 NOTRE DAME L. REV. 499 (2017).

that because of the global nature of information flows, “transnational human interactions . . . raise profound conflicts for national and international law,” particularly in the realm of privacy law.<sup>31</sup> Although in Europe, “comprehensive legal rights exist and government enforcement plays an important role” in data protection regulation, in the United States, “legal rights are limited.”<sup>32</sup>

Reidenberg went on to write several seminal works on this transatlantic conflict over privacy law, more than a decade before the European Court of Justice (CJEU) twice invalidated the U.S.-EU transatlantic data transfer agreements (the Safe Harbor and its replacement, the Privacy Shield).<sup>33</sup> Today, transatlantic policy conflicts, both substantive and jurisdictional, remain front and center in information policy, particularly privacy policy.<sup>34</sup> We are still debating what to do about divergent norms, rules, laws, and design when information technology flattens the world.<sup>35</sup> For example, the CJEU’s 2014 “right to be forgotten” opinion, *Google Spain*, triggered a flurry of recent scholarship assessing fundamental differences between the U.S. and EU approaches to striking a balance between privacy and speech.<sup>36</sup>

Reidenberg also discusses the so-called “pacing problem,” which remains a central question for law and technology. The question of how to coevolve law with technology or what to do when “technological developments outpace

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31. See Reidenberg, *supra* note 3, at 556.

32. *Id.* at 561.

33. Joel R. Reidenberg, *Resolving Conflicting International Data Privacy Rules in Cyberspace*, 52 STAN. L. REV. 5 (2000); Joel R. Reidenberg, *E-Commerce and Trans-Atlantic Privacy*, 38 HOUS. L. REV. 717 (2001).

34. See Paul M. Schwartz & Karl-Nikolaus Peifer, *Transatlantic Data Privacy Law*, 106 GEO. L.J. 115, 117 (2017); Case C-362/14, *Schrems v. Data Prot. Comm’r*, ECLI:EU:C:2015:650, 10–31 (Oct. 6, 2015) [hereinafter *Schrems I*]; Case C-311/18, *Data Prot. Comm’r v. Facebook Ir. Ltd.*, ECLI:EU:C:2020:559 (July 16, 2020) [hereinafter *Schrems II*]. Case C-131/12, *Google Spain SL v. AEPD*, ECLI:EU:C:2014:317, 22 (May 13, 2014) [hereinafter *Google Spain*]; C-507/17, *Google LLC v. CNIL*, 2019 EUR-Lex CELEX No. 62017CJ0507 (Sept. 24, 2019) [hereinafter *CNIL*].

35. See Anu Bradford, *The Brussels Effect*, 107 NW U. L. REV. 1, 22–25 (2012); Anupam Chander, Margot E. Kaminski & William McGeeveran, *Catalyzing Privacy Law*, 105 MINN. L. REV. 1733, 1737–38 (2021).

36. Steven C. Bennett, *The ‘Right to Be Forgotten’: Reconciling EU and US Perspectives*, 30 BERKELEY J. INT’L L. 161 (2012); Robert Post, *Data Privacy and Dignitary Privacy: Google Spain, the Right to be Forgotten, and the Construction of the Public Sphere*, 67 DUKE L.J. 981 (2018); Stefan Kulk & Frederik Z. Borgesius, *Google Spain v. González: Did the Court Forget about Freedom of Expression?*, 5 EURO. J. RISK REG. 389 (2014); see also Hannah Bloch-Wehba, *Global Platform Governance*, 72 SMU L. Rev. 27 (2019); Daphne Keller, *The Right Tools: Europe’s Intermediary Liability Laws and the EU 2016 General Data Protection Regulation*, 33 BERKELEY TECH. L.J. 287 (2018). The CJEU’s subsequent case on extraterritorial enforcement of the right to be forgotten reflected similar conversations about choice-of-law, jurisdiction, and extraterritoriality from the mid-to-late 1990s. See *CNIL*, *supra* note 34.

the rate of legal change” still resounds throughout law and technology scholarship.<sup>37</sup> The pacing problem, where in Reidenberg’s words “today’s regulations may easily pertain to yesterday’s technologies,”<sup>38</sup> has led to the development of a robust regulatory toolkit for future-proofing the law.<sup>39</sup> That toolkit includes, among other things, deploying technology-neutral versus technology-specific legislation,<sup>40</sup> debating whether to establish new expert agencies,<sup>41</sup> employing complex forms of hybrid public-private governance;<sup>42</sup> establishing regulatory sandboxing,<sup>43</sup> and using and incorporating extra-legal standards processes.<sup>44</sup> As Reidenberg wrote back in 1998, many of these regulatory tools evidence, for better or for worse,<sup>45</sup> “a shift in the focus of government action away from direct regulation and toward indirect influence” on technical development while still attempting to “preserve strong attributes of public oversight.”<sup>46</sup> We still struggle centrally today with how best to

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37. Reidenberg, *supra* note 3, at 566.

38. *Id.* at 586.

39. *See, e.g., Legal Disruption, supra* note 7; Crootof & Ard, *supra* note 7; INNOVATIVE GOVERNANCE MODELS FOR EMERGING TECHNOLOGIES (Gary E. Marchant & Kenneth W. Abbott eds., 2013).

40. Michael Birnhack, *Reverse Engineering Informational Privacy Law*, 15 YALE J.L. & TECH. 24, 27 (2012); Paul Ohm, *The Argument Against Technology-Neutral Surveillance Laws*, 88 TEX. L. REV. 1685 (2010); Brad A. Greenberg, *Rethinking Technology Neutrality*, 100 MINN. L. REV. 1495 (2016).

41. Ryan Calo, *Report: The case for a federal robotics commission*, BROOKINGS (Sept. 15, 2014), <https://www.brookings.edu/research/the-case-for-a-federal-robotics-commission/>.

42. Orly Lobel, *The Renew Deal: The Fall of Regulation and the Rise of Governance in Contemporary Legal Thought*, 89 MINN. L. REV. 342, 346–47 (2004); Margot E. Kaminski, *Binary Governance: Lessons from the GDPR’s Approach to Algorithmic Accountability*, 92 S. CAL. L. REV. 1529, 1530 (2019); W. Nicholson Price II, *Regulating Black-Box Medicine*, 116 MICH. L. REV. 421, 465–71 (2017); Dennis D. Hirsch, *Going Dutch? Collaborative Dutch Privacy Regulation and the Lessons It Holds for U.S. Privacy Law*, 2013 MICH. ST. L. REV. 83, 151–60; Kenneth A. Bamberger & Deirdre K. Mulligan, *Privacy on the Books and on the Ground*, 63 STAN. L. REV. 247, 248 (2011); William McGeveran, *Friending the Privacy Regulators*, 58 ARIZ. L. REV. 959, 980 (2016); Lauren E. Willis, *Performance-Based Consumer Law*, 83 U. CHI. L. REV. 1309, 1330–35 (2015). For critiques, see Cohen, *supra* note 15, at 1915–17; Ari Ezra Waldman, *Privacy, Practice, and Performance*, 110 CALIF. L. REV. (forthcoming 2022) (manuscript at 1, 5–6).

43. Hillary J. Allen, *Regulatory Sandboxes*, 87 GEO. WASH. L. REV. 579, 580 (2019).

44. *See, e.g.,* Emily Bremer, *Incorporation by Reference in an Open-Government Age*, 36 HARV. J.L. & PUB. POL’Y 131, 134 (2013); Irene Kamara, *Co-regulation in EU Personal Data Protection: The Case of Technical Standards and the Privacy by Design Standardisation ‘Mandate’*, 8 EUR. J. L. & TECH., no. 1 (2017).

45. *See* Julie E. Cohen, *How (Not) to Write a Privacy Law*, KNIGHT FIRST AMENDMENT INST. COLUMBIA UNIV. (Mar. 23, 2021), <https://knightcolumbia.org/content/how-not-to-write-a-privacy-law>.

