SOFT LAW FOR HARD PROBLEMS: THE GOVERNANCE OF EMERGING TECHNOLOGIES IN AN UNCERTAIN FUTURE

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For a great many emerging technologies, as well as many existing ones, we are witnessing the twilight of the traditional regulatory system and its gradual replacement by an amorphous and constantly evolving set of informal "soft law" governance mechanisms. This shift has profound ramifications for the future of statutory law, administrative regulation, and the evolution of a wide variety of technology sectors. The growth of soft law mechanisms in

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certain narrow contexts has been well documented. What has gone unnoticed by many scholars, however, is the extent to which these new governance models have taken hold across a wide range of sectors and have already become the dominant modus operandi for modern technological governance in the United States.

This paper begins by exploring the causes of this development. The underlying drivers of the modern computing and Internet revolution—microprocessors, networked technologies, software, sensors, wireless geolocation, and other digital devices and applications—are invading numerous precincts of the economy and upending the way business is done in a wide variety of sectors. These new technological capabilities are accelerating the well-known pacing problem: technology evolves faster than the law's ability to keep up. As a result, these new and rapidly-evolving technologies and sectors will present formidable challenges to traditional regulatory regimes and will necessitate the formulation of new governance processes.

This analysis will then proceed to examine how soft law systems, multistakeholder processes, and other informal governance mechanisms are already evolving to fill that governance gap. Toward that end, this analysis will lay out a partial inventory of these recent efforts and processes, with a particular emphasis on autonomous vehicles, commercial drones, the Internet of Things, and advanced medical and health technologies. Although this review of methods primarily focuses on developments at the United States federal level, the approaches identified here have also been replicated at the state level, as well as in other countries.

This paper will close by discussing the benefits and drawbacks of soft law efforts and offer suggestions for how to improve this new governance regime while mitigating its greatest potential risks. It concludes by arguing that, for better or worse, the age of "hard law" governance of new technologies will continue to wane, and soft law governance will become the new norm for many technologies and industry sectors.

INTRODUCTION

Highly disruptive forms of technological change are upending multiple sectors of the modern global economy as well as the laws and regulations that govern them.[1] These interconnected technologies and sectors include the Internet of Things (IoT), robotics, autonomous systems, artificial intelligence (AI), big data, 3D printing, virtual reality (VR), and the sharing economy. Even heavily-regulated sectors, such as transportation and medicine, are poised to undergo radical transformations thanks to the expansion and convergence of a wide range of technologies.

These technological developments are poised to challenge those governance efforts that are anticipatory (ex ante) in nature.[2] Anticipatory governance is "the ability of a variety of lay and expert stakeholders, both individually and through an array of feedback mechanisms, to collectively imagine, critique, and thereby shape the issues presented by emerging technologies before they become reified in particular ways."[3]

Against that backdrop, this paper will argue that "soft law" is in the process of becoming the primary modus operandi of modern technology policy and the governance of fast-moving, emerging technologies in particular. Indeed, hard law governance efforts are gradually dying, as every subsequent Congress sees fewer and fewer substantive legislative efforts passed into law.[4] Meanwhile, the executive branch and its various administrative agencies have largely moved away from using hard law for a variety of reasons.[5] This governance paradigm shift—happening mostly organically

1. Gary E. Marchant & Brad Allenby, *Soft Law: New Tools for Governing Emerging Technologies*, 73 BULL. ATOMIC SCIENTISTS 108, 108 (2017) ("All around the world, governments, industry, and the public are struggling to realize the promising benefits[—]and manage the disruptive impacts[—]of one rapidly emerging technology after another.").

2. Gregory N. Mandel, *Regulating Emerging Technologies*, 1 LAW, INNOVATION & TECH. 75, 81 (2009) ("New technologies place stress on existing regulation.").

3. Daniel Barben et al., *Anticipatory Governance of Nanotechnology: Foresight, Engagement, and Integration*, *in* THE HANDBOOK OF SCIENCE AND TECHNOLOGY STUDIES 979, 992–93 (Edward J. Hackett et al. eds., 3d ed. 2008).

4. *See infra* Section I.

5. *See, e.g.*, Farhad Manjoo, *Can Washington Stop Big Tech Companies? Don't Bet on It*, N.Y. TIMES (Oct. 25, 2017), https://www.nytimes.com/2017/10/25/technology/regulating-tech-companies.html [https://perma.cc/S6ZW-N8GD].

and without any conscious design or authorization from lawmakers—has profound ramifications for both the future of various technology sectors and regulatory policymaking more generally.

While this paper identifies how these developments are affecting many different technology sectors, its primary focus centers on technologies that share certain common attributes and are increasingly intertwined: information communications technologies (ICT), autonomous systems (such as drones and driverless cars), IoT,[6] and certain advanced, digitally-enabled medical technologies. Notwithstanding that focus, many of the issues and conclusions presented here will be equally applicable to other emerging technology sectors, including financial technology, nanotechnology, and synthetic biotech and genetic engineering.

This transition towards soft law is almost certainly an inevitable byproduct of the relentless pace of technological innovation in these fields[7] and the global reach of these technologies and sectors.[8] For these and for other sectors that are being co-opted by the current information revolution, traditional regulatory models have already been strained to the breaking point. The future of governance in these sectors "depends on the ability of policymakers to embrace a new model of regulation that uses very different tools from the still dominant and traditional model of command-and-control regulation."[9]

Soft law is that new model of regulatory governance. But this transition will not be without controversy. Defenders and critics of traditional hard law systems will both find reasons to question the wisdom of these new governance processes. Ironically, many of their reservations will stem from common concerns about the transparency, accountability, and enforceability of soft law systems.[10] Finding solutions to these issues will be necessary if soft

6. Definitions of the IoT differ but generally refer to "scenarios where network connectivity and computing capability extends to objects, sensors and everyday items not normally considered computers, allowing these devices to generate, exchange and consume data with minimal human intervention." INTERNET SOC'Y, THE INTERNET OF THINGS: AN OVERVIEW 5 (2015), https://www.internetsociety.org/wp-content/uploads/2017/08/ISOC-IoT-Overview-20151221-en.pdf [https://perma.cc/Y8ZL-7BMY].

7. WALTER D. VALDIVIA & DAVID H. GUSTON, RESPONSIBLE INNOVATION: A PRIMER FOR POLICYMAKERS 1 (2015), https://www.brookings.edu/wp-content/uploads/2016/06/Valdivia-Guston_Responsible-Innovation_v9.pdf [https://perma.cc/NS6Y-K4D5] ("Technical change is advancing at a breakneck speed while the institutions that govern innovative activity slog forward trying to keep pace.").

8. Alfred C. Aman, Jr., *Administrative Law for a New Century*, *in* GLOBALIZATION AND GOVERNANCE 267, 267 (Aseem Prakash & Jeffrey A. Hart eds., 1999) ("Globalization is having a similar effect on the organization of the regulatory state.").

9. Philip J. Weiser, *The Future of Internet Regulation*, 43 U.C. DAVIS L. REV. 529, 536 (2009).

10. *See* Adam Thierer, *Does "Permissionless Innovation" Even Mean Anything?*, TECH. LIBERATION FRONT (May 18, 2017), https://techliberation.com/2017/05/18/does-permissionless-innovation-even-mean-anything [https://perma.cc/XT58-7UHN] ("Plenty of questions remain about such soft law systems, and the irony is that defenders of both

law is to garner greater acceptance among skeptical stakeholders. Whether those solutions emerge from the soft law process itself, executive or legislative action, or whether those problems simply dissipate as the new governance order becomes the accepted norm is a question (and opportunity) for future research.

I. SOFT VS. HARD LAW PRIOR TO THE INTERNET AGE

This section attempts to define the primary differences between hard and soft law and explains how soft law efforts generally worked prior to the rise of the Internet. Existing literature disagrees considerably on the definitions of soft law, and distinctions among definitions vary across fields.[11] Because the focus of this paper is the governance of various emerging technologies (and "connected" technologies in particular), it will analyze how soft law is unfolding in this context.

A. The Rough Contours of "Hard" vs. "Soft" Law

Because the terms "formal" and "informal" are invariably associated with the Administrative Procedure Act (APA),[12] it is misleading to use those terms as synonyms for hard law and soft law. Under the APA, both the "formal" rulemaking process, which incorporates trial-like procedures,[13] and the "informal" rulemaking process, which involves a formalized notice and comment process, follow strict procedural formats that amount to hard law.[14]

Broadly speaking, "hard law" involves standardized governmental rulemaking procedures and outcomes.[15] Traditional rulemaking includes the passage of authorizing legislation by Congress and all that process entails in terms of legislative procedure. For administrative agencies in the United States, traditional rulemaking procedures include the steps involved in

permissionless innovation and the precautionary principle will quite often be raising very similar concerns regarding the transparency, accountability, and enforceability of these systems.").

11. Gregory C. Shaffer & Mark A. Pollack, *Hard vs. Soft Law: Alternatives, Complements, and Antagonists in International Governance*, 94 MINN. L. REV. 706, 712–17 (2010).

12. 5 U.S.C. §§ 551–559 (2012).

13. *See* A. LEE FRITSCHLER & CATHERINE E. RUDDER, SMOKING AND POLITICS: BUREAUCRACY CENTERED POLICYMAKING 166–67 (2007) (noting that the most important difference between formal and informal processes is that in the former a public hearing is required, and in the latter the decision as to whether to hold a hearing is left up to the agency).

14. *See* John D. Graham & James W. Broughel, *Stealth Regulation: Addressing Agency Evasion of ORIA and the Administrative Procedure Act*, 1 HARV. J.L. & PUB. POL'Y: FEDERALIST EDITION 30, 33 (2014); *see also* AARON L. NIELSEN, RETHINKING FORMAL RULEMAKING 7 (2014), https://www.mercatus.org/system/files/Nielson_FormalRulemaking_v1.pdf [https://perma.cc/J355-ZQFJ] (arguing that the formal rulemaking process deserves increased attention).

15. *See, e.g.*, NIELSEN, *supra* note 14; Graham & Broughel, *supra* note 14.

codifying agency rules in the *Code of Federal Regulations*, a process that is guided by the APA.[16] The agency rulemaking process is generally considered hard law because it is subject to certain formal constraints, including those in the Federal Register Act,[17] the Freedom of Information Act (FOIA),[18] the Federal Advisory Committee Act (FACA),[19] and scrutiny by the Office of Information and Regulatory Affairs (OIRA).[20]

Agency regulations also often require a Regulatory Impact Analysis (RIA), which includes a Benefit-Cost Analysis (BCA), for those rules expected to have the largest economic impacts.[21] Various presidential executive orders and OIRA-issued interpretations guide this process at the federal level.[22] As part of any review, OIRA demands "[a] statement of the need for the regulatory action" that includes "a clear explanation" of that need, as well as "a description of the problem that the agency seeks to address."[23] OIRA also asks agencies to identify other regulatory approaches and to consider alternatives to regulation.[24]

Although agencies sometimes evade these requirements,[25] and some independent agencies, including the Federal Trade

16. 5 U.S.C. §§ 551–559.

17. 44 U.S.C. §§ 1501–1511 (2012).

18. 5 U.S.C. § 552.

19. 5 U.S.C. app. §§ 1–16.

20. Under Executive Order 12,866, any proposed regulation deemed to be of significant economic impact, usually defined as having an effect of $100 million or more in a given year, must be reviewed by OIRA before it can be published in the Federal Register. Exec. Order No. 12,866, 3 C.F.R. 638 (1994), *reprinted as amended in* 5 U.S.C. § 601 app. at 802–06 (2012). However, rules that are "non-significant" can bypass OIRA altogether. Additionally, independent regulatory commissions, such as the Federal Communications Commission and Securities and Exchange Commission, are exempt from review under Executive Order 12,866. *See* SUSAN E. DUDLEY & JERRY BRITO, REGULATION: A PRIMER 40–53 (2d ed. 2012), https://www.mercatus.org/system/files/RegulatoryPrimer_DudleyBrito_0.pdf [https://perma.cc/S93G-2EHZ].

21. BCA represents an effort to formally identify the tradeoffs or opportunity costs associated with regulatory proposals and, to the maximum extent feasible, quantify those benefits and costs. *See* DUDLEY & BRITO, *supra* note 20, at 97–98 ("The cost of a regulation is the opportunity cost—whatever desirable things society gives up in order to get the good things the regulation produces. The opportunity cost of alternative approaches is the appropriate measure of costs. This measure should reflect the benefits foregone when a particular action is selected and should include the change in consumer and producer surplus."); *see also* Jerry Ellig & Patrick A. McLaughlin, *The Quality and Use of Regulatory Analysis in 2008*, 32 RISK ANALYSIS 855 (2012) (evaluating the quality of economically significant regulations proposed by federal agencies in 2008).

22. *See* RICHARD B. BELZER, RISK ASSESSMENT, SAFETY ASSESSMENT, AND THE ESTIMATION OF REGULATORY BENEFITS 23–24 (2012), https://www.mercatus.org/system/files/RiskAssessment_Belzer_v1-0_2.pdf [https://perma.cc/PL5Y-UKMC].

23. OFFICE OF INFO. & REGULATORY AFFAIRS, REGULATORY IMPACT ANALYSIS: A PRIMER 2 (2011), http://regulatoryreform.com/wp-content/uploads/2015/02/USA-Circular-a-4_regulatory-impact-analysis-a-primer.pdf [https://perma.cc/M327-VKM9].

24. *See id.* (stating options beyond regulation include "[s]tate or local regulation, voluntary action on the part of the private sector, antitrust enforcement, consumer-initiated litigation in the product liability system, and administrative compensation systems").