46. Reidenberg, *supra* note 3, at 586.

incorporate expert knowledge and enforcement resources from outside the formal legal system while tethering such lawmaking to the public good.

### III. “LEGAL DISRUPTION”

As Reidenberg so presciently laid out in 1998, the interplay between law and technology is complex. Technology can be a regulatory force in its own right, but it does not just act upon static, passive law (or, for that matter, static, passive people).<sup>47</sup> Rather, the interaction between law and technology takes many forms.

Law can structure technological development, for example, by requiring that technology have certain features (such as seatbelts) or be designed towards certain policy goals (such as safety). Technology can pose challenges for legal institutions qua institutions: by falling outside existing institutions’ fields of specialization or legal mandates; by falling into unclaimed gaps between institutions or regimes; or by falling into a regulatory thicket of overlapping regulation. And of course, there is the so-called “pacing problem,” which usually manifests either as a question of how to get new technical expertise into the legal system or, more generally, how to design law for change over time by delegating some decision-making to more temporally proximate or more expert actors (a variation on the conversation about rules and standards<sup>48</sup>).<sup>49</sup> As Reidenberg identified in 1998, regulatory design is a perennially central issue for law and technology.<sup>50</sup>

Sometimes, though, the social adoption of a new technology doesn’t raise questions of regulatory design, expertise, or pacing. Sometimes, the adoption and use of technology can make salient existing features of the law.<sup>51</sup> For

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47. See, e.g., Jones, *supra* note 7; *Authorship, Disrupted*, *supra* note 7; JULIE E. COHEN, CONFIGURING THE NETWORKED SELF: LAW, CODE, AND THE PLAY OF EVERYDAY PRACTICE 127 (2012) (“[D]eveloping a decentered model of subjectivity organized around three sets of considerations: the evolution of experienced ‘selfhood’ from the situated subject’s perspective, the collective dimension of subjectivity, and the play that overlapping social and cultural networks afford.”).

48. See, e.g., Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557, 568–69 (1992).

49. See *Legal Disruption*, *supra* note 7, at 14, 21 (listing ways technology and the law interact).

50. See, e.g., Reidenberg, *supra* note 3, at 586–87; *Legal Disruption*, *supra* note 7, at 36 (calling for a legal toolkit for technological change); Crotoof & Ard, *supra* note 7, at 400.

51. Jack M. Balkin, *Digital Speech and Democratic Culture: A Theory of Freedom of Expression for the Information Society*, 79 N.Y.U. L. REV. 1, 2 (2004) (“If we assume that a technological development is important to law only if it creates something utterly new, and we can find analogues in the past—as we always can—we are likely to conclude that because the development is not new, it changes nothing important. That is the wrong way to think about

example, the development of participatory online platforms made salient the fact that much of free speech theory and doctrine had been built around a broadcast model of media, with one speaker using legacy media platforms to broadcast to many passive listeners.<sup>52</sup> This shift also made salient that the law had assumed speech will often be temporary rather than recorded, and limited to certain contexts rather than context-collapsing. Thus, technological change can make salient certain features of doctrine (which doctrinal bucket do internet platforms belong in?<sup>53</sup>) and of theory (given the cheapness of speech production, is the “marketplace of ideas” theory of the First Amendment outdated?<sup>54</sup>).

As I have argued elsewhere, however, “technology is not just a stable lens through which we see stable aspects of the law. [Technology] takes on a particular meaning within the law depending on what one thinks the law is or should be.”<sup>55</sup> That is to say, the law dynamically *constructs* technology into its own systems of meaning—just as it constructs many other things.<sup>56</sup> Take the classic H.L.A. Hart hypothetical “No Vehicles in the Park”: what falls into the doctrinal bucket of “vehicle”? Do cars? Do nonmotorized boats? Do strollers? Do unmanned drones?<sup>57</sup>

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technological change and public policy . . . . Instead of focusing on novelty, we should focus on salience. What elements of the social world does a new technology make particularly salient that went relatively unnoticed before? What features of human activity or of the human condition does a technological change foreground, emphasize, or problematize? And what are the consequences for human freedom of making this aspect more important, more pervasive, or more central than it was before?”).

52. *Id.* at 6.

53. Oren Bracha & Frank Pasquale, *Federal Search Commission? Access, Fairness, and Accountability in the Law of Search*, 93 CORNELL L. REV. 1149, 1149 (2008); Eugene Volokh & Donald M. Falk, *Google: First Amendment Protection for Search Engine Search Results*, 8 J.L. ECON. & POL’Y 883, 884 (2012); Tim Wu, *Machine Speech*, 161 U. PA. L. REV. 1495, 1496, 1521–22 (2013); James Grimmelman, *Speech Engines*, 98 MINN. L. REV. 868, 870 (2014).

54. Toni M. Massaro & Helen Norton, *Free Speech and Democracy: A Primer for 21st Century Reformers*, 54 U.C. DAVIS L. REV. 1631, 1634–35 (2021); Julie E. Cohen, *Tailoring Election Regulation: The Platform is the Frame*, 4 GEO. TECH. L. REV. 641, 642 (2020); FRANK PASQUALE, *THE AUTOMATED PUBLIC SPHERE* 1–4 (2017). The rise of the sociotechnical phenomenon of online propaganda has led to similar questions about the assumptions behind First Amendment theory and doctrine. See Tim Wu, *Is the First Amendment Obsolete?*, 117 MICH. L. REV. 547, 548 (2018).

55. *Authorship, Disrupted*, *supra*, note 7, at 592.

56. *Id.*; see also Jones, *supra* note 7, at 253 (“[C]yberlaw research should consider the way in which technologies, practices and social arrangements are constructed within certain legal contexts: the legal construction of technology.”).

57. H.L.A. Hart, *Positivism and the Separation of Law and Morals*, 71 HARV. L. REV. 593, 607 (1958); see also Pierre Schlag, *No Vehicles in the Park: Interpretation as Retrieval*, 23 SEATTLE U. L. REV. 381, 387 (1999); Frederick Schauer, *A Critical Guide to Vehicles in the Park*, 83 N.Y.U. L. REV. 1109 (2008).

Sometimes questions of legal construction are just, as Hart tried to argue about his example,<sup>58</sup> examples of the law operating as usual: applying to tech-enabled social practices without noticeable hiccups;<sup>59</sup> applying legal definitions to new facts;<sup>60</sup> establishing “institutional facts”;<sup>61</sup> or situating a fact pattern into existing doctrinal buckets. And sometimes—as is the case with other things the law constructs—things aren’t business as usual, and we have to “bump up a level” to ask why we have a law in the first place.<sup>62</sup> What might need to change at the level of statute or doctrine in order to accomplish theoretical goals? What might need to change at the level of theory in order to accomplish normative goals? As my colleague Pierre Schlag has written, “[w]e are not just talking about parks and vehicles here; we are talking about parks and vehicles in a legal rule in a legal system in a particular culture.”<sup>63</sup>

All of these questions—of institutional design, regulatory toolkits, salience, and construction—are ultimately about power. Who has power? How do those with power use it? How does power accumulate, disperse, get checked? And given that we are lawyers, after all, how does the structure of the law exacerbate

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58. See Schauer, *supra* note 57, at 1119 (“Hart’s claim, at least in 1958, was that the statutory language, as language, would generate some number of clear or core applications . . .”).

59. PAMELA SAMUELSON, FIVE CHALLENGES FOR REGULATING THE GLOBAL INFORMATION SOCIETY 4 (2000) (“[T]he general view in the U.S. is that antitrust and competition law continues to be viable in the digital age, and can successfully be adapted to deal with software and Internet companies.”).

60. This is what Hart claimed he was doing: merely applying the law—or what Schlag has called “preserv[ing] the hard core of settled meaning from the effects of reconsideration in light of social policy.” Schlag, *supra* note 57, at 387 (observing that Hart’s purportedly authoritative interpretation was a “legal move” like any other).

61. Thanks to the wonderful late Ian Kerr for pointing me to this concept. My favorite example of an institutional fact is a trespass-nuisance case in which a Michigan court defined “dust” as “intangible” for purposes of the law. *Adams v. Cleveland-Cliffs Iron Co.*, 602 N.W.2d 215, 223 (Mich. Ct. App. 1999) (“We further hold that dust must generally be considered intangible and thus not actionable in trespass. We realize, of course, that dust particles are tangible objects in a strict sense that they can be touched and are comprised of physical elements. However, we agree with those authorities that have recognized, for practical purposes, that dust, along with other forms of airborne particulate, does not normally present itself as a significant physical intrusion.”).

62. This resembles Fuller’s response to Hart—you can never just look to the text; you also have to look to the purpose. See Schauer, *supra* note 57, at 1114. I discuss this idea of levels in *Authorship, Disrupted*, *supra* note 7, at 615 (“Examining emergent machine authors and their interface with U.S. law illustrates several ways in which technology can be legally disruptive. Technology can require minor doctrinal tweaks . . . . Or it can fall between existing legal categories . . . . Or technology can trigger a reassessment of underlying theories behind the law, whether lower level theorization . . . or higher level theorization . . .”).

63. Schlag, *supra* note 57, at 387.

or entrench existing power disparities, or alternatively disperse them and hold power accountable?

#### IV. “LEGAL DISRUPTION” AND THE IMAGINED REGULATORY SCENE

Technology doesn’t drive the law.<sup>64</sup> Like other kinds of social changes, however, sociotechnical changes can afford new opportunities for contestation over legal rules and principles.<sup>65</sup> Whether in courts, regulatory bodies, or legislatures, sociotechnical change often (though not always) creates a chance to reevaluate and argue about not just the application of the law but the normative scaffolding undergirding it. Ostensibly, this is why so many of us remain committed to the study of law and technology.

The second half of this Article now turns to a particular genre of the “legal disruption” discussion that is by now widely prevalent in the law and technology literature but goes largely unidentified and unnamed. We can understand this genre as another example of the “legal construction” of technology, but it is different from the usual debates over textual interpretation or regulatory design. It takes place not on the page but in our heads. It is often the unacknowledged precursor to, or backdrop for, more concrete doctrinal or regulatory conversations.

A growing number of scholars, in a growing number of subfields, have noted that technological adoption can change our fundamental assumptions about the architecture of a regulated environment. Drawing on Jack Balkin and Reva Siegel’s work, I call this move disruption of the “imagined regulatory scene.”<sup>66</sup>

This move has different implications and consequences than discussing how to channel expertise, or regulatory design, or the application of doctrinal buckets—although it may be part of or precursor to any of those conversations, as well. As with any legal move, knowing that it *is* an identifiable move makes a difference in how we understand it.<sup>67</sup>

##### A. IMAGINED REGULATORY SCENES . . .

Balkin and Siegel identified that every legal principle—by which they mean “norms of conduct that express values”<sup>68</sup>—is developed with a particular imagined paradigmatic scenario in mind. That is:

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64. Jones, *supra* note 7, at 253.

65. Balkin & Siegel, *supra* note 9, at 928.

66. *Id.*

67. Schlag, *supra* note 57, at 387–88.

68. Balkin & Siegel, *supra* note 9, at 930.

[L]egal principles are intelligible and normatively authoritative only insofar as they presuppose a set of background understandings about the paradigmatic cases, practices, and areas of social life to which they properly apply. A principle always comes with an *imagined regulatory scene* that makes the meaning of the principle coherent to us.<sup>69</sup>

Balkin and Siegel provide several examples. The imagined regulatory scene behind the First Amendment principle that the government should not discriminate against speech on the basis of its content is government censorship of Communist literature or of antiwar protestors.<sup>70</sup> The imagined regulatory scene behind the anticlassification principle is Jim Crow, particularly the *de jure* racial segregation of school children.<sup>71</sup>

Perhaps these imagined scenes arise naturally out of the common law process, which builds principles from the facts of particular cases. Or perhaps they are endemic to legal reasoning writ large. All words have meaning in context, whether the facts are imagined or applied.

When new circumstances arise that depart from the imagined paradigm, whether through changes in social practices or through technological

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69. *Id.* at 928 (emphasis added). The imagined regulatory scene is related but not identical to the concept of “sociotechnical imaginaries” used in Science and Technology Studies (STS). An imagined regulatory scene, as Balkin and Siegel conceive of it, is the more constrained landscape in which construction of a particular law, legal principle, or future legislation or regulation takes place. According to Sheila Jasanoff and Sang-Hyun Kim, sociotechnical imaginaries are “collectively imagined forms of social life and social order reflected in the design and fulfillment of nation-specific scientific and/or technological projects.” Sheila Jasanoff & Sang-Hyun Kim, *Containing the Atom: Sociotechnical Imaginaries and Nuclear Regulation in the U.S. and South Korea*, 47 *MINERVA* 119, 120 (2009). First, sociotechnical imaginaries are often future-oriented in a way an imagined regulatory scene need not be. See Lisa Messeri & Janet Vertesi, *The Greatest Missions Never Flown: Anticipatory Discourse and the “Projectory” in Technological Communities*, 56 *TECH. & CULTURE* 54, 55–56 (2015) (discussing “shared future-oriented narratives about technoscientific possibilities”). Judges and regulators regularly construct imagined regulatory scenes using current or past social practices. Second, sociotechnical imaginaries are quintessentially collectively constructed, on a community or societal level, where an imagined regulatory scene can be individualized (say, at the level of an individual author or judge, obviously influenced by societal-level imaginaries but not necessarily coextensive with them and often in conflict). Third, an imagined regulatory scene is oriented towards answering specific questions about law or regulation in a way that a sociotechnical imaginary need not be. That is, some imagined regulatory scenes might also be sociotechnical imaginaries, but not all; and not all sociotechnical imaginaries are imagined regulatory scenes. Many thanks to Meg Jones, Julie Cohen, and Ryan Calo for pointing out the resemblances, and particular thanks to Meg Jones for providing a guide to the literature.

70. Balkin & Siegal, *supra* note 9, at 931.

71. *Id.*

development or both, a legal principle may become “unstuck.”<sup>72</sup> Balkin and Siegel also refer to this as “disturb[ing] the ecology of a principle’s application.”<sup>73</sup> This creates an opportunity for contestation between actors and counter-actors, not only at courts, but at any lawmaking venue.<sup>74</sup> Actors might contest whether to apply a particular principle, how to apply a particular principle, or whether the principle remains normatively valid at all.<sup>75</sup>

Balkin and Siegel focus on what happens when there is a complete *shift* from one imagined regulatory scene to another. That is, their focus is on what happens when we shift, for example, from applying the First Amendment doctrinal prohibition against content-discrimination to direct government censorship of disfavored voices, in the first instance, to copyright legislation instead. This is one flavor of legal disruption: technological development and use (filesharing) leads to legal change (copyright legislation) which leads to an entirely different imagined regulatory setting (evaluating the term length of copyright law) for debating the application of foundational legal principles (the First Amendment’s protections).<sup>76</sup> Through strategic litigation and advocacy, social practices that were once invisible to the First Amendment have now become salient to it—from campaign contributions to computer code to video recording to consumer disclosures.<sup>77</sup> Balkin and Siegel’s central claim is that shifts in imagined scenes, sociotechnical or otherwise, often unmoor legal principles and make them contestable again.<sup>78</sup>

## B. . . . AND ARCHITECTURAL DISRUPTION

The move now recurring in the law and technology literature is different in degree, and perhaps in kind, from the shifts Balkin and Siegel discuss. Rather than asking, “What happens to this old principle when it’s applied in an entirely new setting?” the move asks, “What happens to this old principle when the

72. *Id.* at 928 (“When that background understanding is disturbed the principle becomes ‘unstuck’ from its hermeneutic moorings; it no longer seems clear how the principle applies or even whether it should apply.”).