25. *See* Nina A. Mendelson & Jonathan B. Wiener, *Responding to Agency Avoidance of OIRA*, 37 HARV. J.L. & PUB. POL'Y 447, 448–49 (2014) ("Although OIRA review has

Commission (FTC) and the Federal Communications Commission (FCC), are not subject to these requirements,[26] for most agencies, the APA process, OIRA review, and other feedback mechanisms are nonetheless designed to ensure that a system of checks and balances governs the federal regulatory process.[27] In other words, both formal and informal rulemakings are by the book—they must comply with the APA and OIRA procedures.

Soft law, by contrast, is a far more amorphous, open-ended concept.[28] Marchant and Allenby define soft law as "a variety of nonbinding norms and techniques," which include "instruments or arrangements that create substantive expectations that are not directly enforceable, unlike 'hard law' requirements such as treaties and statutes."[29] Some soft law actions such as standards or guidelines come from the private sector,[30] while others such as interpretive rules and guidance documents come from regulatory agencies.[31]

Under that definition, soft law mechanisms are quasi-regulatory—they largely disregard the typical agency rules or procedures and often evade APA and OIRA review.[32] These different approaches underscore a crucial distinction between hard and soft law.

It might be tempting to conclude that the primary distinction between hard and soft law comes down to whether the governance actions in question are binding or enforceable. This view

become a settled feature of the American regulatory state, concerns have recently been raised that regulatory agencies might be trying to avoid it.").

26. CURTIS W. COPELAND, ECONOMIC ANALYSIS AND INDEPENDENT REGULATORY AGENCIES 4 (2013), https://www.acus.gov/sites/default/files/documents/Copeland%20Final%20BCA%20Report%204-30-13.pdf [https://perma.cc/G695-XN5R].

27. *See id.* at 37; *see also* Brian Mannix, *The Public Interest and the Regulatory State*, LAW & LIBERTY (Nov. 10, 2016), http://www.libertylawsite.org/2016/11/10/the-public-interest-and-the-regulatory-state [https://perma.cc/7NH7-3SC3].

28. *See* CLYDE WAYNE CREWS, MAPPING WASHINGTON'S LAWLESSNESS: AN INVENTORY OF REGULATORY DARK MATTER 2017 EDITION 20, 49 (2017), https://cei.org/sites/default/files/Wayne%20Crews%20-%20Mapping%20Washington%27s%20Lawlessness%202017.pdf [https://perma.cc/6CT8-W6F2].

29. Marchant & Allenby, *supra* note 1, at 112.

30. *Id.*; *see also* Kenneth W. Abbott, *Introduction: The Challenges of Oversight for Emerging Technologies*, *in* INNOVATIVE GOVERNANCE MODELS FOR EMERGING TECHNOLOGIES 1, 6 (Gary E. Marchant et al. eds., 2013) (noting that such soft governance approaches "rely on decentralizing regulatory authority among public, private and public-private actors and institutions," and that the advantage of such arrangements is that they "can be adopted and revised more rapidly than formal regulations").

31. *See* CREWS, *supra* note 28, at 1 (describing these approaches as "regulatory dark matter" and "sub rosa regulation"); *see also* David L. Franklin, *Legislative Rules, Nonlegislative Rules, and the Perils of the Short Cut*, 120 YALE L.J. 276 (2010) (analyzing how courts have distinguished legislative rules and nonlegislative rules); John D. Graham & James Broughel, *Confronting the Problem of Stealth Regulation*, MERCATUS CTR.: MERCATUS ON POL'Y SERIES (Apr. 13, 2015), https://www.mercatus.org/publication/confronting-problem-stealth-regulation [https://perma.cc/4L2C-D7YL] (describing the type of soft law approaches as "stealth" rulemaking activities.).

32. John D. Graham & Cory R. Liu, *Regulatory and Quasi-Regulatory Activity Without OMB and Cost-Benefit Review*, 37 HARV. J.L. & PUB. POL'Y 425, 426 (2014).

characterizes hard law as possessing the full force of the government's power to sanction those in violation of the legal rule in question. Soft law, by contrast, seemingly lacks equivalent sanctions.

However, while it is technically correct that soft law lacks *precisely* the same binding force of hard law, the problem with applying *bindingness* as the distinguishing factor is that "[s]oft law rarely—if ever—operates absent support from hard law."[33] Indeed, parties subject to soft law often fall in line with its less binding norms and prescriptions precisely because such soft law is being formulated in "the shadow of the state."[34] In other words, the threat of hard law is like the proverbial Sword of Damocles that hangs in the room while soft law is being formulated. The hard-law sword need not fall in order to achieve control through soft law processes.[35]

Courts and scholars have debated the constitutional legitimacy of soft law practices, wrestling with the question of what constitutes legislative rules versus interpretive rules[36] and how much *Chevron*,[37] *Skidmore*,[38] or *Auer*[39] deference agencies should receive when formulating regulatory policies. But these questions are

33. Adam Hill, Governance from the Ground Up 17 (Sept. 25, 2012) (unpublished manuscript), https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=2880188 [https://perma.cc/4JJ9-3DQ8].

34. Kenneth W. Abbott et al., *Soft Law Oversight Mechanisms for Nanotechnology*, 52 JURIMETRICS J. 279, 303 (2012); *see also* DUDLEY & BRITO, *supra* note 20, at 38–39 (noting that although nonlegislative rules and guidance documents "do not carry the force of law and are not legally binding, they are often binding in practical effect").

35. Of course, it may be the case that this changes over time. If enough soft law was challenged or just ignored in practice, and if no future hard law sanctions followed, it might be the case that potentially affected parties would simply begin ignoring soft law norms going forward. This is worthy of further exploration, but results may be complicated by the fact that we are still early in the process, and the inherent murkiness of much soft law makes evaluating and identifying appropriate metrics and measurements more challenging.

36. *See, e.g.*, Perez v. Mortgage Bankers Ass'n, 135 S.Ct. 1199, 1204 (2015) ("The term 'interpretative rule,' or 'interpretive rule,' is not further defined by the APA, and its precise meaning is the source of much scholarly and judicial debate."); United States v. Mead Corp., 533 U.S. 218, 232 (2001) ("[I]nterpretive rules may sometimes function as precedents, . . . and they enjoy no *Chevron* status as a class."); ECA & Local 134 IBEW Joint Pension Trust of Chi. v. J.P. Morgan Chase Co., 553 F.3d 187, 197–98 (2d Cir. 2009) (treating internal SEC guidance as persuasive authority); Ganino v. Citizens Util. Co., 228 F.3d 154, 163 (2d Cir. 2000) ("Unlike, for example, a rule promulgated by the SEC pursuant to its rulemaking authority [an SEC internal regulation] does not carry with it the force of law."); Appalachian Power Co. v. EPA, 208 F.3d 1015, 1021 (D.C. Cir. 2000) ("If an agency acts as if a document issued at headquarters is controlling in the field, if it treats the document in the same manner as it treats a legislative rule, if it bases enforcement actions on the policies or interpretations formulated in the document, if it leads private parties or State permitting authorities to believe that it will declare permits invalid unless they comply with the terms of the document, then the agency's document is for all practical purposes 'binding.'"); Commonwealth v. Fremont Inv. & Loan, 897 N.E.2d 548, 557–58, 558 n.20 (Mass. 2008); *see also* Am. Mining Cong. v. Mine Safety & Health Admin., 995 F.2d 1106, 1112 (D.C. Cir. 1993) (establishing a test to distinguish between the two types of rules).

37. Chevron U.S.A., Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837 (1984).

38. Skidmore v. Swift & Co., 323 U.S. 134 (1944).

39. Auer v. Robbins, 519 U.S. 452 (1997).

beyond the scope of this paper—they have been discussed at length in administrative law literature.[40] However, Section V.A will describe a few potential scenarios regarding what might happen if soft law actions are tested in court, along with an elaboration of the level(s) and type(s) of deference courts might offer to agencies in those contexts. The use of soft law will continue proliferating as the regulatory tool of choice so long as agency officials continue to grapple with rapidly evolving technologies that have no historical predicate.

B. Pre-Digital Era Soft Law Theory and Applications

The challenges associated with defining soft law are compounded when attempting to catalog its variations, many of which defy easy categorization or are hybrids of multiple categories.[41] So for the sake of simplification and analysis, the discussion in this paper will focus on three general types: (1) "soft criteria"; (2) multistakeholder efforts; and (3) consultations, jawboning and agency threats.

Section III will delve further into this three-part taxonomy, discussing each one's application to technologies emerging in the current era, and describing how they have become a more widespread and indispensable means for regulators to address new technologies. Before the rise of the Internet and ICTs, these soft law mechanisms were informal, infrequently used, limited in their application, and largely invoked as methods of last resort after previous efforts at regulation had failed.[42] In modern times, however, soft law systems have become more formalized and more prevalent across federal agencies, often pursued as the first—and sometimes only—option.[43]

1. "Soft Criteria"

If soft law is generally defined as the implementation of those "arrangements that create substantive expectations that are not directly enforceable,"[44] then "soft criteria" refers to the corpus of "nonbinding norms and techniques"[45] that serve as the instruments

40. *See, e.g.*, E. Donald Elliott, *Re-Inventing Rulemaking*, 41 DUKE L.J. 1490, 1491–92 (1992); Franklin, *supra* note 31; Jacob E. Gersen, *Legislative Rules Revisited*, 74 U. CHI. L. REV. 1705, 1720–21 (2007); John F. Manning, *Nonlegislative Rules*, 72 GEO. WASH. L. REV. 893, 937–44 (2004); Peter L. Strauss, *The Rulemaking Continuum*, 41 DUKE L.J. 1463 (1992).

41. *See* CREWS, *supra* note 28, at 3–4, 36–37 (describing soft law documents as regulatory dark matter and identifying over seventy "Things that Are Not Quite Regulations," which are unified by the fact that these mechanisms do not go through the traditional rulemaking process).

42. *See, e.g.*, Manning, *supra* note 40, at 893–97.

43. *Id.*

44. Marchant & Allenby, *supra* note 1, at 112.

45. Abbott et al., *supra* note 34, at 285.

of soft law's implementation. In short, soft criteria are the means by which the soft law end is achieved—a skeletal structure that provides a governance foundation that can be built upon. These include a wide array of policy vehicles that go by many names, such as proactive principles, policy guidance documents, best practices and voluntary standards, white papers, reports, advisory circulars, opinion letters, and amicus briefs.

Although scholars, policy analysts, and politicians across the political spectrum have critiqued soft criteria as toothless and unenforceable, soft criteria can nonetheless serve as significant incentives and roadmaps for both industries and regulators.[46] Indeed, soft criteria have traditionally been one of the most commonly used tools in regulatory rulemaking.[47] Guidance documents, in particular, have been a popular mechanism for federal agencies seeking to offer their thoughts on regulatory matters.[48]

Of all the federal agencies, the Food and Drug Administration (FDA) is by far the most prolific.[49] By the agency's own account, it releases "more than 100 guidances each year" and even assigns them two different levels based on factors including: (1) the significance of the policy interpretation, the complexity or controversial nature of the policy, and (2) whether the guidance is intended to address changes to existing practices.[50] Part of the reason the FDA has become so reliant on these soft criteria likely

46. *See* Graham & Liu, *supra* note 32, at 426 ("These quasi-regulatory documents can create major policy shifts that impose significant burdens on industries or compel those industries to engage in costly litigation if they intend to protect their rights under administrative law."); Todd D. Rakoff, *The Choice Between Formal and Informal Modes of Administrative Regulation*, 52 ADMIN L. REV. 159, 171 (2000) ("[I]n the process of regulating the economy through administrative action, processes which are partially formal, and partially informal, are to be preferred over either very formal or very informal processes.").

47. *See* CREWS, *supra* note 28.

48. *See* H.R. REP. NO. 106-1009, at 5 (2000) (noting that between 1996 and 2000, the Occupational Health and Safety Administration (OSHA) promulgated 3,374 guidance documents, the National Highway Traffic Safety Administration (NHTSA) promulgated 1,225 guidance documents respectively, and the Environmental Protection Agency (EPA) promulgated 2,653 guidance documents).

49. *See* K.M. Lewis, *Informal Guidance and the FDA*, 66 FOOD & DRUG L.J. 507, 508–09 (2011).

50. *Fact Sheet: FDA Good Guidance Practices*, U.S. FOOD & DRUG ADMIN., https://www.fda.gov/AboutFDA/Transparency/TransparencyInitiative/ucm285282.htm [https://perma.cc/TR35-BB7W] (last updated Dec. 4, 2017) ("FDA issues more than 100 guidances each year. In fiscal year (FY) 2009, for example, FDA issued approximately 124 draft and final guidance documents; in FY 2010, the total was approximately 133, and in FY 2011, it was approximately 144. FDA develops two types of guidance documents - Level 1 and Level 2. In general: Level 1 guidances set forth the agency's initial interpretations of new significant regulatory requirements; describe substantial changes in FDA's earlier interpretation or policy; and deal with complex scientific or highly controversial issues. Level 2 guidances usually address existing practices or minor changes in FDA's interpretation or policy.").

stems from the burdensome requirements that increasingly govern its formal rulemaking procedures.[51]

The FDA's long history of promulgating non-binding guidances dates back more than a century.[52] In the early twentieth century, the FDA's predecessor, the Bureau of Chemistry, issued "Food Inspection Decisions" (FID) as a means of clarifying inquiries from those entities it regulated.[53] After Congress formally established the FDA in the 1938 Federal Food, Drug, and Cosmetic Act, the agency ceased issuing FIDs and began issuing trade correspondences "to advise regulated firms on how to comply with statutory requirements."[54] When the APA was passed, the FDA once again reformulated its guidances—publishing them in the Federal Register as "Statements of General Policy or Interpretation."[55] In the decades that followed, the FDA developed other such soft criteria, such as guidelines,[56] advisory opinions,[57] "Good Guidance Practices,"[58] "Compliance Policy Guides,"[59] "guidance initiation forms,"[60] "concept papers,"[61] and informal guidance.[62]

The FDA's use of such soft criteria has been so substantial that a 2015 report from the Government Accountability Office (GAO) noted that "certain provisions of the OMB Bulletin [on 'Good Guidance Practices'] were informed by written FDA practices for the initiation, development, issuance, and use of their guidance documents."[63] And indeed, other agencies have undertaken similar efforts to use soft criteria to better carry out their statutory missions.[64] The FTC's partnership with the Better Business

51. John C. Carey, Is Rulemaking Old Medicine at the FDA? 53 (1997) (unpublished manuscript, Harvard Law School) ("[R]ulemaking has become increasingly burdensome for the FDA over the past twenty-five years and . . . this has caused the FDA to increase its use of guidance as an alternative to rulemaking."), https://dash.harvard.edu/handle/1/8852158 [https://perma.cc/2E8Q-F4D7].

52. Lewis, *supra* note 49, at 509.

53. *Id.* at 510 ("The Secretary of Agriculture took pains to emphasize that FIDs were informal guidance documents only, and that they did not carry the force of law.").

54. Lars Noah, *The FDA's New Policy on Guidelines: Having Your Cake and Eating It Too*, 47 CATH U. L. REV. 113, 115–16 (1997).

55. Lewis, *supra* note 49, at 513.

56. *See* Lars Noah, *Governance by the Backdoor: Administrative Law(lessness?) at the FDA*, 93 NEB. L. REV. 89, 90–122 (2014).

57. *Id.*

58. *Id.* at 97–104.

59. *Id.* at 118–19.

60. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-15-368, REGULATORY GUIDANCE PROCESSES: SELECTED DEPARTMENTS COULD STRENGTHEN INTERNAL CONTROL AND DISSEMINATION PRACTICES 11 (2015) [hereinafter REG. GUIDANCE PROCESSES], https://www.gao.gov/assets/670/669688.pdf [https://perma.cc/ 3WY6-MARQ].

61. *Id.*

62. *See* Lewis, *supra* note 49.

63. REG. GUIDANCE PROCESSES, *supra* note 60, at 4.

64. *See, e.g.*, Jeffrey S. Edelstein, *Self-Regulation of Advertising: An Alternative to Litigation and Government Action,* 43 IDEA 509 (2003) (describing the processes that agencies related to the advertising industry follow); Philip J. Weiser, *Entrepreneurial Administration*, 97 B.U. L. REV. 2011, 2017 (2017) (describing this approach as one in

Bureau's National Advertising Division, for example, aims to use more self-regulatory mechanisms as an alternative to more heavy-handed approaches.[65] The FCC's reliance on private frequency coordinators to manage frequency coordination is another example.[66]

In short, soft criteria can come in many different forms and serve many different functions. The common theme, however, is that they serve as a mechanism for actualizing soft law. While federal agencies issue many of these documents, they are often produced in tandem with other stakeholders via collaborative proceedings. These multistakeholder processes are the topic of the next section.

2. Multistakeholder Efforts

Multistakeholderism is a governance process that attempts to articulate a set of soft criteria through a deliberative, consensus-based dialogue from a wide array of actors.[67] During the multistakeholder process, industry firms, public and consumer interest nonprofits, government regulators, and technical advisors come together to develop and refine soft criteria through a democratic process of compromise and conversation.[68] The multistakeholder process often closely resembles the same type of dealmaking and faction-based power distributions seen in

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which an agency integrates "its efforts with private bodies who have expertise in the field. Where that integration involves the explicit embrace, oversight, and enforcement of actions by private bodies, the model of regulation is aptly described as 'co-regulation.'").

65. Deborah Platt Majoras, Chairman, Fed. Trade Comm'n, Speech before the Council of Better Business Bureaus: Self Regulatory Organizations and the FTC (Apr. 11, 2005), https://www.ftc.gov/sites/default/files/documents/public_statements/self-regulatory-organizations-and-ftc/050411selfregorgs.pdf [https://perma.cc/9UEQ-82CZ] ("Self-regulation is a broad concept that includes any attempt by an industry to moderate its conduct with the intent of improving marketplace behavior for the ultimate benefit of consumers. The universe of self-regulatory organizations includes industry-wide or economy-wide private groups that provide, *inter alia*, certification, product information, complaint resolution, quality assurance, industrial standards, product compatibility standards, professional conduct standards, and complaint resolution. Implemented properly, each can provide efficiencies and other benefits to consumers that otherwise likely would not be possible without some form of government intervention.").

66. Weiser, *supra* note 9, at 555.

67. MARIETTE VAN HUIJSTEE, MULTI-STAKEHOLDER INITIATIVES: A STRATEGIC GUIDE FOR CIVIL SOCIETY ORGANIZATIONS 14 (2012), https://www.somo.nl/wp-content/uploads/2012/03/Multi-stakeholder-initiatives.pdf [https://perma.cc/KZA4-FG86] ("There is no clear-cut definition of a 'multi-stakeholder initiative.' Opinions differ regarding the scope of initiatives that MSI terminology should cover. Some experts feel that, in order to be worthy of the term, an initiative should be formally organised and characterised by a democratic, multi-stakeholder governance structure. Others consider dialogue platforms with representatives from business, civil society and other sectors to be MSIs as well. The common denominator between the diverse initiatives that are referred to as MSIs is that they are 'interactive processes in which business, CSOs and possibly other stakeholder groups interact to make business processes more socially and/or environmentally sustainable.'").

68. *Id.*

Congress. It is, in a sense, a mini-congress devoted to a particular policy priority.

"Multistakeholder process" has developed into something of a catch-all term of art to describe various procedures. In order to avoid defining the term too broadly, multistakeholder process, for the purpose of this paper's analysis, refers to proceedings that are intended to achieve stakeholder compromise on, and acceptance of, a set of soft criteria that enable soft law to govern a particular technology. To that end, this paper uses the term "multistakeholderism" when referencing the process by which disparate actors: (1) produce a set of soft criteria; (2) review existing standards or other soft criteria; or (3) reconcile existing standards or soft criteria with the new soft criteria being formulated.

It is important to note that a defining characteristic of the multistakeholder process is that it not only involves industry and agency officials, but also opens the door to nonprofits, civil society, and public interest groups. The legitimacy of the process is strengthened through transparency and an open invitation to public participation.[69] This also permits non-industry and non-government actors to contribute their time and energy towards achieving an amenable solution.[70] This cooperation between regulators and industry can benefit both groups.[71]

When an agency releases guidance documents, advisory circulars, best practices, or staff reports, part of its objective is to build a body of work that delineates the issues related to a particular policy.[72] In so doing, agencies are better equipped to

69. Ryan Hagemann, *New Rules for New Frontiers: Regulating Emerging Technologies in an Era of Soft Law*, 57 WASHBURN L.J. 235, 248 (2018) ("[Multistakeholder] proceedings necessitate the promotion of trust among stakeholders, which can only occur if the underlying proceeding itself is perceived as legitimate. Government agencies tend to be viewed as legitimate conveners, if only because all parties recognize the authority delegated to the state as valid. As such, these multistakeholder processes will tend to attract the widest spectrum of participants from industry, nonprofits, technical experts, academics, and others, thereby lending further legitimacy to the process. . . . By acting as the convener and arbitrator, a government agency can further establish legitimacy for a multistakeholder process, providing a type of neutral ground where stakeholders can deliberate in the pursuit of an objectively measurable outcome (usually the production of voluntary or nonbinding soft criteria), which helps promote a virtuous cycle of trust among the interested parties.").

70. *See* IAN AYRES & JOHN BRAITHWAITE, RESPONSIVE REGULATION: TRANSCENDING THE DEREGULATION DEBATE 57 (1992) ("First, it grants the [public interest group] and all its members access to all the information that is available to the regulator. Second, it gives the [public interest group] a seat at the negotiating table with the firm and the agency when deals are done. Third, the policy grants the [public interest group] the same standing to sue or prosecute under the regulatory statute as the regulator.").

71. *Id.* at 87 (contending that more open and cooperative communication can "produce more efficient regulatory outcomes because bad arguments and bad solutions are less likely to go unchallenged. And genuine communication means that when challenges are advanced, they are listened to").

72. *See* ADMIN. CONFERENCE OF THE U.S., ADMINISTRATIVE CONFERENCE RECOMMENDATION 2017-5: AGENCY GUIDANCE THROUGH POLICY STATEMENTS 1 (2017), https://www.acus.gov/sites/default/files/documents/Recommendation%202017-5%20%28

oversee that policy issue when Congress either legislates or more formally delegates authority. In either case, the development of soft criteria—whether intentionally or unintentionally—will likely inform more formal rulemakings in the future. However, many more formalized criteria can only be crystallized after they have undergone maturation during multistakeholder processes.[73]

For many policy discussions about emerging technologies, much of the proverbial sausage-making of soft law either begins with or closely orbits the multistakeholder process. Although sometimes these are formally referenced as "workshops," the structures are functionally identical.[74] For example, the FTC and NHTSA have been more likely to embrace "workshop," while the National Telecommunications and Information Administration (NTIA) prefers multistakeholder.[75] In both cases, the process is the same: disparate actors (the stakeholders) come together to discuss their interests in the issue or policy under consideration.

The use of multistakeholder processes or initiatives has grown significantly over the past 25 years, most likely because of the proliferation of multinational corporate actors and the continued globalization of commercial activities, capital flows, and increasingly borderless technologies.[76] In 1985 there was only a single multistakeholder initiative operating in this domain; by the early 2000s, this number had jumped to almost two-dozen.[77]

Many of these pre-Internet era initiatives, both international and domestic, revolved around regulatory approaches governing environmental issues.[78] For example, the Forest Stewardship

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Agency%20Guidance%20Through%20Policy%20Statements%29_2.pdf [https://perma.cc/3CKF-7MEU].

73. *See* VOLUNTARY BEST PRACTICES FOR UAS PRIVACY, TRANSPARENCY, AND ACCOUNTABILITY 5–6 (2016) [hereinafter VOLUNTARY UAS BEST PRACTICES], https://www.ntia.doc.gov/files/ntia/publications/uas_ privacy_best_practices_6-21-16.pdf [https://perma.cc/CHV2-RKXZ].

74. *See* VAN HUIJSTEE, *supra* note 67, at 6–7.

75. *See Workshops*, FED. TRADE COMM'N, https://www.ftc.gov/news-events/audio-video/ftc-events/workshops [https://perma.cc/TMT7-A5PY] (listing all FTC workshops going back to 2011). Additionally, a search for "workshops" on the FTC website yields 463 results, *see Commission Actions*, FED. TRADE COMM'N, https://www.ftc.gov/news-events/commission-actions [https://perma.cc/LB4J-VKQR] (in the "Title keyword" filter, search for "workshop"), while a search for "multistakeholder" yields only one, in which the FTC provides comments to NTIA on the latter's multistakeholder initiative on cybersecurity vulnerability disclosure, *see Commission Actions*, *supra* (in the "Title keyword" filter, search for "workshop"). By contrast, a search for "multistakeholder" on the NTIA website yields over 200 results. *See Search*, NAT'L TELECOMM. & INFO. ADMIN., https://www.ntia.doc.gov/search/node [https://perma.cc/ EN8E-LMDG] (in the search bar, search for both "multi-stakeholder" and "multistakeholder").

76. *See* Sébastien Mena & Guido Palazzo, *Input and Output Legitimacy of Multi-Stakeholder Initiatives*, 22 BUS. ETHICS Q. 527, 531, 534–35 tbl.1 (2012).

77. *Id.*

78. *See* Michael P. Vandenbergh, *Private Environmental Governance*, 99 CORNELL L. REV. 129 (2013) (discussing the evolution of environmental law from being almost exclusively rotted in administrative law to one that is also governed by private law and private governance).

Council (FSC) is an international nonprofit that promotes responsible, sustainable management of the world's forests.[79] Working in concert with businesses and governments, the FSC sets certification standards for forest products produced in environmentally friendly ways.[80] Notably, it was created in response to the international community's failure to arrive at a legally binding consensus to deal with deforestation problems, which led various stakeholders to conclude that a soft law approach could succeed where previous efforts had failed.[81]

Multistakeholder initiatives have since become a dominant mode of governance in environmental regulation.[82] Other multistakeholder standards-setting organizations have formed to deal with issues related to unsustainable fishing[83] and global finance standards for environmental impact disclosures.[84]

The U.S. Green Building Council (USGBC), for example, promulgated the Leadership in Energy and Environmental Design (LEED) certification standards in 1993 to certify the design, construction, operation, and maintenance of environmentally friendly buildings.[85]

Even before the advent of the Internet and ICTs, the traditional tools of regulatory governance struggled to keep pace. This problem has become increasingly pronounced in recent years, which has led to a massive proliferation of multistakeholder proceedings.[86]

Of course, not all soft law proceedings involve discussion and collaboration. More direct, one-on-one conversations can also lead to soft law outcomes. These types of consultations are the topic of the next section.

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79. *What is FSC?,* FOREST STEWARDSHIP COUNCIL, https://ic.fsc.org/en/what-is-fsc [https://perma.cc/B4PC-3YAT].

80. *Id.*

81. *See* John J. Kirton & Michael J. Trebilcock, *Introduction: Hard Choices and Soft Law in Sustainable Global Governance*, *in* HARD CHOICES, SOFT LAW: VOLUNTARY STANDARDS IN GLOBAL TRADE, ENVIRONMENT, AND SOCIAL GOVERNANCE 3, 3–6 (John J. Kirton & Michael J. Trebilcock eds., 2004); Vandenbergh, *supra* note 78, at 132.