73. *Id.* at 937.

74. *Id.* at 946.

75. *Id.* at 943–44.

76. *Id.* at 945–46. In the First Amendment context, this question runs parallel to discussions of constitutional salience. See Frederick Schauer, *The Boundaries of the First Amendment: A Preliminary Exploration of Constitutional Salience*, 117 HARV. L. REV. 1765, 1765 (2004).

77. Robert Post, *Encryption Source Code and the First Amendment*, 15 BERKELEY TECH. L.J. 713, 716 (2000); Amanda Shanor, *The New Lochner*, 2016 WIS. L. REV. 133, 140 (2016).

78. Balkin & Siegel, *supra* note 9, at 937 (“[T]echnological change alone did not alter the meaning of the free speech principle; rather, it provided an incentive and an opportunity for interested parties to offer new, competing interpretations of the jurisdiction of the free speech principle.”).

balance of forces in an imagined scene is thrown off?” That is, it incorporates the insights of Reidenberg and others about what technological developments can do to an imagined scene.

This returns us to the core insight of *Lex Informatica*: that technological design can be its own regulatory force. Both Reidenberg and Lawrence Lessig after him understood that technology can be architecture.<sup>79</sup> Other forces such as laws, market forces, and social norms do matter, but technology is a regulatory force of its own.

That is, technology can constrain behavior,<sup>80</sup> enable behavior,<sup>81</sup> and mediate behavior.<sup>82</sup> A website’s design may prevent a user from behaving in particular ways, such as accessing certain material or viewing particular user profiles. A website’s design may enable a user to resort to self-help by deploying privacy-protective technology such as Do Not Track. Or a website’s design may *change the user* by mediating her capabilities and choices.<sup>83</sup>

The basic point is this: sociotechnical change often alters the imagined regulatory scene’s *architecture*. That is, it changes the imagined paradigmatic scenario not by departing from it entirely, but by constraining, enabling, or mediating behavior, both by actors we want the law to constrain and actors we want the law to protect.

These changes often go beyond the purely architectural. By altering the architecture, sociotechnical change affects social norms, social practices, and social sanctions that the law often presupposes as part of its imagined regulatory scene. If we think of policymaking as being about striking a balance in service of underlying principles, these alterations to the imagined regulatory scene can throw the existing balance out of whack, even as the law on the books remains the same.

To make this all more concrete, let us turn to some illustrations and an example.<sup>84</sup>

When Judge Easterbrook spoke about the relationship between technology and the law, he largely thought of the law as acting upon technology:

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79. *The Law of the Horse*, *supra* note 16. LESSIG, CODE, *supra* note 16.

80. See Reidenberg, *supra* note 3, at 554–55; LESSIG, CODE, *supra* note 16.

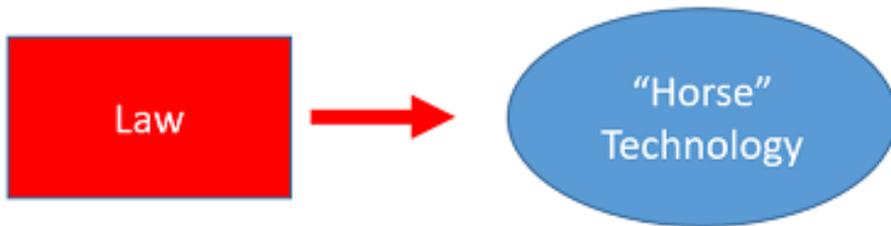
81. See Reidenberg, *supra* note 3.

82. See Cohen, *supra* note 15, at 1905–06.

83. See Calo, *supra* note 15 at 995.

84. I’ve used a variation on this example in talks and in Margot E. Kaminski, *Regulating Real World Surveillance*, 90 WASH. L. REV. 1113, 1136 (2015).

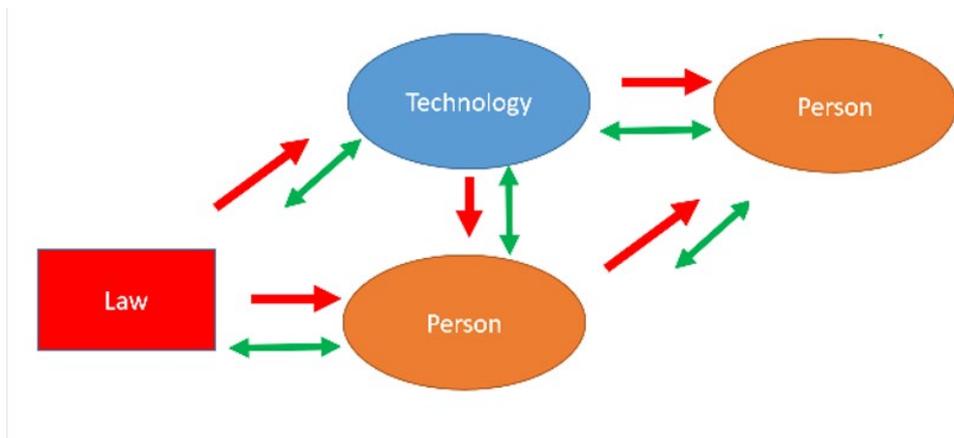
Figure 1: Easterbrook’s Vision



That is, technology is just an object like a horse is an object. The law applies to it, acts upon it, constrains it, or protects it. That is all.

When Reidenberg spoke about technology, however, his conception of the imagined regulatory scene was far more complex. Technology can act upon people just as the law acts upon people. And, importantly, people—and the law—can also act upon, and through, technology:

Figure 2: Reidenberg’s Vision



The above static graphic is woefully inaccurate in that there is no such thing as a core, static “person” or “technology” or “law.” These are not just one-way forces but dynamic, dialectical relationships.<sup>85</sup> Each is constantly evolving, shaped by and in conversation with the other. And this occurs within

85. COHEN, *supra* note 47, at 131 (“Experienced selfhood is more accurately described as evolving subjectivity, formed and re-formed out of productive tensions between intake and outflow, performance and reflection, contact and separation.”).

culture, where norms shape these interactions and co-evolve with both legal and technological change.<sup>86</sup>

Now for a more concrete illustration: let's take the imagined regulatory scene behind U.S. privacy law's founding document—Warren and Brandeis's *The Right to Privacy*.<sup>87</sup> Writing in 1890, Warren and Brandeis were concerned about the rise of “instantaneous photographs” and “newspaper enterprise”—a particular technology and a particular social practice.<sup>88</sup> In 1890, there were no privacy torts; that is, there was no applicable law to either constrain behavior or enable self-help to protect rights. But prior to 1890 (more or less) there were no easy-to-use cameras and no “yellow journalism” or gossip rags to buy, circulate, and profit from scandalous pictures.

Thus, the imagined regulatory scene for Warren and Brandeis initially did not need law to constrain people from recording and circulating private information in the form of personal photographs. For one, prior to the rise of yellow journalism, such information didn't have a market. Without the motivation or means to circulate private information to the general public, much circulation of information could be controlled through social sanction—by, say, socially exiling or shaming the gossip. And—here is technology as architecture—it would be costly, in terms of not just money but time and skill, to sit down and draw a particular person or event from memory, compared to taking a picture.<sup>89</sup>

The *lack* of technology and *lack* of yellow journalism were, in other words, features of some imagined regulatory scene, pre-privacy tort. The balance of forces within that imagined setting achieved a particular policy objective, or served a particular legal principle, without a need for law. Once both the technology and accompanying social practices changed, however, Warren and Brandeis argued that new law was necessary to preserve the policy balance and achieve the same goals.

Now let's look at a second, more contemporary example of almost the same debate. Laws now (somewhat) constrain what people can do with cameras.<sup>90</sup> People have generally adapted to a world in which ordinary

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86. See Jasmine McNealy, *An Ecological Approach to Data Governance* 20–27 (Feb. 20, 2021) (unpublished manuscript) (on file with author) (describing a micro, meso, and macro layered approach to understanding big data, with culture permeating throughout).

87. Samuel D. Warren & Louis D. Brandeis, *The Right to Privacy*, 4 HARV. L. REV. 193 (1890).

88. *Id.* at 195.

89. You see much of the same conversation about lowering cost and increased accuracy-reliability in court cases about audio recording. See Kaminski, *supra* note 84, at 1152 n.158.

90. See, e.g., Cal. Civ. Code § 1708.8(b) (West 2011) (regulating recording where a “physical impression could not have been achieved without a trespass unless the visual or

photography is omnipresent. That is, the norms around the pervasiveness of photography have certainly changed, but we have also codified acceptable and unacceptable behavior, including through tools outside of the law, such as social norms and technological architecture.

Many cameras are visible and audible, providing notice to picture subjects through shutter sounds or flashes.<sup>91</sup> Often (though definitely not always) people are able to prevent unwanted photographs from being taken. They can socially sanction photographers without resorting to the law. People can and do use the architecture of their lived environments, such as high fences or walls, to keep photographers out. Or they rely on custom and experience to assume that there are no cameras in certain environments, even in ostensibly public spaces.<sup>92</sup> Figure 3 illustrates how this blend of law, technological design, and social sanction might work to constrain and enable behavior around photography. Law can regulate the technology; law can regulate the person who uses the technology; the person whose image is captured can socially sanction the photographer; and the person whose image is captured can choose to erect a privacy fence or hide behind physical structures:

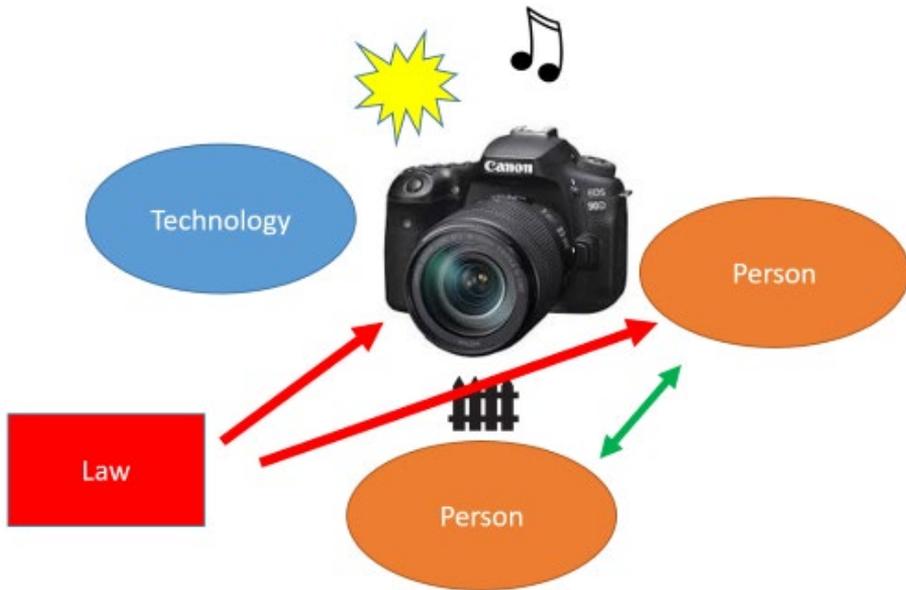
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auditory enhancing device was used”); *Shulman v. Grp. W Prods., Inc.*, 18 Cal. 4th, 200 (1998); *United States v. White*, 401 U.S. 745, 787 (1971) (Harlan, J., dissenting).

91. M. R. Calo, *Against Notice Skepticism in Privacy (and Elsewhere)*, 87 NOTRE DAME L. REV. 1027, 1027 n.1 (2013) (“[A] bill was proposed in the United States that would have required cell phone cameras to make an audible shutter sound. *See* Camera Predator Alert Act of 2009, H.R. 414, 111th Cong. (2009).”).

92. *Rooftop ‘Newlyweds’ Captured by Accidental Drone Shot*, BBC (Oct. 3, 2016), <https://www.bbc.com/news/world-asia-china-37538169>.

Figure 3: Cameras and the Imagined Regulatory Scene



But now cameras can fly. What do drones or unmanned aerial vehicles do to this imagined regulatory scene? I've argued that drones shift the imagined scene in some pretty profound ways.<sup>93</sup> Drones may still be noisy and visible, for now but, like hidden cameras, they physically distance the photographer from the photographed. That is, the photographer or videographer often can't be shamed into stopping. Drones, too, change the expected vantage point. Like helicopters or airplanes, they make existing architectural defenses, such as fences, immaterial.<sup>94</sup> Finally, drone photography or videography, by virtue of its cheapness and ease of adoption (compared to learning to fly or chartering a helicopter), means there is a potential for ubiquitous or pervasive surveillance, which is different in kind even from most existing aerial photography by being different in degree.

Drones, then, arguably alter the law's imagined ecology in a number of ways. The imagined regulatory scene has not shifted to an entirely new environment but features of the imagined environment have changed so as to upset some equilibrium in service of some underlying principle.

93. See Kaminski, *supra* note 84, at 1162.

94. See Surden, *supra* note 18, at 1606 n.3 ("A fence is an example of a structural regulator. Rather than relying upon trespass law to keep unwanted visitors from one's land, landowners often rely on the physical regulation that a tall fence imposes.").

To summarize: technology can alter the imagined regulatory scene. It does so not just by serving as a distinct regulatory force but by upsetting some “balance” of forces within the imagined scene that serves a legal principle. The upset of balance can threaten a legal principle or cause us to reexamine it. Legal responses to these changes, including no response, can shift who has power or can entrench existing power disparities.

### C. IMPLICATIONS

As discussed below, identifying how sociotechnical change alters the imagined regulatory environment’s architecture, and thus the balance of legal and normative forces, is an analytical move that now recurs in the legal literature. I am certainly not the first, and will not be the last, to make it. Identifying this as a common move in law and technology analysis lets us better examine its implications.

First, although this move often focuses on constraints on bad actors, it can also undergird conversations about lost or gained affordances and about technological mediation. That is, changes to the imagined regulatory scene affect both constraints on bad actors and the rights and capacities of those we want the legal system to protect.<sup>95</sup> They also can profoundly affect individual actors by mediating or channeling their behavior.

Take, for example, the ease with which a file can be distributed online. Through the lens of copyright or privacy policy, the change to the imagined scene through the widespread use of this technology lowers constraints on copyright or privacy violators.<sup>96</sup> Through the lens of the First Amendment, however, this same change is less about constraints and more about capacities: speakers can use the same infrastructure to amplify private voices and more readily become part of public discourse and shared culture.

Technology does not just constrain people. It also provides them tools to exercise their capabilities. Thus, the observation that sociotechnical change has affected the architecture of the imagined regulatory scene is often used to argue for using the law to influence or regulate technological design—for example,

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95. While much of Lessig’s work focuses on the latter—on how the various forces of architecture, norms, market, and the law *stop* people from doing something bad—Reidenberg’s work also addresses the former: how architecture not only constrains but *affords*. See Reidenberg, *supra* note 3; see, e.g., Julie E. Cohen, *Affording Fundamental Rights: A Provocation Inspired by Mireille Hildebrandt*, 4 CRITICAL ANALYSIS OF LAW 78 (2017) (reviewing Hildebrandt’s SMART TECHNOLOGIES AND THE END(S) OF LAW (2015)).