82. Vandenbergh, *supra* note 78, at 133 ("The product is private environmental governance—a new model of legal and extralegal influences on the environmentally significant behavior of corporations and households. . . . These new private environmental governance activities play the standard-setting, implementation, monitoring, enforcement, and adjudication roles traditionally played by public regulatory regimes. They also interact in complex ways with public regulatory regimes, in some cases providing independent standards and enforcement, in others providing private enforcement of public standards, and in others undermining support for public standards.").

83. *Sustainable Seafood: The First 20 Years*, MARINE STEWARDSHIP COUNCIL (Apr. 25, 2017), http://20-years.msc.org/ [https://perma.cc/6TMK-4RJJ].

84. Vandenbergh, *supra* note 78, at 151–52.

85. *About USGBC*, U.S. GREEN BUILDING COUNCIL, https://new.usgbc.org/about [https://perma.cc/LF5P-YJVD].

86. *See infra* Section II.C.

3. Consultations, Jawboning, and Agency Threats

Agencies with significant regulatory authority can often motivate market actors to change their behavior through more simplistic mechanisms than those suggested above. The final category of soft law methods involves very informal communications by agency officials, often of a verbal nature.

"Agency threats," for example, can take many forms, from public press releases to private meetings.[87] Such "jawboning"[88] and "administrative arm-twisting"[89] can often achieve an intended outcome without the fuss and mess of formal rulemaking, convening stakeholders for prolonged engagements, or producing lengthy white papers and staff reports. Agency threats imply that the agency may take actions to enforce its threats.[90]

For example, for decades the FCC effectively used letters of inquiry (LOIs) to engage in what became known within that field as "regulation by raised eyebrow."[91] The LOIs presented FCC-licensed radio and television broadcasters with a series of questions with the implied threat of license revocation always hanging in the air.[92] The hint of FCC displeasure in the LOIs often achieved compliance from the licensees.[93] The FCC also used less formal methods to engage in regulation by raised eyebrow, such as speeches by commissioners at conventions.[94]

Although the FCC's use of such tactics to regulate broadcasters has faded as First Amendment jurisprudence has turned strongly in favor of greater free speech rights for media operators, the agency has increasingly begun to use implied threats in merger reviews.[95]

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87. Nathan Cortez, *Regulating Disruptive Innovation*, 29 BERKELEY TECH. L.J. 175, 187–88 (2014).

88. Derek E. Bambauer, *Against Jawboning*, 100 MINN. L. REV. 51, 126 (2015) ("Jawboning of Internet intermediaries is increasingly common, and it operates beneath the notice of both courts and commentators.").

89. Lars Noah, *Administrative Arm-Twisting in the Shadow of Congressional Delegations of Authority*, 1997 WIS. L. REV. 873, 876–82 (1997).

90. *See* Cortez, *supra* note 87, at 188 ("Threats, in short, are assertions that the agency will do something at some point given certain triggering activities. A threat that is unenforceable on its face would not seem to appeal to many agencies.").

91. *See* PAUL SIEGEL, COMMUNICATION LAW IN AMERICA 431 (4th ed. 2014); THOMAS STREETER, SELLING THE AIR: A CRITIQUE OF THE POLICY OF COMMERCIAL BROADCASTING IN THE UNITED STATES 189 (1996) (noting that LOIs were used as "regulatory threats that cajole[d] industry members into slight modifications" of their programming content).

92. *See* SIEGEL, *supra* note 91.

93. *Id.*

94. *Id.*

95. *See, e.g.*, Bryan N. Tramont, *Too Much Power, Too Little Restraint: How the FCC Expands Its Reach Through Unenforceable and Unwieldy 'Voluntary' Agreements*, 53 FED. COMM. L.J. 49, 52–53 (2000); Brent Skorup, *Regulating Without Regulation—How the FCC Sidesteps the First Amendment*, ORANGE COUNTY REG. (Feb. 24, 2017, 12:00 AM), http://www.ocregister.com/articles/publishers-744884-film-traditionally.html

In the past, agency officials would also commonly jawbone industry through speeches and other public statements.[96] Although they still use these tactics today, agency officials have also begun to take advantage of newer social media platforms to communicate or clarify new policy directions.[97] For example, the FTC and FCC now use agency blog posts and Twitter accounts to explain new agency directives or decisions.[98] Tweets from both official agency accounts and the accounts of individual commissioners often reiterate or expand upon agency announcements and actions.[99] Social media activity represents the newest and the softest of all soft law mechanisms.

Before we discuss how soft mechanisms have evolved and expanded in different technology sectors, Section II will explore why regulators are relying upon such soft law mechanisms with increasing regularity as they consider how to guide the future of various emerging technologies.

II. NEW REALITIES; NEW GOVERNANCE MECHANISMS

Momentous changes are happening throughout the modern global economy, driven by technology-based developments, spawned in large part by the rise of the Internet and the Digital Revolution.[100] This section will first explore the strain between those drivers of technological change and the acceleration of the so-called "pacing problem," and then look to its byproducts, including

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[https://perma.cc/TP79-X75B]; Mary Wood, *Faculty Q&A: Kendrick Defines Pattern for Supreme Court's First Amendment Jurisprudence*, U. VA. SCH. L. (May 30, 2012), https://content.law.virginia.edu/news/2012_spr/kendrick_qa.htm [https://perma.cc/L8VP-9SLN].

96. *See* KIMBERLY A. ZARKIN & MICHAEL J. ZARKIN, THE FEDERAL COMMUNICATIONS COMMISSION: FRONT LINE IN THE CULTURE AND REGULATION WARS 146 (2006) ("These 'suggestions' have often come in the form of speeches made by commissioners at the National Association of Broadcasters annual convention.").

97. James Broughel, *The Hidden Dangers of Government Tweets—and Not Just Trump's*, FISCAL TIMES (Mar. 23, 2017), http://www.thefiscaltimes.com/Columns/2017/03/23/Hidden-Dangers-Government-Tweets-and-Not-Just-Trump-s [https://perma.cc/3CU8-3LXJ].

98. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-11-605, SOCIAL MEDIA: FEDERAL AGENCIES NEED POLICIES AND PROCEDURES FOR MANAGING AND PROTECTING INFORMATION THEY ACCESS AND DISSEMINATE 2 (2011), https://www.gao.gov/new.items/d11605.pdf [https://perma.cc/2BJQ-B9LL] ("Federal agencies have been adapting commercially provided social media technologies to support their missions. Specifically, GAO identified several distinct ways that 23 of 24 major agencies are using Facebook, Twitter, and YouTube. These include reposting information available on official agency Web sites, posting information not otherwise available on agency Web sites, soliciting comments from the public, responding to comments on posted content, and providing links to non-government sites.").

99. *See id.*

100. Weiser, *supra* note 64, at 2017 ("The traditional model of regulation is coming under strain in the face of increasing globalization and technological change."); *see also* Aman, Jr., *supra* note 8, at 270 ("In the global era, administrative law now appears to be moving from its role as a surrogate political process that legitimates new extensions of public power, to one that legitimates new blends of public and private power and/or private power used for public interest ends.").

innovation arbitrage, evasive entrepreneurship, and spontaneous private deregulation.

As this section will make clear, these developments are helping accelerate the movement toward soft law as a preferred mode of technological governance.

A. The "Collingridge Dilemma" and the Challenge of Anticipatory Governance

Scholarly works about the future of technological governance often reference "the Collingridge dilemma." Named after David Collingridge, who wrote about the challenges of governing new technologies in his 1980 book, *The Social Control of Technology*,[101] the Collingridge dilemma refers to the difficulty of putting the proverbial genie back in the bottle.[102] Or, more specifically, at that moment when a particular technology either achieves mass market penetration or begins to profoundly transform the way individuals and institutions act, it can be difficult to regain control.[103]

Collingridge and his intellectual progeny have grappled with this dilemma, lamenting, either implicitly or sometimes even quite explicitly, that something must be done.[104] This intellectual cohort has generally favored anticipatory forms governance, looking for something that is extensive enough to regulate emerging technologies before such regulation is impossible.[105] Some have

101. DAVID COLLINGRIDGE, THE SOCIAL CONTROL OF TECHNOLOGY (1980).

102. *See* Mandel, *supra* note 2, at 92 ("The early stages of an emerging technology's development present a unique opportunity to shape its future. But, it is an opportunity that does not remain open forever. Interests, investment, and opinion can quickly begin to vest around certain regulatory and governance expectations.").

103. COLLINGRIDGE, *supra* note 101, at 11 ("The social consequences of a technology cannot be predicated early in the life of the technology. By the time undesirable consequences are discovered, however, the technology is often so much part of the whole economics and social fabric that its control is extremely difficult."); *see also* WENDELL WALLACH, A DANGEROUS MASTER: HOW TO KEEP TECHNOLOGY FROM SLIPPING BEYOND OUR CONTROL 72 (2015) ("Between the introduction and the entrenchment of a new technology there will often be an inflection point, an opportunity when the problems are coming into focus before the technology is fully established."); Evgeny Morozov, *The Collingridge Dilemma*, EDGE (Oct. 12, 2012), https://www.edge.org/response-detail/10898 [https://perma.cc/VCF4-FATV] ("Collingridge's basic insight was that we can successfully regulate a given technology when it's still young and unpopular and thus probably still hiding its unanticipated and [undesirable] consequences—or we can wait and see what those consequences are but then risk losing control over its regulation.").

104. *See* WALLACH, *supra* note 103; Cortez, *supra* note 87, at 179–80 ("[N]ew technologies can benefit from decisive, well-timed regulation" or even "early regulatory interventions."); *see also* John Frank Weaver, *We Need to Pass Legislation on Artificial Intelligence Early and Often*, SLATE (Sept. 12, 2014, 3:53 PM), http://www.slate.com/blogs/future_tense/2014/09/12/we_need_to_pass_artificial_intelligence_laws_early_and_often.html [https://perma.cc/JR98-QU3R] (suggesting regulating emerging tech like artificial intelligence systems "early and often" to get ahead of various social and economic concerns).

105. WALLACH, *supra* note 103 (describing "upstream governance" as "more control over the way that potentially harmful technologies are developed or introduced into the larger society. Upstream management is certainly better than introducing regulations

even suggested implementing Precautionary Principle-based regulatory efforts in sectors with emerging technologies,[106] which would be aimed at changing the trajectory of fast-developing technologies or, perhaps, even prohibiting those technologies altogether.[107]

The Precautionary Principle has been criticized not only as innovation-deterring, but also as literally incoherent.[108] It fails to articulate a clear principle by which to evaluate the severity of risks worthy of control.[109] At least in the United States, a rigid version of the Precautionary Principle has generally been rejected as the policymaking standard for most technology sectors. For example, since the early 1990s, the Internet and the digital economy more generally have thrived in an environment characterized by what has been called "permissionless innovation" and light-touch regulatory oversight.[110]

Nonetheless, softer articulations of the Precautionary Principle often animate calls for early regulatory activism toward emerging technology.[111] For example, many scholars have already proposed anticipatory regulatory regimes for artificial intelligence (AI) or robotics in the form of a federal AI agency,[112] such as a National Algorithmic Technology Safety Administration,[113] or a "Federal Robotics Commission."[114] The regulatory framework that these scholars envision would be squarely precautionary in

downstream, after a technology is deeply entrenched, or something major has already gone wrong"); *see also* David H. Guston, *Understanding 'Anticipatory Governance*,' 44 SOC. STUD. SCI. 218, 227–28 (2013).

106. The Precautionary Principle represents one of the most extreme forms of anticipatory governance. Under the Precautionary Principle, regulators should try to invoke preemptive controls to regulate new technologies, even when their effects are unknown. *See* WALLACH, *supra* note 103, at 73.

107. *Id.*

108. *Id.*

109. *See* ADAM THIERER, PERMISSIONLESS INNOVATION: THE CONTINUING CASE FOR COMPREHENSIVE TECHNOLOGICAL FREEDOM 2 (2d ed. 2016).

110. *See* Adam Thierer, *How Attitudes About Risk & Failure Affect Innovation on Either Side of the Atlantic*, PLAIN TEXT (June 19, 2015), https://readplaintext.com/how-attitudes-about-risk-failure-affect-innovation-on-either-side-of-the-atlantic-b5f0f41c3466 [https://perma.cc/TDV2-4PWR] (hypothesizing why European tech start-up companies fail to achieve the same level of success as American start-ups).

111. *See* Cortez, *supra* note 87, at 175 ("[A]gencies need not be so tentative with innovations. If agencies are concerned about regulating prematurely or in error, then they can experiment with timing rules, alternative enforcement mechanisms, and other variations on traditional interventions. If agencies do choose to proceed by making threats, then they should use them as a short-term precursor to more decisive, legally binding action . . . .").

112. Matthew U. Scherer, *Regulating Artificial Intelligence Systems: Risks, Challenges, Competencies, and Strategies*, 29 HARV. J.L. & TECH. 353, 394 (2016).

113. *See* Andrew Tutt, *An FDA for Algorithms*, 69 ADMIN. L. REV. 83, 107–11 (2017) (considering a new federal agency that would regulate algorithms).

114. RYAN CALO, THE CASE FOR A FEDERAL ROBOTICS COMMISSION 11–12 (2014), https://www.brookings.edu/wp-content/uploads/2014/09/RoboticsCommissionR2_Calo.pdf [https://perma.cc/Q7U7-MZVE]; *see also* Scherer, *supra* note 112, at 362; Weaver, *supra* note 104.

character, aimed at addressing a wide array of hypothetical harms through permission-based rulemaking. In essence, these regulatory authorities would be forging piecemeal solutions to problems before those problems even materialized.