96. Surden, *supra* note 18, at 1618 (“Importantly, many emerging technologies possess exactly this characteristic—the tendency to lower transactional and operational costs. This in turn permits conduct which was previously costly or impossible.”).

by reinstating “friction” in online content sharing<sup>97</sup> or by making privacy-protective features the default or readily available for users to choose.<sup>98</sup>

Sometimes then, a shift in the imagined regulatory scene leads to arguments for replacing pretechnological constraints with new law.<sup>99</sup> Sometimes it leads to calls to “slow down”<sup>100</sup> or “add friction” or otherwise reimpose old architectural constraints.<sup>101</sup> Sometimes it leads to arguments for replacing lost architectural constraints with new technological features.<sup>102</sup> Other times, as in the free speech context, it leads to questions of whether law should celebrate technology’s affordances or restrict them.<sup>103</sup>

More recent literature recognizes that technological architecture also mediates people.<sup>104</sup> That is to say, technological design channels peoples’ behavior, both in what they do and what they watch, hear, or read. It can, often deliberately, lead people to act, buy, or choose things they otherwise would not have done, bought, or chosen—including elected officials.<sup>105</sup> Understanding the ways in which the imagined regulatory scene of, say, news consumption has shifted when it takes place online can be helpful for framing discussions of content moderation and fake news.

The move does not have to be dystopian. It can be applied in more optimistic ways, imagining how the design and use of technology might make the imagined regulatory scene better for the actors in it.<sup>106</sup> And although the

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97. William McGeveran, *The Law of Friction*, 2013 U. CHI. LEG. FOR. 15 (2013).

98. Ian Kerr, *The Devil is in the Defaults*, 4 CRITICAL ANALYSIS L 91 (2017).

99. See Surden, *supra* note 18 at 1619.

100. Tom C.W. Lin, *The New Financial Industry*, 65 ALA. L. REV. 567, 603 (2014) (suggesting “slow[ing] down” as a solution).

101. Paul Ohm & Jonathan Frankle, *Desirable Inefficiency*, 70 FLA. L. REV. 777, 804 (2018) (defining “desirable inefficiency” as “fail[ing] to minimize the consumption of time, energy, or space in satisfying a specification of correctness for a given basic problem in order to address a different, related enhanced problem.”).

102. See Woodrow Hartzog & Frederic Stutzman, *Obscurity by Design*, 88 WASH. L. REV. 385 (2013).

103. See Eugene Volokh, *Cheap Speech and What it Will Do*, 104 YALE L.J. 1805 (1995); Wu, *supra* note 54; Massaro & Norton, *supra* note 54.

104. Cohen, *supra* note 15.

105. See, e.g., Jamie Luguri & Lior Jacob Strahilevitz, *Shining a Light on Dark Patterns*, 13 J. LEG. ANALYSIS 43 (2021); Lauren E. Willis, *Deception By Design*, 34 HARV. J. L. & TECH. 115, 143 (2020).

106. See, e.g., Ryan Calo & Danielle Keats Citron, *The Automated Administrative State: A Crisis of Legitimacy*, 70 EMORY L.J. 797, 838–39 (2021) (“Although we decry the actual deployment of automated software systems by agencies to date, we would not deny our government the technological affordances of the twenty-first century. As a diverse set of scholars have begun to observe, agencies can and sometimes do bring advances in information technology constructively to bear on the incredibly complex task of regulation and governance.”).

move is often used to argue for *more* law or *extending* law, it does not necessarily push in a particular normative or regulatory direction. Rather, as Balkin and Siegel note, a shift in the imagined regulatory scene opens up a site of contestation for arguments to occur. Furthermore, different people may have different imagined regulatory scenes in mind, such that an argument to return to or depart from the status quo could point in very different directions.

Counterarguments to making this move include that it is inherently conservative in nature. The move arguably imagines some pretechnological halcyon age of perfect policy balance. Arguably, because of this inherent conservatism, the move can prevent the coevolution of social norms with the uptick of a new technology’s use.

Countermoves include asking whether existing technology or practices in fact have already changed the imagined regulatory scene. If the law has not adapted to cover other similar technologies, then why change it to cover this particular new technology? This “antidiscrimination” argument,<sup>107</sup> which can also come in the guise of an argument for technological neutrality, can be used to push against expanding the law’s coverage or to push for deregulation.

#### D. THE MOVE IN THE LITERATURE

There are countless examples of the move in the law and technology literature. That is, many articles, knowingly or not, identify how sociotechnical change to the imagined regulatory scene promulgates structural changes and build policy recommendations accordingly. This Section provides just a few of them. I identify both articles where the move is explicit and where the move is implicit in the backdrop. I provide examples that characterize architectural changes to the imagined scene in a variety of ways: as constraints, as affordances, and as mediation.

##### 1. *Architectural Changes as Constraints*

My colleague Harry Surden provides a head-on examination of architectural changes as affecting constraints in his Essay, *Structural Rights in Privacy*.<sup>108</sup> Drawing on Lessig’s work, Surden observes that certain non-legal regulatory mechanisms “restrict or moderate the level of behavior by increasing (or reducing) *costs* of certain activities.”<sup>109</sup> Surden writes of how structural design can act as “*non-legal* regulatory devices,” constraining actors

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107. For an example of similar arguments in the First Amendment context, see Felix Wu, *An Anti-Discrimination Theory of the First Amendment* (May. 1, 2021) (unpublished manuscript) (on file with author).

108. Surden, *supra* note 18.

109. *Id.* at 1610.

from particular behaviors.<sup>110</sup> Sometimes society “rel[ies] upon a non-legal constraint mechanism to reliably prohibit unwanted behavior *in the place of and as a substitute for an explicit law*.”<sup>111</sup>

Surden distinguishes between intentional structural constraints, such as fences or cryptography,<sup>112</sup> and what he calls “latent structural constraints” or “the current technological or physical state of the world.”<sup>113</sup> He points to several activities that at some point were “so costly in terms of resources and effort as to render them effectively impossible to carry out on a widespread basis.”<sup>114</sup> His examples of latent structural constraints include DNA sequencing, searching for personal information in paper court records, and copying copyrighted works (before photocopying machines, PCs, and the internet).<sup>115</sup>

Surden’s use of the move is normative. He claims that societal reliance on latent (as opposed to intentional) structural constraints can indicate the implicit protection of a “constraint-right.”<sup>116</sup> When the emergence of new technologies threatens to remove such constraints, Surden suggests that policymakers should replace nonlegal constraints with legal constraints, recreating structural constraints through law.<sup>117</sup> Understanding technological change as a shift in the imagined regulatory scene in this way allows Surden to argue that these are not *new* legal rights but, rather, “the *continuation* of a previously existing right.”<sup>118</sup>

110. *Id.* at 1606 n.7 (“This focus of this Essay is the Hohfeldian negative right—the duty to refrain from a particular behavior . . .”).

111. *Id.* at 1607.

112. *Id.* at 1612.

113. *Id.* at 1613.

114. *Id.*

115. *Id.* at 1613, 1620.

116. *Id.* at 1607.

117. *Id.* at 1609 (“[P]olicymakers should closely examine the implicit privacy interests . . . to expressly determine whether they merit explicit governance by another regulatory device.”); *see also id.* at 1611–12 (“[N]on-legal constraint mechanisms may give rise to relationships between constraints and behaviors that are, in many respects, functionally equivalent to those relationships which give rise to legal rights. In other words, since certain legal rights—negative individual rights—are defined by reference to behaviors that are constrained, it is analytically useful to conceive of the relationship between non-legal constraints and the behaviors that they constrain as creating analogues to legal interests. To the extent that society relies upon a non-legal constraint, such as structure, to inhibit behavior or reliably protect a ‘right’ *in place of or as a substitute for* a legal constraint that would have had to have been enacted to create an explicit legal right, the constraint-rights framework suggests that policymakers should expressly query whether a corresponding rights-like relationship—a constraint-right—has been established.”).