This paper does not evaluate the legitimacy of the Precautionary Principle as a policymaking tool in the normative sense.[115] Rather, it acknowledges that the combination of (1) the quickening pace of the pacing problem, (2) the strong desire to do something about it, and (3) an implicit acknowledgment that traditional regulatory systems are not up to the task,[116] likely explains why soft law mechanisms are becoming the preferred modes of governance in tackling the Collingridge dilemma. This suggests that, at least as a practical matter, Precautionary Principle-based policymaking will be not only difficult but, in many cases, completely unrealistic to implement. That conclusion is rooted in the new technological realities of the modern digital world.

B. Underlying Drivers of Technological Change

New ICTs are radically transforming many sectors of the economy and daily life more generally. The technological advancements driving the digital revolution—massive increases in processing power and storage capacity, the steady miniaturization of computing, ubiquitous communications and networking capabilities, and the digitization of all data[117]—are penetrating sectors beyond the Internet and ICT, and the ramifications are profound.[118]

For example, technology companies and their software will likely disrupt many established industries over the coming years.[119] Some speak of the "softwarization of hardware,"[120] while others

115. For a critique on the legitimacy of the Precautionary Principle as a policymaking tool in the normative sense, see THIERER, *supra* note 109.

116. Mandel, *supra* note 2, at 82 ("Because of the variation and uncertainties in emerging technology development, there are inherent limitations in how precise a universal or *ex ante* governance structure can be developed.").

117. *See* Adam Thierer, *The Pursuit of Privacy in a World Where Information Control Is Failing*, 36 HARV. J.L. & PUB. POL'Y 409, 424–25 (2013).

118. KEVIN KELLY, THE INEVITABLE: UNDERSTANDING THE 12 TECHNOLOGICAL FORCES THAT WILL SHAPE OUR FUTURE 148 (2016) ("The shift from hierarchy to networks, from centralized heads to decentralized webs, where sharing is the default, has been the major cultural story of the last three decades—and that story is not done yet. The power of bottom up will still take us further.").

119. Marc Andreessen, *Why Software Is Eating the World*, WALL ST. J. (Aug. 20, 2011), http://www.wsj.com/articles/SB10001424053111903480904576512250915629460 [https://perma.cc/L4H9-QCWZ] (explaining how entrepreneurial technology companies "are invading and overturning established industry structures" such that he expects "many more industries to be disrupted by software" in the coming years).

120. Christopher Mims, *A New Dawn for Breast Pumps and Other Products*, WALL ST. J. (Mar. 22, 2015, 7:12 PM), https://www.wsj.com/articles/a-new-dawn-for-gadgets-1427065972 [https://perma.cc/FT2J-E6V4].

speak about the continued growth of the IoT, which refers to a massive constellation of everyday devices that are constantly connected, sensing, and communicating with each other.[121] Put simply, the world of atoms (i.e., physical things) is colliding with the world of bits (i.e., the information economy and digital technologies). If the digital revolution is any guide, the pace of technological change will accelerate transformations in many other sectors in a way that has the potential to overwhelm "the capacity of traditional governmental processes to respond."[122]

As software "eats the world" and digital technology converges with other existing and emerging sectors, it will continue to blur the lines between them. In the past, for example, it was easier to define what an automobile was and identify which congressional committees and regulatory authorities had jurisdiction to govern the relevant technology and industry.[123] Today, however, automobiles are essentially becoming computers on wheels, with sophisticated software and algorithms operating countless automated systems.[124] This dynamic ushers in regulatory interests beyond those in traditional automobile regulatory bodies.

What is more, other new technological structures, like IoT, defy traditional regulatory classifications,[125] while unique emerging technologies such as 3D printing, virtual reality,[126] and biometrics, have never been subject to regulations governing their commercial use;[127] yet it is conceivable that several different agencies could claim some authority over them, even without a new grant of authority from Congress. Because these technologies are evolving so rapidly it is unlikely that Congress will propose new legislation, given how quickly it will be out of date.

C. The Accelerating Pace of "the Pacing Problem"

While the gap between the introduction of new technologies and their regulatory frameworks is increasing, consumers are

121. *See* Adam Thierer, *The Internet of Things and Wearable Technology: Addressing Privacy and Security Concerns Without Derailing Innovation*, 21 RICH. J.L. & TECH. 6 (2015).

122. MILTON L. MUELLER, NETWORK AND STATES: THE GLOBAL POLITICS OF INTERNET GOVERNANCE 4 (William J. Drake & Ernest J. Wilson, III eds., 2010) (referring to the explosion in Internet content and the subsequent transactions).

123. *See, e.g.*, 49 U.S.C. § 32901(a)(3) (2012) (defining automobile).

124. Adam Thierer & Ryan Hagemann, *Removing Roadblocks to Intelligent Vehicles and Driverless Cars*, 5 WAKE FOREST J.L. & POL'Y 339, 380–86 (2015).

125. Thierer, *supra* note 121, at 60–63.

126. Adam Thierer & Jonathan Camp, Permissionless Innovation and Immersive Technology: Public Policy for Virtual and Augmented Reality 7 (Sept. 25, 2017) (unpublished manuscript), https://www.mercatus.org/system/files/thierer-immersive-technology-mercatus-working-paper-v1.pdf [https://perma.cc/6H7A-BXZB].

127. However, it is conceivable that several different agencies could claim some authority over biometrics without a new grant of authority from Congress. *See id.*

adopting new technologies at a faster pace.[128] Indeed, it took over thirty years for a quarter of all American homes to get a telephone.[129] By contrast, it took only seven years for a similar percentage to receive Internet access.[130] Tablets and smartphones have experienced even faster rates of adoption.[131] Although some people look askance towards certain emerging technologies, like autonomous vehicles[132] or robotics,[133] recent trends suggest consumers are tending to acclimate themselves to, and eventually embrace, new technologies more rapidly than they have before.[134]

This accelerated rate of market penetration, coupled with the introduction of fast-developing technologies, gives rise to what philosophers and social scientists refer to as the pacing problem[135]—here, defined as "the gap between the introduction of a new technology and the establishment of laws, regulations, and oversight mechanisms for shaping its safe development."[136] Modern technological innovation is occurring at an unprecedented pace, making it harder than ever to govern using traditional legal and regulatory mechanisms.[137]

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128. *E.g.*, Rita Gunther McGrath, *The Pace of Technology Adoption Is Speeding Up*, HARV. BUS. REV. (Nov. 25, 2013), https://hbr.org/2013/11/the-pace-of-technology-adoption-is-speeding-up [https://perma.cc/K8QK-5D3E] (finding that new technological advances are achieving market penetration more quickly than in the past).

129. *Id.*

130. Drew DeSilver, *Chart of the Week: The Ever-Accelerating Rate of Technology Adoption*, PEW RES. CTR.: FACT TANK (Mar. 14, 2014), http://www.pewresearch.org/fact-tank/2014/03/14/chart-of-the-week-the-ever-accelerating-rate-of-technology-adoption/ [https://perma.cc/D6RN-XCAN]; *see id.*

131. *See* Michael DeGusta, *Are Smart Phones Spreading Faster Than Any Technology in Human History?*, MIT TECH. REV. (May 9, 2012), https://www.technologyreview.com/s/427787/are-smart-phones-spreading-faster-than-any-technology-in-human-history/ [https://perma.cc/G35S-CKLV].

132. Pat McAssey, *Three in Four Americans Afraid to Ride in Self-Driving Cars, AAA Finds*, NESN (Mar. 8, 2017, 4:20 PM), https://nesn.com/2017/03/three-in-four-americans-afraid-to-ride-in-self-driving-cars-aaa-finds/ [https://perma.cc/TN5B-TKYB].

133. *See* Matt Simon, *You Aren't Ready for the Weirdness of Working with Robots*, WIRED (Oct. 12, 2017, 8:00 AM), https://www.wired.com/story/you-arent-ready-for-the-weirdness-of-working-with-robots/ [https://perma.cc/EP2P-MZW5].

134. *See* McGrath, *supra* note 128; Adam Thierer, *Muddling Through: How We Learn to Cope with Technological Change*, MEDIUM (June 30, 2014), https://medium.com/tech-liberation/muddling-through-how-we-learn-to-cope-with-technological-change-6282d0d342a6 [https://perma.cc/6AX9-AA46] (arguing that humans tend to find "ways to adapt to technological change by employing a variety of coping mechanisms, new norms, or other creative fixes").

135. Gary E. Marchant, *The Growing Gap Between Emerging Technologies and the Law*, *in* THE GROWING GAP BETWEEN EMERGING TECHNOLOGIES AND LEGAL-ETHICAL OVERSIGHT: THE PACING PROBLEM 19, 22–23 (Gary E. Marchant et al. eds., 2011).

136. WALLACH, *supra* note 103, at 251.

137. *Id.*; *see* LARRY DOWNES, THE LAWS OF DISRUPTION: HARNESSING THE NEW FORCES THAT GOVERN LIFE AND BUSINESS IN THE DIGITAL AGE 2–3 (2009) (arguing that "technology changes exponentially, but social, economic, and legal systems changes incrementally" and "[a]s the gap between the old world and the new gets wider, conflicts between social, economic, political, and legal systems" will intensify and "[n]othing can stop the chaos that will follow"); CALESTOUS JUMA, INNOVATION AND ITS ENEMIES: WHY PEOPLE RESIST NEW TECHNOLOGIES 13–14 (2016) ("The implications of exponential growth will continue to elude political leaders if they persist in operating with linear worldviews."); Cortez, *supra* note 87, at 176 ("A persistent challenge for regulators is

Many scholars do not believe most Internet regulation can work in practice due to the "realities of digital life" and "the unique properties of information."[138] One recommendation is for policymakers to pursue various deregulatory actions to achieve that goal or to simply forbear from regulating new technologies and developments altogether.[139]

Other scholars still favor regulatory activism but admit that "regulatory disruption"—i.e., "the idea that novel technologies or business practices can disturb existing regulatory frameworks"—is becoming a more pressing problem.[140] Even policymakers are acknowledging the challenges that the pacing problem poses for traditional regulatory systems.[141]

Given the difficulties inherent in developing appropriately-tailored regulatory rules for complex technologies, as well as the institutional limitations that regulators face, it seems clear that more flexible regulatory responses will increasingly be favored as coping mechanisms for the pacing problem.

D. Technological Determinism by Another Name?

Assertions about the inevitability of the pacing problem, such as those discussed in the preceding sections, are representative of an attitude sometimes labeled "technological determinism," used here to mean a technological advancement created independently from social forces but nevertheless causes social change.[142] The opposite of technological determinism is "social constructivism," which "presumes that social and cultural forces determine technical change."[143]

The optimistic variant of hard determinism suggests that social and political systems have little chance of controlling how

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confronting new technologies or business practices that do not square well with existing regulatory frameworks."); Sofia Ranchordás, *Does Sharing Mean Caring? Regulating Innovation in the Sharing Economy*, 16 MINN. J.L., SCI. & TECH. 413, 449 (2015) (observing that "[l]aw will necessarily lag behind innovation since it cannot be adapted at innovation's speed").

138. DOWNES, *supra* note 137, at 3–5.

139. *See id.*

140. Cortez, *supra* note 87, at 183 ("Regulatory disruption occurs, then, when the 'disruptee' is the regulatory framework itself.").

141. *See* Peter Gluckman, Chief Sci. Advisor, Office of the Prime Minister, Keynote Address at the 17th International Biotechnology Symposium (Oct. 25, 2016), http://www.pmcsa.org.nz/wp-content/uploads/Discussion-of-Social-Licence.pdf [https://perma.cc/WXB7-QQB2] ("Clearly society has the right and the responsibility to decide on the use of any technology—partly they do this through the marketplace and partly through political regulation. But regulatory approaches are complex particularly when technologies move fast.").

142. Sally Wyatt, *Technological Determinism Is Dead; Long Live Technological Determinism*, *in* THE HANDBOOK OF SCIENCE AND TECHNOLOGY STUDIES 165, 168 (Edward J. Hackett et al. eds., 3d ed. 2008).

143. Thomas P. Hughes, *Technological Momentum*, *in* DOES TECHNOLOGY DRIVE HISTORY?: THE DILEMMA OF TECHNOLOGICAL DETERMINISM 101, 102 (Merritt Roe Smith & Leo Marx eds., 1994).

new technologies or technological processes evolve.[144] The highly optimistic variants of hard determinism even further consider that "technological progress equals social progress."[145]

Many technological cynics from the past century held strong deterministic views about technology and considered it ungovernable, calling it "self-perpetuating, all-persuasive, and inescapable," and explaining that it represents "an autonomous and uncontrollable force that dehumanize[s] all that it touches."[146] Similar arguments still surface today, particularly in casual writings about online privacy and security issues, where one determinist opined "[t]echnological innovation is already calling the shots."[147] Even many Marxist theorists have held strongly deterministic views about the role of technology in history, expressing sentiments that are more often espoused by advocates of laissez-faire capitalism.[148] Thus, regardless of which school of thought that scholars subscribe—"Technology as Liberator" or "Technology as a Threat"—most can entertain some sort of deterministic viewpoints regarding the primacy of technology as a social and economic force in society.[149]

To be sure, deterministic reasoning is rarely so narrow; there exist many variants of determinism along the spectrum between hard determinism and social constructivism. "Soft determinism,"

144. KEVIN KELLY, WHAT TECHNOLOGY WANTS 11–13 (2010) ("[T]echnium[,]" or "the greater, global, massively interconnected system of technology vibrating around us . . . , is maturing into its own thing. Its sustaining network of self-reinforcing processes and parts have given it a noticeable measure of autonomy."); *see also* RAY KURZWEIL, THE AGE OF SPIRITUAL MACHINES: WHEN COMPUTERS EXCEED HUMAN INTELLIGENCE (1999); RAY KURZWEIL, THE SINGULARITY IS NEAR: WHEN HUMANS TRANSCEND BIOLOGY (2005).