118. *Id.* at 1619 (“Such a distinction becomes important in the public policy debate over protecting privacy interests where the creation of a new privacy right may prove politically more difficult than the protection of an existing right.”).

However, Surden leaves space for policymakers to choose not to preserve a constraint in service of a particular goal.

Orin Kerr is more explicitly normative in his claim that the policy balance struck in the pretechnological imagined regulatory scene is the right one.<sup>119</sup> In *An Equilibrium-Adjustment Theory of the Fourth Amendment*, Kerr proposes that courts begin by conceptualizing a balance of police power struck under “the Fourth Amendment at Year Zero, an imaginary time before the introduction of tools both to commit crimes and to catch wrongdoers.”<sup>120</sup> This is Kerr’s imagined regulatory scene, policing in the time before the development of information technologies.<sup>121</sup>

Kerr explains that changes in technology’s social use can upset the policy balance struck in this imagined scene—specifically, the balance of police power versus individual freedom.<sup>122</sup> According to Kerr,

New tools threaten the privacy/security balance because they enable both cops and robbers to accomplish tasks they couldn’t before, or else to do old tasks more easily or cheaply than before. For criminals trying to commit crimes, new tools mean new ways to commit offenses more easily and more cheaply, or with less risk of being caught than before. . . . Of course, the police use new tools, too. . . . [T]he new tools can expand government power by letting the government collect more information more easily than before.<sup>123</sup>

Not every technological change will result in an upset of the policy balance. But when the social use of new technology does upset the balance by expanding police power, according to Kerr, judges must and do restore it.<sup>124</sup> Kerr calls this approach to Fourth Amendment analysis “equilibrium-adjustment.”<sup>125</sup>

Laura Donohue’s work shows that not everyone shares the same idea of the status quo ante. That is, Kerr’s imagined scene at Year Zero affords the police significant power and discretion, especially when surveillance occurs in

119. Orin S. Kerr, *An Equilibrium-Adjustment Theory of the Fourth Amendment*, 125 HARV. L. REV. 476, 484 (2011).

120. *Id.* at 482.

121. *Id.* at 483 (“Year Zero represents an imaginary time, a sort of beginning of the universe for criminal investigations. It is a fiction, of course.”).

122. *Id.*

123. *Id.* at 486.

124. *Id.* at 487 (“[J]udges adjust Fourth Amendment protection to restore the preexisting level of police power.”).

125. *Id.*

public.<sup>126</sup> Kerr imagines a status quo ante where the rule is, if you're in public, there is no privacy. Donohue by contrast focuses on previous environmental constraints on police power even in public spaces.<sup>127</sup> That is, she focuses on the tools the police did not have in the past and, consequently, their inability to cheaply and readily track suspects in public. The gap between Kerr's and Donohue's understandings of desirable Fourth Amendment doctrine demonstrates that just because two different scholars both deploy the move does not mean they will arrive at the same normative or doctrinal endpoints.

## 2. *Architectural Changes as Affordances*

Architectural changes to the imagined regulatory scene may do more than remove constraints on bad actors or decrease the costs of bad behavior. They also alter the affordances of the imagined environment, including for people that the legal system may want to protect. As danah boyd writes:

The design and architecture of environments enable certain types of interaction to occur. Round tables with chairs make chatting with someone easier than classroom-style seating. Even though students can twist around and talk to the person behind them, a typical classroom is designed to encourage everyone to face the teacher. The particular properties or characteristics of an environment can be understood as *affordances* because they make possible—and, in some cases, are used to encourage—certain types of practices, even if they do not determine what practices will unfold. Understanding the affordances of a particular technology or space is important because it sheds light on what people can leverage or resist in achieving their goals.<sup>128</sup>

boyd's initial imagined regulatory scene is a pretechnological physical public space. She writes that the environments shaped by social media differ from physical public spaces in four key ways: persistence, visibility, spreadability, and searchability.<sup>129</sup> That is, online content persists or endures longer than offline interactions; online content is visible to a larger audience, that is “public

126. Laura Donohue, *The Fourth Amendment in a Digital World*, 71 N.Y.U. ANN. SURVEY AM. L. 533, 2017, n. 35 (noting that “Orin Kerr, in his postulation of the equilibrium theory of the Fourth Amendment, lists as his first rule of the status quo in rule zero: ‘[T]he police are always free to watch suspects in public’”).

127. *Id.* at 558 (“[A]s the collection and analysis of information requires fewer and fewer resources, constraints that previously played a key role in protecting privacy are dropping away.”)

128. DANAH BOYD, *IT'S COMPLICATED: THE SOCIAL LIVES OF NETWORKED TEENS* 10–11 (2014).

129. *Id. Id.* at 12.

by default, [or] private through effort”;<sup>130</sup> consumers can more readily share online content; and searching for and finding online content is comparably easy. These features are not just removals of constraints on bad actors, as discussed by Surden, Kerr, and Donohue. They allow social media users, good and bad, to use them as capabilities—they *afford*.

These affordances *can* enable bad actors, to be clear. For example, Mary Anne Franks claims that anonymity, amplification, permanence, and publicity all “exacerbate the impact of harassment” online.<sup>131</sup> In particular, Franks’s notion of “amplification” and boyd’s notion of “spreadability” sound in similar notes to the constraints conversation above: they identify a feature of the online environment that makes it easier to harass someone than in the offline physical space—that is, that removes a structural constraint on bad actors.

But a closer reading of Franks shows something else at work. Franks is concerned not just with changes that make it easier for a bad actor to do something bad. She is also concerned with changes that prevent a rights-holder from protecting her rights through doing something good. That is, Franks believes online anonymity makes it “difficult if not impossible for the targets [of harassment online] to engage in self-help” that would have been possible offline.<sup>132</sup> Offline, a woman could track and shame her harasser. Online, that sort of self-help is much harder.

Franks points, for example, to the kind of context collapse online spaces enable.<sup>133</sup> Where in offline spaces the target of harassment could prevent harassment that occurs on the street from impacting her experience in the workplace, in online spaces she no longer has that kind of control. The changed affordances of the online environment alter her capabilities as much as they alter the capabilities of, or constraints on, her harassers.

The affordances-focused take on the imagined regulatory scene thus emphasizes not just constraints on bad behavior; it also focuses on what good actors rely on and use. For example, Woodrow Hartzog and Frederic Stutzman write about the “major structural differences in online and off-line communication,” drawing on boyd’s and Rob Kling’s works, among others.<sup>134</sup> Hartzog and Stutzman observe that “[w]e utilize a range of cues and physical structures to figure out how we should present ourselves. For example, our

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130. *Id.* at 12.

131. Mary Anne Franks, *Unwilling Avatars: Idealism and Discrimination in Cyberspace*, 20 COLUM. J. GENDER & L. 224, 255–56 (2011).

132. *Id.*

133. *Id.*

134. Woodrow Hartzog & Frederic Stutzman, *The Case for Online Obscurity*, 101 CALIF. L. REV. 1, 10 (2013).

understanding of the private nature of a conversation is moderated by the presence of walls and doors.”<sup>135</sup> Individuals analogously use features of the online environment to establish “private” environments or actively make it difficult for others to find information.<sup>136</sup>

For example, Hartzog and Stutzman argue that courts are mistaken in viewing online privacy through a private-public dichotomy.<sup>137</sup> They identify that courts in the predigital era recognized a privacy interest in documents that were not entirely secret but were “practically obscure”—that is, where information “was technically available to the public, but could only be found by spending a burdensome and unrealistic amount of time and effort in obtaining it.”<sup>138</sup> That is, courts recognized that a person with privacy rights could rely on the affordances of paper documents in protecting her privacy. Hartzog and Stutzman suggest that courts today should similarly recognize privacy interests when individuals use features of the online environment to obscure information online.<sup>139</sup>

This brings us back to Reidenberg’s observation that technology and its design can be used to address problems, not just create them. In follow-on work, Hartzog and Stutzman propose ways of implementing “obscurity by design” by deploying technologies individuals can use to actively foster obscurity in the online environment just as they once had in the offline world.<sup>140</sup> That is, understanding that the structure of the imagined regulatory scene online is different than offline, they propose affording analogous structures in the online environment so individuals can continue identity management the way they once did (and largely continue to do) offline.<sup>141</sup>

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135. *Id.* at 7–8.