145. Wyatt, *supra* note 142.

146. JACQUES ELLUL, THE TECHNOLOGICAL SOCIETY (John Wilkinson trans., Vintage Books 1964) (1954); *see also* Doug Hill, *Jacques Ellul, Technology Doomsdayer Before His Time*, BOS. GLOBE (July 8, 2015), http://www.bostonglobe.com/ideas/2012/07/07/jacques-ellul-conference/1BVZp8uEiGKoeXAmkDJpeO/story.html [https://perma.cc/C2C2-GFZH].

147. Zoltan Istvan, *Liberty Might Be Better Served by Doing Away with Privacy*, VICE: MOTHERBOARD (July 14, 2017, 2:05 PM), https://motherboard.vice.com/en_us/article/bjx5y5/liberty-might-be-better-served-by-doing-away-with-privacy [https://perma.cc/LD4J-UWNN].

148. *See* Leo Marx, *The Idea of "Technology" and Postmodern Pessimism*, *in* DOES TECHNOLOGY DRIVE HISTORY? THE DILEMMA OF TECHNOLOGICAL DETERMINISM 237, 250 (Merritt Roe Smith & Leo Marx eds., 1994) ("To later followers of Marx and Engels, the most apt name of that power leading to communism, the political goal of progress—of history—is 'technology.'").

149. 2 IAN BARBOUR, ETHICS IN AN AGE OF TECHNOLOGY: THE GIFFORD LECTURES 3, 21 (1993) ("Technological determinists will be pessimists if they hold that the consequences of technology are on balance socially and environmentally harmful. . . . However, some determinists retain great optimism about the consequences of technology."); *see also* Merritt Roe Smith & Leo Marx, *Introduction to* DOES TECHNOLOGY DRIVE HISTORY?: THE DILEMMA OF TECHNOLOGICAL DETERMINISM ix, xii (Merritt Roe Smith & Leo Marx eds., 1994) ("To optimists, such a future is the outcome of many free choices and the realization of the dream of progress; to pessimists, it is a product of necessity's iron hand, and it points to a totalitarian nightmare.").

for instance, is when technological progress "responds" to social pressures yet still "drives social change."[150]

Some deterministic thinking is more technology specific. For example, many information technology scholars suggest that while some degree of social and political control of new information technologies is possible, it has become increasingly costly and complicated over time.[151] And indeed, whatever one thinks about the prospects of controlling Industrial Era or Analog Era communications technologies such as the telegraph, telephone, radio, and television, the Internet and modern ICTs are qualitatively different.[152] They are, as many scholars suggest, inherently more resistant to control than those previous technologies.[153]

Although this perspective, which is largely the one we adopt here, seems merely to echo hard deterministic thinking, it represents a softer variety. Crucially, it takes into account the unique characteristics of the technological realities—massive increases in processing power and storage capacity, the steady miniaturization of computing, ubiquitous communications and networking capabilities, and the digitization of all data—that are exacerbating the pacing problem. Against that backdrop, this perspective ultimately acknowledges that these technological realities are debilitating the more hard law mechanisms that regulators have traditionally used to govern. Indeed, as suggested above, that such a diverse array of scholars and policymakers generally share this semi-deterministic outlook suggests that there is widespread consensus; the pacing problem is not only real, it is accelerating. This consensus will in turn fuel a non-partisan, cross-disciplinarian search for soft law solutions that can ameliorate the inefficacies of traditional hard law processes.

E. Why Traditional "Hard Law" Systems Struggle to Keep

150. Merritt Roe Smith, *Technological Determinism in American Culture*, *in* DOES TECHNOLOGY DRIVE HISTORY?: THE DILEMMA OF TECHNOLOGICAL DETERMINISM 1, 2 (Merritt Roe Smith & Leo Marx eds., 1994) (defining "soft [determinism]" as the view "which holds that technological change drives social change but at the same time responds discriminatingly to social pressures," as compared to "hard [determinism]," which "perceives technological development as an autonomous force, completely independent of social constraints").

151. *See* WALLACH, *supra* note 103, at 71–74.

152. *See* Konstantinos K. Stylianou, *Hasta La Vista Privacy, or How Technology Terminated Privacy*, *in* PERSONAL DATA PRIVACY AND PROTECTION IN A SURVEILLANCE ERA: TECHNOLOGIES AND PRACTICES 44, 54 (Christina Akrivopoulou & Athanasios-Efstratios Psygkas eds., 2011) ("While designing flexible rules may be of help, it also appears that technology has already advanced to a degree that it is able to bypass or manipulate legislation.").

153. *See, e.g.*, Ithiel de Sola Pool, TECHNOLOGIES OF FREEDOM: ON FREE SPEECH IN AN ELECTRONIC AGE 4–6 (1983).

Pace

But why, specifically, do modern emerging technologies and their respective pacing problems create such serious challenges for traditional regulatory processes? There are several deficiencies associated with traditional "hard law" regulation that are particularly pronounced when it comes to governing emerging or rapidly-evolving technologies or sectors. Those issues include the slow-moving nature of the regulatory process itself (i.e. the "pace of action" problem);[154] the bureaucratic bloat associated with many modern regulatory processes (i.e. the "volume of rules" problem);[155] the inability to properly categorize and silo particular technologies under individual regulatory authorities (i.e. the "coordination" problem);[156] and the limited access to the full range of informational inputs needed to make wise decisions about emerging technological processes (i.e. the "knowledge" problem).[157]

1. Bureaucratic Deficiencies (i.e. the "Pace of Action" Problem)

Generally speaking, traditional regulatory processes tend to be quite rigid, bureaucratic, inflexible, and slow to adapt to new realities. Congressional lawmakers have purposefully imposed statutory limitations on agency discretion. They do so both directly, through specific authorizing statutes that delimit agency power, and indirectly, through various procedural limitations that act to check agency actions.[158] Notably, these constraints include the APA and OIRA review processes, discussed in Section I. While these legal constraints on agency action are meant to create more accountability and transparency throughout the regulatory system, they can nonetheless slow down regulatory processes to some degree.[159]

Beyond those formal constraints, scholars have noted that bureaucracies and existing regulatory regimes naturally tend to

154. *See* Weiser, *supra* note 64, at 2029, 2055 ("Bureaucratic inertia and autopilot administration not only prevents innovative programs from being developed, but also can lead existing programs to be administered badly. . . . [T]he essence of experimentation, departing from traditional models, and entrepreneurial leadership is overcoming bureaucratic inertia.").

155. *See* Patrick A. McLaughlin & Richard Williams, *The Consequences of Regulatory Accumulation and a Proposed Solution* 3 (Mercatus Ctr., Working Paper No. 14-03, 2014), https://www.mercatus.org/system/files/McLaughlin_RegulatoryAccumulation_v2.pdf [https://perma.cc/5PKU-N9VP].

156. *See* Julie E. Cohen, *The Regulatory State in the Information Age*, 17 THEORETICAL INQUIRIES L. 369, 397 (2016).

157. *See* F. A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519 (1945).

158. *See generally* 5 U.S.C. §§ 551–559 (2012).

159. FRITSCHLER & RUDDER, *supra* note 13, at 135 ("The primary reason for bureaucratic rules is to ensure accountability and appropriate behavior, but these same rules can lead to sclerotic, unresponsive government whose denizens follow the rules without advancing public interests effectively.").

move quite slowly in response to social and economic change.[160] Bureaucracies tend also to be notoriously risk averse.[161] Powerful incentives exist for the bureaucrats in agencies to act cautiously to avoid any negative publicity that may put their budgets at risk.[162] Other regulatory analysts have likewise observed that factors such as interest group pressure, weak priorities, confusion, and lack of foresight as characteristics of modern regulation make traditional hard law regimes a poor fit for new, fast-moving technologies and sectors.[163]

Another complication is the judicial deference factor. Current administrative law gives broad deference to an agency's actions and statutory interpretations, which makes it difficult to achieve changes via the courts.[164] The usefulness and proper role of agency deference is an ongoing debate among judges, politicians, and scholars.[165] However, a change in the deference standard may not impact whether or how an agency chooses to regulate, given few agencies consider deference when determining regulatory action.[166]

Allowing agency guidance to be challenged in the courts would increase the burden on agencies but would alleviate some of the

160. Weiser, *supra* note 64, at 2017–18; *see also* Mandel, *supra* note 2 (stating that "[r]egulatory systems are designed to handle the technology in place when the regulatory system was developed," and, therefore, struggle to adapt when "emerging technologies disrupt these systems").

161. The reasons for this are well documented in the political science literature, ranging from constraints on individual managers' authorities to the costs (or benefits) of noncompliance to avoid court interventions that may negatively impact their reputational standing and budgets. For a more comprehensive analysis of institutional risk-aversion in federal agencies, see JAMES Q. WILSON, BUREAUCRACY: WHAT GOVERNMENT AGENCIES DO AND WHY THEY DO IT (1989).

162. HENRY N. BUTLER ET AL., ECONOMIC ANALYSIS FOR LAWYERS 382 (3d ed. 2014) ("Understandably, bureaucrats and politicians have an incentive to seek higher than optimal levels of risk reduction in order to maintain their jobs or their political status."); *see also* WILLIAM A. NISKANEN, JR., BUREAUCRACY AND PUBLIC ECONOMICS (2d ed. 1996).

163. Richard H. Pildes & Cass R. Sunstein, *Reinventing the Regulatory State*, 62 U. CHI. L. REV. 1, 4 (1995); Niklas Elert & Magnus Henrekson, *Entrepreneurship and Institutions: A Bidirectional Relationship* 43 (Res. Inst. of Indus. Econ., IFN Working Paper No. 1153, 2017), http://www.ifn.se/wfiles/wp/wp1153.pdf [https://perma.cc/LV4B-LWUF] ("Innovation causes rapid changes that do not jibe well with rigid top-down rules, especially not in the inherently unpredictable and fast-moving information-technology markets.").

164. *See, e.g.*, Lisa Heinzerling, *Private: Chevron Deference*, ACSBLOG (Mar. 20, 2017), https://www.acslaw.org/acsblog/chevron-deference [https://perma.cc/4KFF-XNUW].

165. Rebecca Wilhelm, *Democratic Senators Grill Gorsuch on Agency Deference*, BLOOMBERG BNA (Mar. 21, 2017), https://www.bna.com/democratic-senators-grill-n57982085518 [https://perma.cc/NE4P-25QC]; *see also Reflections on Seminole Rock and the Future of Judicial Deference to Agency Regulatory Interpretations*, YALE J. ON REG.: NOTICE & COMMENT), http://yalejreg.com/nc/category/symposia/ reflections-on-seminole-rock-and-the-future-of-judicial-deference-to-agency-regulatory-interpretations/ [https://perma.cc/P8CM-K6W3] (listing various blog posts that discuss Seminole Rock deference).

166. Chris Walker, *Auer Deference Inside the Regulatory State: Some Preliminary Findings*, YALE J. ON REG.: NOTICE & COMMENT (Sept. 14, 2016), http://yalejreg.com/nc/auer-deference-inside-the-regulatory-state-some-preliminary-findings/ [https://perma.cc/ENV4-TJ62].

uncertainty. Some courts have already recognized the tension between agency deference and soft law outside the context of emerging technologies. In *Appalachian Power Co. v. EPA*, the D.C. Circuit found that sufficiently expanding the scope of regulatory standards via guidance could be a violation of rulemaking procedures under the APA.[167] Under this standard, challenging rapid regulatory changes that are clearly intended to be pseudo-rulemaking would at least provide innovators with the protections of the APA process.

2. Regulatory Accumulation and Demosclerosis (i.e., "Volume of Rules" Problem)

Regarding interest group pressure, it is often in industry incumbents' and special interest groups' best interest to make (or keep) complex regulatory systems[168] that prevent new entrants and innovations from entering the market.[169] This is a familiar byproduct of what is increasingly referred to as "crony capitalism,"[170] and it has important ramifications for the future of hard law enforcement efforts.

Coined by Mancur Olson, this concept of "complex understandings" of law and regulation arises from the intricate ways in which lobbying influences how regulations are enacted.[171]

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167. 208 F.3d 1015, 1024 (D.C. Cir. 2000).

168. Matthew D. Mitchell, *That Government Is Best Which Is Not Captured by Special Interests*, MERCATUS CTR. (July 21, 2017), https://www.mercatus.org/publications/government-best-which-not-captured-special-interests [https://perma.cc/E9SD-CM5Z] ("[L]iberty often 'yields' because special interests want it to. In other words, people stand to benefit by limiting the freedom of others. Producers, for example, gain by limiting customers' freedom to shop at the competition or to pay competitive prices. And in many cases, special interests have successfully fought for their own government-granted privileges that limit the freedom of others.").

169. MARK ZACHARY TAYLOR, THE POLITICS OF INNOVATION: WHY SOME COUNTRIES ARE BETTER THAN OTHERS AT SCIENCE & TECHNOLOGY 14, 16, 213 (2016) ("Distributional politics tend to slow innovation . . . [because] losers tend to resort to politics to slow innovation. . . . Time and again, the losing interest groups created by scientific progress or technological change have been able to convince politicians to block, slow, or alter government support for scientific and technological progress. They support taxes, regulations, subsidies, procurement policies, spending, and so forth that obstruct progress in new [science and technology], and favor the status quo [science and technology]. The losers and their political representatives have interfered with markets, public institutions and policies, and even the scientific debate itself–whatever they can to protect their interests.").

170. *See* MATTHEW MITCHELL, THE PATHOLOGY OF PRIVILEGE: THE ECONOMIC CONSEQUENCES OF GOVERNMENT FAVORITISM 30 (2012); *see also* RANDALL G. HOLCOMBE & ANDREA M. CASTILLO, LIBERALISM AND CRONYISM: TWO RIVAL POLITICAL AND ECONOMIC SYSTEMS 92 (2013).

171. MANCUR OLSON, THE RISE AND DECLINE OF NATIONS: ECONOMIC GROWTH, STAGFLATION, AND SOCIAL RIGIDITIES 69–70 (1982) ("When regulations are established through lobbying or other measures, there is an incentive for ingenious lawyers and others to find ways of getting around the regulations or ways of profiting from them in unexpected ways. . . . The more elaborate the regulation, the greater the need for specialists to deal with these regulations. . . . When these specialists become significant enough, there is even the possibility that the specialists with a vested interest in the

These complex understandings end up taking the form of myriad regulatory restrictions that can raise barriers to entry by augmenting the costs of starting or running both business and nonbusiness venture.[172] For example, research from the Mercatus Center at George Mason University has shown that "between 1970 and 2008, the number of prescriptive words like 'shall' or 'must' in the code of federal regulations grew from 403,000 to nearly 963,000, or about 15,000 edicts a year."[173]

Over time these regulatory restrictions become more complex, hampering innovation and stymieing business endeavors.[174] The legal burden of the bureaucratic bloat also adversely affects the overall competitiveness of the economy by stymieing economic growth.[175] Indeed, research has shown that "[e]conomic growth in the United States has, on average, been slowed by 0.8 percent per year since 1980 owing to the cumulative effects of regulation."[176] This means that "the [U.S.] economy would have been about 25

complex regulations will collude or lobby against simplification or elimination of the regulation."); *see also* LEE DRUTMAN, THE BUSINESS OF AMERICA IS LOBBYING: HOW CORPORATIONS BECAME POLITICIZED AND POLITICS BECAME MORE CORPORATE 2 (2015) (supporting Olson's insight using hard data and showing how lobbying has become sticky over time in the sense that "lobbying has its more internal momentum" and has become self-perpetuating).

172. *Too Much Federal Regulation Has Piled Up in America*, ECONOMIST (Mar. 2, 2017), http://www.economist.com/news/united-states/21717838-republicans-and-democrats-have-been-equally-culpable-adding-rulebook-too-much?fsrc=scn/tw/te/bl/ed/grudgesandkludgestoomuchfederalregulationhaspiledupinamerica [https://perma.cc/M7R6-ABSX] ("The endless pile-up of regulation enrages businessmen. One in five small firms say it is their biggest problem, according to the National Federation of Independent Business, a lobby group. (Many businessmen grumble in private about the Obama administration's zealous regulatory enforcement.) Based on its own survey of businessmen, the World Economic Forum ranks America 29th for the ease of complying with its regulations, sandwiched between Saudi Arabia and Taiwan.").

173. *Id.*; *see also* McLaughlin & Williams, *supra* note 155, at 7.

174. Noah Smith, *Business Protections Need an Expiration Date*, BLOOMBERG VIEW (Mar. 8, 2017), https://www.bloomberg.com/view/articles/2017-03-08/business-protections-need-an-expiration-date [https://perma.cc/9ZP6-4J9P] ("The problem is that as time goes on, these restrictions pile up . . . [and the] landscape that entrepreneurs have to navigate becomes ever more twisted and torturous. The eventual result is a reduction in both dynamism and the forward march of technology.").

175. Philip K. Howard, *Radically Simplify Law*, CATO ONLINE F. (Nov. 12, 2014), http://www.cato.org/publications/cato-online-forum/radically-simplify-law [https://perma.cc/4FJA-697G] ("Too much law, however, can have similar effects as too little law. People slow down, they become defensive, they don't initiate projects because they are surrounded by legal risks and bureaucratic hurdles. They tiptoe through the day looking over their shoulders rather than driving forward on the power of their instincts. Instead of trial and error, they focus on avoiding error. Modern America is the land of too much law. Like sediment in a harbor, law has steadily accumulated, mainly since the 1960s, until most productive activity requires slogging through a legal swamp. It's degenerative. Law is denser now than it was 10 years ago, and will be denser still in the next decade."); *see* John W. Dawson & John J. Seater, *Federal Regulation and Aggregate Economic Growth*, 18 J. ECON. GROWTH 137 (2013); Tue Gørgens et al., *How Does Public Regulation Affect Growth?* (Univ. of Aarhus, Working Paper No. 2003-14, 2003).

176. Bentley Coffey et al., The Cumulative Cost of Regulations 2 (Apr. 26, 2016) (unpublished manuscript), https://www.mercatus.org/system/files/Coffey-Cumulative-Cost-Regs-v3.pdf [https://perma.cc/F999-M3YQ].

percent larger [than it actually was] as of 2012" if regulation had been held to roughly the same aggregate level it stood at in 1980.[177]

Beyond the economic ramifications, complex understandings can also complicate the policymaking process, which can lead to what Johnathan Rauch has identified as "demosclerosis," or the "government's progressive loss of the ability to adapt."[178] An August 2017 survey by the Congressional Management Foundation "found overwhelming majorities of senior congressional aides believe Congress is not equipped to execute its basic functions."[179] The areas of concern that congressional staff cited most dealt with the lack of both skills and abilities, and of adequate time and resources "to understand, consider and deliberate policy and legislation."[180] Congress has lost its expertise, but the regulatory bureaucracy has continued to grow. What is more, as regulations accumulate and require increased surveillance, the administrative state becomes less capable of adapting and gathering relevant information.[181] This inflexibility is especially damaging when attempting to handle new, disruptive technologies.[182]

This institutional inflexibility frustrates hard law policymaking and enforcement efforts over time, and it likely encourages many policymakers—both in Congress and in regulatory agencies—to seek alternative policymaking options. Moreover, when the law is overly complicated or fails to adapt to current circumstances, even those responsible for enforcing it can find themselves in a position where they are keen to ignore it or operate beyond it. In such a policymaking environment soft law alternatives become more attractive, not only because they permit greater flexibility and creativity, but also because they are more effective.

3. Multi-Layered Issues and Agency Overlap (i.e. the

177. *Id.*

178. JONATHAN RAUCH, GOVERNMENT'S END: WHY WASHINGTON STOPPED WORKING 125 (1999).

179. Jeff Stein, *A Staff Survey Shows Just How Broken Congress Is*, VOX (Aug. 8, 2017, 11:50 AM), https://www.vox.com/policy-and-politics/2017/8/8/16112362/congress-survey-broken-yikes [https://perma.cc/U6NH-Y4PS].

180. KATHY GOLDSCHMIDT, STATE OF THE CONGRESS: STAFF PERSPECTIVES ON INSTITUTIONAL CAPACITY IN THE HOUSE AND SENATE 9 (2017), http://www.congressfoundation.org/storage/documents/CMF_Pubs/cmf-state-of-the-congress.pdf [https://perma.cc/URG5-E33M].

181. *See* Stein, *supra* note 179.

182. *See* Alice Armitage et. al, *Design Thinking: The Answer to the Impasse Between Innovation and Regulation*, 2 GEO. L. TECH. REV. 3, 65 (2017) ("With fast-paced, innovative companies, regulators need to be educated and informed about what is taking place in the industries they regulate so that issues can be spotted in advance and dealt with in a timely and thorough manner. In order for that to happen, the regulatory process must be nimble, flexible, and user-focused.").

"Coordination" Problem)

Numerous scholars have documented how emerging technologies often create challenges for interagency coordination, as they often intersect various industries.[183] The emerging technologies and sectors highlighted in this paper—robotics, AI, autonomous systems, big data, and the IoT—all provide excellent examples of this problem in action. Defining the contours of these technologies and sectors—such as "robots"[184] or "AI"[185]—is notoriously challenging because they are multi-layered and interrelated. They all share common attributes and elements (such as the "underlying drivers" identified in Section II.B) and often build on each other in some fashion. Autonomous vehicle technology, for example, combines elements of all the above-mentioned technologies and then intersects with the many complicated mechanical technologies that already constitute an automobile. This opens the door to potential regulation of autonomous vehicles not only by the many federal and state agencies that currently oversee the auto sector but also by other agencies such as the FCC and FTC.

Even more problematic, particularly novel applications of these technologies might defy regulatory classifications or agency assignments altogether.[186] As noted above, some scholars have already proposed new laws and agencies such as an "Artificial Intelligence Development Act," or "Federal Robotics Commission."[187] Formulating such laws or agencies would be challenging and time-consuming. But more problematic is that such efforts would run up against the reality of the pacing problem—they would likely be outdated before they are even finalized. This holds true for other new technologies like additive manufacturing (3D printing), immersive technology (virtual reality and augmented reality), and biometrics (such as facial recognition technology).

183. *See* Mandel, *supra* note 2, at 88; Marc A. Saner & Gary E. Marchant, *Proactive International Regulatory Cooperating for Governance of Emerging Technologies*, 55 JURIMETRICS J. 147, 149–50 (2015).

184. BRADEN R. ALLENBY, THE RIGHTFUL PLACE OF SCIENCE: FUTURE CONFLICT & EMERGING TECHNOLOGIES 82 (2016) ("The definitional issue may sound arcane, but it is in fact central to debate about how to govern robots. . . . [T]here is no accepted definition for such a category, it is unclear exactly what is at issue. Drawing up any sort of legal document becomes very difficult, since no one knows exactly what is being regulated.").

185. ADAM THIERER ET AL., ARTIFICIAL INTELLIGENCE AND PUBLIC POLICY 7 (2017), https://www.mercatus.org/publications/artificial-intelligence-public-policy [https://perma.cc/VD78-GN8W] ("Indeed, some of the most seasoned artificial intelligence experts struggle to formulate a concise definition and taxonomy of these technologies. The difficulty is due partially to the ephemeral nature of the technology itself and partially to the uneven history of human interest and understanding in this subject.").

186. *See supra* Section II.A.

187. *See id.*; *see also* CALO, *supra* note 114.

This is why most technology policy scholars agree that the future governance of these technologies is uncertain: there is no single agency that can regulate all of the aspects of these innovative emerging technologies.[188]

4. Limited Knowledge and Information Overload (i.e. the "Knowledge" Problem)

Finally, regulators might find soft law preferable to hard law when they have limited time, resources, and knowledge to deal with fast-moving technologies and rapidly-evolving sectors. Economists and political scientists have long referenced the "knowledge problem"[189] that encumbers regulatory efforts, noting that "because decisionmakers do not have, and in some cases, cannot have the required knowledge"[190] it makes judicious policymaking far more challenging.[191]

In the past, it may have been the case that regulators sometimes lacked sufficient information to make good decisions.[192] However now, in a world where "every five minutes we produce enough data to fill a Library of Congress,"[193] it may be the case that regulators face the problem of having *too much* information at their disposal.[194] The sheer volume of information raises the prospect of a signal to noise ratio problem that regulatory agencies must navigate.

But it is the fundamental *uncertainty* and *pace* associated with the future course of technological evolution that raises the most serious knowledge problem.[195] Regulators themselves increasingly

188. Gary E. Marchant & Wendell Wallach, *Coordinating Technology Governance*, 31 ISSUES SCI. & TECH. 43, 43–44 (2015).

189. Hayek, *supra* note 157, at 519.

190. Daniel Gervais, *The Regulation of Inchoate Technologies*, 47 HOUS. L. REV. 665, 678–79 (2010).

191. Charles E. Lindblom, *The Science of 'Muddling Through,'* 19 PUB. ADMIN. REV. 79, 84 (1959) ("But it is impossible to take everything important into consideration unless 'important' is so narrowly defined that analysis is in fact quite limited. Limits on human intellectual capacities and on available information set definite limits to man's capacity to be comprehensive. In actual fact, therefore, no one can practice the rational-comprehensive method for really complex problems, and every administrator faced with a sufficiently complex problem must find ways drastically to simplify.").

192. Bridget M. Hutter, *A Risk Regulation Perspective on Regulatory Excellence*, *in* ACHIEVING REGULATORY EXCELLENCE 104, 104 (Cary Coglianese ed., 2017) ("Regulators must have access to accurate information so that they have a clear idea of the risks they are regulating.").

193. TAYLOR OWEN, DISRUPTIVE POWER: THE CRISIS OF THE STATE IN THE DIGITAL AGE 42 (2015).

194. Cohen, *supra* note 156, at 383, 397 (stating that "[a]gencies too suffer the effects of infoglut," or "unmanageable, mediated information flows leading to information overload").

195. Jaime Bonnín Roca et al., *When Risks Cannot Be Seen: Regulating Uncertainty in Emerging Technologies*, 46 RES. POL'Y 1187, 1215, 1218 (2017) ("Regardless of the regulatory approach taken, the writing and enforcement of regulation regarding emerging technologies takes place in the presence of significant uncertainty, and

acknowledge this problem. For example, in September 2016, the U.S. Department of Transportation (DOT) released a "Federal Automated Vehicles Policy" guidance document that established a series of best practices for developers of highly automated vehicles (HAVs).[196]

Another reason soft law is effective is that it can adapt more rapidly to changing marketplace circumstances, stakeholder input, and changing political headwinds.[197] For example, the DOT moved quickly to update its preliminary 2016 guidance document by releasing a new "2.0" version of the guidance in September of 2017.[198] The new guidance made important changes to the earlier document, reflecting concerns over proposed new regulatory authorities for NHTSA and mandatory safety assessment submissions.[199] Such changes are a perfect example of the flexibility inherent in soft law, and how changes in technology, regulatory receptiveness to industry feedback, and changes in the political landscape can rapidly alter existing agency guidance.

F. Additional Factors Complicating Technological Governance

Before discussing examples of how the move toward soft law alternatives is unfolding in various technology sectors, we

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requires substantial regulator discretion. Unfortunately, regulators may not have sufficient knowledge to adequately exercise such discretion.").