136. *Id.* at 16 (“[I]ndividuals exert control over the information they disclose by limiting the audience of the disclosure, by bounding the meaning of the disclosure, and by reflexively adapting the disclosure to the site. In social media, where anonymity often violates social norms or site terms, individuals strategically develop techniques that effectively produce obscurity in disclosure. This is not to say that established techniques of privacy management are invalid in these domains, but rather that new techniques that are contextually appropriate emerge so individuals can maintain their expectation of privacy and obscurity.”).

137. *Id.* at 17, 20.

138. *Id.* at 21.

139. *Id.* at 32.

140. Woodrow Hartzog & Frederic Stutzman, *Obscurity by Design*, 88 WASH. L. REV. 385, 402–07 (2013) (recognizing “smart hyperlinks,” privacy settings, search blockers, de-identifying tools, passwords, and encryption as technologies that could implement “obscurity by design”).

141. Hartzog went on to write a book on the role of technological design in both deceiving internet users about the nature of the online environment and enabling active identity management. *See* HARTZOG, *supra* note 29.

Sociotechnical change can, in summary, do more than remove architectural constraints on bad actors. It can alter the imagined regulatory scene such that the tools a person once had—whether physical or social—are significantly changed or no longer there at all. Legislators, regulators, and judges then make decisions as to whether to restore lost affordances, require notice of changed affordances, or constrain affordances through regulation of design.

### 3. *Architectural Changes as Mediation or Channeling*

References to architectural changes in the imagined regulatory scene can often sound in law and economics, with technological changes and their social uses characterized as a decrease in transaction costs that formerly thwarted bad actors.<sup>142</sup> But not all structural changes to the imagined regulatory scene are significant because they increase or decrease transaction costs for some imaginary rational actor.<sup>143</sup> The discussion of affordances evidences this; sometimes the architectural change constitutes a new tool or feature that can alter behavioral patterns by channeling them, or removes an existing tool, or triggers miscalibrated behavior by giving off a misleading signal that an environment is other than what it is.

More recently, the law-and-technology literature has turned to the darker side of technological design, focusing on the way in which technology mediates and channels our behavior in ways that go even further than affordances, to the core of our understandings of the self.<sup>144</sup> Take, for example, Ryan Calo’s

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142. See Justin Hurwitz, *The Technological Problem of Social Cost: TPRC Draft 1* (Mar. 31, 2016) (unpublished manuscript), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2757358](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2757358) (“[T]echnological change can affect transaction costs, and therefore the law, in predictable ways.”); JUSTIN “GUS” HURWITZ & GEOFFREY A. MANNE, *CLASSICAL LIBERALISM AND THE PROBLEM OF TECHNOLOGICAL CHANGE* 13 (2019), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3384300](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3384300) (“[N]ew technology is often developed and adopted precisely because of its effects on transaction costs. But any change in the incidence or level of transaction costs can significantly alter the optimal initial assignment of rights to maximize the likelihood of voluntary exchange. This means that technology may disrupt the structure of the legal institutions necessary to facilitate efficient, welfare-enhancing outcomes.”).

143. Cohen, *supra* note 15, at 1908 (“The self has no autonomous, precultural core, nor could it, because we are born and remain situated within social and cultural contexts. And privacy is not a fixed condition, nor could it be, because the individual’s relationship to social and cultural contexts is dynamic. These realities do not weaken the case for privacy; they strengthen it. But the nature and importance of privacy can be understood only in relation to a very different vision of the self and of the self-society connection.”).

144. Cohen refers to this as “modulation.” See Cohen, *supra* note 15, at 1912 (“Citizens within modulated democracies—citizens who are subject to pervasively distributed surveillance and modulation by powerful commercial and political interests—increasingly will lack the ability to form and pursue meaningful agendas for human flourishing.”).

work *Digital Market Manipulation*.<sup>145</sup> Calo explains that the change to the imagined regulatory scene is that a person now acts *through* technology. That is, “[t]he consumer of the future is a *mediated* consumer—she approaches the marketplace through technology designed by someone else.”<sup>146</sup> The mediated consumer is not necessarily constrained by technological architecture, nor does she use technological architecture’s affordances; she is channeled through them.

This mediation has consequences. Calo claims that by creating a detailed record of consumer behavior that firms use in their design of consumer interfaces, mediation allows for the mass production of cognitive biases and persuasion of a kind previously unknown.<sup>147</sup> That is, “[a] firm with the resources and inclination will be in a position to surface and exploit how consumers tend to deviate from rational decisionmaking on a previously unimaginable scale. Thus, firms will increasingly be in the position to *create* suckers, rather than waiting for one to be born.”<sup>148</sup>

Others have more recently focused on the creation of “dark patterns” and other forms of deliberate online manipulation in the marketplace and elsewhere.<sup>149</sup> Julie Cohen discusses mediation in an even more profoundly disrupting sense. For Cohen, we are not just consumers in a marketplace where the mediators actively exploit our inefficiencies or biases. We are by nature socially constructed, and today’s information technologies are designed to affect how we socially construct ourselves.<sup>150</sup>

In *What Privacy is For*, Cohen writes:

Like the other artifacts that we use in our daily lives, networked information technologies mediate our relationship to the world around us. Processes of mediation are partly behavioral. The particular design features of our artifacts make some activities seem easier and more natural and others more difficult, and these implicit behavioral templates, or affordances, encourage us to behave in certain ways rather than others. But processes of mediation are also conceptual and heuristic. Our artifacts organize the world for us,

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145. Calo, *supra* note 15.

146. *Id.* at 1002.

147. *Id.* at 1006.

148. *Id.* at 1018.

149. See Luguri & Strahilevitz, *supra* note 105; Daniel Susser, Beate Roessler & Helen Nissenbaum, *Online Manipulation: Hidden Influences in a Digital World*, 4 GEO. L. TECH. REV. 1, 26 (2019).

150. See *supra* note 143 and accompanying quote.

subtly shaping the ways that we make sense of it. Over time we come to perceive the world through the lenses that our artifacts create.<sup>151</sup>

We are not just constrained or released from constraints by new technologies. We become what they channel us into being. The “person” in the diagrams pages ago isn’t some static, separate actor. She is embedded in and designed by technology and its social use as much as she acts upon or is acted upon by it.

## V. CONCLUSION

Writing over twenty years ago, Joel Reidenberg identified that technology could change the regulatory environment in ways lawmakers did not yet understand. Technology, too, could itself be deployed to mitigate these changes. Websites and browsers could be designed differently, and law could play a role in that change.

This Article has identified a particular vein of law and technology scholarship in which these observations have played out and developed. Many legal scholars look at technology and the law by imagining a before-and-after: a time before a technology is in use and a time after its use has taken hold. Technological changes to the imagined regulatory scene often affect the architecture of the imagined regulatory environment. Scholars identify these architectural changes and use them to make normative arguments—to keep the law as it is or to change it. Just as with a complete shift in regulatory scene, these changes can shift us up into conversations about, not just the “how” and “what” of law, but also the “why.” I imagine that, for many of us, this is what makes the field of law and technology worthwhile.

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151. Cohen, *supra* note 15, at 1912–13.