196. Request for Comment on "Federal Automated Vehicles Policy," 81 Fed. Reg. 65,703, 65,704 (proposed Sept. 23, 2016) ("The speed with which HAVs are advancing, combined with the complexity and novelty of these innovations, threatens to outpace the Agency's conventional regulatory processes and capabilities. To meet this challenge, we must rapidly build our expertise and knowledge to keep pace with developments, expand our regulatory capability, and increase our speed of execution."); NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., FEDERAL AUTOMATED VEHICLES POLICY: ACCELERATING THE NEXT REVOLUTION IN ROADWAY SAFETY 8 (2016) [hereinafter 2016 NHTSA AV GUIDANCE], https://www.transportation.gov/sites/dot.gov/files/docs/AV%20policy%20 guidance%20PDF.pdf [https://perma.cc/Z6FX-GYVV].

197. Maureen K. Ohlhausen, Comm'r, Fed. Trade Comm'n, Remarks at Progressive Policy Institute Conference on Innovation in a Rules-Bound World: How Regulatory Improvement Can Spur Growth: Three Regulatory Principles to Promote Innovation (Mar. 2, 2015), https://www.ftc.gov/system/files/documents/public_statements/627591/ 150302ppiregreform.pdf [https://perma.cc/22UZ-WQS4] (noting that "collecting and analyzing such information is very time-consuming" and, moreover, "even when a regulator manages to collect information, that information quickly becomes out of date as a regulated industry continues to evolve [and] [o]bsolete data is a particular concern for regulators of fast-changing technological fields"); *see also* Cortez, *supra* note 87, at 189 ("But in dynamic industries—characterized by disruptive innovation, unexpected market entries, new business models, and other exogenous shocks—agencies may lack sufficient information to regulate with certainty.").

198. NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., AUTOMATED DRIVING SYSTEMS 2.0: A VISION FOR SAFETY (2017) [hereinafter 2017 NHTSA AV GUIDANCE], https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/13069a-ads2.0_090617_v9a _tag.pdf [https://perma.cc/CK37-RCK4].

199. Niskanen Ctr., Comment Letter on Proposed Rule Regarding Automated Driving Systems: A Vision for Safety, Docket No. NHTSA 2017-0082 (Oct. 3, 2017), https://www.regulations.gov/document?D=NHTSA-2017-0082-0005 [https://perma.cc/3TDH-SV8G].

introduce a few other emerging realities that will further frustrate traditional regulatory processes, and which are likely to impel a soft law approach in emerging technology governance. The following sections will briefly discuss these related concepts—innovation arbitrage, evasive entrepreneurship, and spontaneous private deregulation.

1. The Rise of Innovation Arbitrage

The rise of "innovation arbitrage" represents another factor complicating modern technological governance efforts. Innovation arbitrage is the idea that innovators and their innovations will move where legal and regulatory environments encourage entrepreneurial activity.[200] In essence, the same globalization trends that have made it easier for goods, services, and capital to be produced and sold anywhere in the world,[201] are now also a driving force in the digital realm. Innovators can take advantage of the fact that "[i]nformation technology divorces income-earning potential from residence in any specific geographic location."[202]

The realities of a more globalized and interconnected world, coupled with overly stringent rules that prohibit innovative commercial activities, can incentivize firms to offshore their operations to jurisdictions with less burdensome regulations.[203] As Alfred Aman points out, "[e]ven if such 'locational threats' never materialize, they have the capacity to affect seriously the politics and political decisions at federal, state and local levels."[204] Such "locational threats" can also contribute to uncertainty for would-be investors in industries working on new technologies.[205] "Another

200. Adam Thierer, *Innovation Arbitrage, Technological Civil Disobedience & Spontaneous Deregulation*, MEDIUM (Dec. 7, 2016), https://link.medium.com/dxKzmgUKtU [https://perma.cc/LWX2-W78K].

201. Milton Friedman once noted that "[i]t is today possible, to a greater extent than at any time in the world's history, for a company to locate anywhere, to use resources from anywhere to produce a product that can be sold anywhere." JAMES DALE DAVIDSON & WILLIAM REES-MOGG, THE SOVEREIGN INDIVIDUAL: MASTERING THE TRANSITION TO THE INFORMATION AGE 197 (1999).

202. *Id.* at 202.

203. Alfred C. Aman, Jr., *Administrative Law for a New Century*, *in* PROVINCE OF ADMINISTRATIVE LAW 113 (M. Taggart ed., 1997) (noting that "the processes of globalisation can weaken the state in various ways, not the least of which is that they make it relatively easy for some industries to move production around the globe").

204. *Id.* at 271.

205. Amazon's off-shoring of drone research, development, and testing is a prime example of how this regulatory uncertainty impacts decisions to invest in future technologies in locations with onerous or fluctuating regulatory policies. Tasha Keeney, *Amazon Drones Could Deliver a Package in Under Thirty Minutes for One Dollar*, ARK INVEST (Dec. 1, 2015), https://ark-invest.com/research/amazon-drone-delivery [https://perma.cc/CG8N-RFE2] ("While the FAA has been dragging its feet, Amazon has taken advantage of less strict drone regulations abroad. Prime Air development centers are located in the UK and Israel, and test flights have been conducted in Canada and India. If the FAA is too slow to relax US drone restrictions, Amazon will initially launch Prime Air internationally.").

dimension of consistency," as discussed by Nicholas Elert and Magnus Henrikson, "is geographical."[206] Elert and Henrikson continue, "[i]f rules differ across polities (cities, states, countries), an entrepreneur can exploit these institutional inconsistencies by locating where rules are less binding or less enforced, provided that there is free movement [and] [a]s internationalization progresses, such cross-border institutional arbitrage is becoming increasingly important."[207]

The industry surrounding commercial unmanned aircraft systems (UAS)—or "drones" as they are more commonly called—provides a perfect example of this phenomenon in practice. Amazon was so constrained by the Federal Aviation Administration (FAA) that it opted to move operational testing overseas to the United Kingdom and Canada.[208] By the time the FAA finally approved its initial application for drone delivery services, the company was no longer operating the particular prototype for which it had originally applied for permission.[209] Similarly, researchers in Australia have shown that reasonable tradeoffs resulting in less cumbersome regulations would also enable the drone industry to flourish and innovate.[210]

Other companies initially launched in the United States have also chosen to go abroad in order to develop their products and services without restrictive regulatory intervention.[211] When the FDA ordered 23andMe to stop marketing its at-home genetic analysis kit in 2014,[212] the company was greeted warmly by officials in the United Kingdom. The country's Medicines and Healthcare Products Regulatory Agency said 23andMe's test could be used

206. Niklas Elert & Magnus Henrekson, *Evasive Entrepreneurship* 12 (Res. Inst. of Indus. Econ., IFN Working Paper No. 1044, 2014), http://www.ifn.se/wfiles/wp/wp1044.pdf [https://perma.cc/7UKW-REVH].

207. *Id.*; *see also* Ed Pilkington, *Amazon Tests Delivery Drones at Secret Canada Site after US Frustration*, GUARDIAN (Mar. 30, 2015, 7:00 AM), https://www.theguardian.com/technology/2015/mar/30/amazon-tests-drones-secret-site-canada-us-faa [https://perma.cc/2GEB-CJFV].

208. Ananya Bhattacharya, *Amazon is Going to Britain for Drone Testing the U.S. Won't Allow*, QUARTZ (July 26, 2016), https://qz.com/742396 [https://perma.cc/5GNQ-AD8C].

209. *Id.*

210. DARCY ALLEN, THE CASE FOR CUTTING RED TAPE ON DRONES 11–12 (2016), https://ipa.org.au/wp-content/uploads/2017/01/IPA_Report_The_Case_For_Cutting_Red_Tape_On_Drones_170120.pdf [https://perma.cc/BD25-F7X4].

211. Alan McQuinn, *Commercial Drone Companies Fly Away from FAA Regulations, Go Abroad*, INSIDESOURCES (Sept. 30, 2014), http://www.insidesources.com/commercial-drone-companies-fly-away-from-faa-regulations-go-abroad [https://perma.cc/ZXY3-75U6].

212. Larry Downes & Paul Nunes, *Regulating 23andMe Won't Stop the New Age of Genetic Testing*, WIRED (Jan. 1, 2014, 6:30 AM), http://www.wired.com/opinion/2014/01/the-fda-may-win-the-battle-this-holiday-season-but-23andme-will-win-the-war/ [https://perma.cc/SA9P-ZK3Y].

there, albeit with caution.[213] Although a more limited version of the genetic analysis kit later returned to the United States, [214] the ability to move to a more welcoming regulatory scheme likely increased the 23andMe's leverage in its future negotiations with US regulators.

The threats and competition are not just between nations, either. Within the United States, innovation arbitrage is at work among state and local governments, pulling potentially lucrative emerging technology sectors—and the potential tax revenue and job creation they produce—away from less favorable regulatory environments.[215] With the growth of autonomous vehicles, for example, states like Arizona,[216] Florida,[217] and Ohio[218] have moved quickly to make it known that they would provide a more hospitable regulatory environment for autonomous cars and trucks than more restrictive states like California.[219] As a result, more restrictive states have attempted to modify such regulations after the fact to re-attract innovators and technology.[220]

When discussing the implications of these trends, some scholars intermingle the themes of globalization, innovation arbitrage, and technological determinism to suggest that countries might not have any option but to adapt their policies or else face the prospect of being left behind in the race for global competitive advantage.[221] For the purposes of our inquiry here, it is enough to

213. Jessica Firger, *U.K. Approves Sales of 23andMe Genetic Test Banned in U.S.*, CBS NEWS (Dec. 3, 2014, 5:50 AM), http://www.cbsnews.com/news/23-and-me-genetic-test-uk-approves-sale-banned-in-us/ [https://perma.cc/V6WQ-2BDJ].

214. Alice Park, *Genetic Testing Company 23andMe Returns to Market*, TIME (Oct. 21, 2015), http://time.com/4080583/23andme-dna-genetic-testing/ [https://perma.cc/6WJY-GZ9K].

215. Kevin Potter, *States Use Credits & Incentives to Attract Startups and Technology Companies*, DELOITTE, https://deloi.tt/2NQE3Fn [https://perma.cc/NSY6-6TQR].

216. Ryan Randazzo, *Arizona Getting Ahead of Autonomous Vehicle Industry by Stepping Aside*, AZCENTRAL (June 23, 2017, 1:26 PM), http://azc.cc/2sYGQ3B [https://perma.cc/EW5R-PCQB].

217. Arian Campo-Flores, *Cities Rush to Build Infrastructure—for Self-Driving Cars*, WALL STREET J. (Nov. 9, 2017, 9:00 AM), https://www.wsj.com/articles/cities-rush-to-build-infrastructurefor-self-driving-cars-1510236002 [https://perma.cc/4JBE-UXM5].

218. Ann Thompson, *ODOT Wants to Make Ohio Even More Appealing to Self-Driving Car Industry*, WOSU PUB. MEDIA (Mar. 13, 2017), http://www.tinyurl.com/he6uhwr [https://perma.cc/FEA5-GT7G].

219. *See* CAL. VEH. CODE § 38750 (West 2018).

220. *See, e.g.*, Jonathan Shieber, *California DMV Changes Rules to Allow Testing and Use of Fully Autonomous Vehicles*, TECHCRUNCH, http://tcrn.ch/2xzhM1R [https://perma.cc/474F-2LVF] (referencing California's rule change allowing companies to test self-driving vehicles with a driver present).

221. Braden Allenby, *The Dynamics of Emerging Technology Systems*, *in* INNOVATIVE GOVERNANCE MODELS FOR EMERGING TECHNOLOGIES 19, 33 (Gary E. Marchant et al. eds., 2013) ("Cultures that attempt to block technology even for reasons that appear desirable will, all things equal, eventually be dominated by those that embrace it. This obviously poses an unhappy dilemma: if a culture wishes to maintain dominance, must it develop (or, alternatively, both develop and deploy) all technologies where it is capable of so doing? If this is the case, does it imply that ethical judgments about technologies move over time to the lowest common denominator? There are no good answers to these questions, but they do indicate the likelihood that in a highly competitive global

note that these trends will likely have an influence on the mix of methods government officials opt to use when considering technological governance. And to the extent soft law tools offer a more effective way for governments to have at least *some* say over the future course of technological developments, they will likely be viewed as preferable to hard law efforts.

2. Evasive Entrepreneurship and Spontaneous Private Deregulation

Innovation arbitrage might also be considered a form of "evasive entrepreneurship." Evasive entrepreneurship describes "entrepreneurial efforts aimed at avoiding the legal system"[222] and efforts aimed at minimizing "losses associated with the formal legal structure"[223] "by using innovations to exploit contradictions in that framework."[224]

Another way to describe such behavior is "technological civil disobedience."[225] Technological civil disobedience arises when innovators or consumers refuse to follow the laws governing technology when they find them time-consuming, confusing, or offensive.[226]

Elizabeth Pollman and Jordan M. Barry have documented the rise of "regulatory entrepreneurs," or companies that "are in the business of trying to change or shape the law" and which are "strategically operating in a zone of questionable legality or breaking the law until they can (hopefully) change it."[227] These are firms that generally push permissionless innovation as a policy prerogative in that they "follow the maxim that it is better to beg forgiveness than to ask for permission."[228]

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environment, where many cultures are jostling for position, technological evolution will be difficult, if not impossible, to stop.").

222. David S. Lucas & Caleb S. Fuller, *Entrepreneurship: Productive, Unproductive, and Destructive—Relative to What?*, 7 J. BUS. VENTURING INSIGHTS 45, 48 (2017).

223. Christopher J. Coyne & Peter T. Leeson, *The Plight of Underdeveloped Countries*, 24 CATO J. 235, 244–45 (2004). ("Those who undertake productive activities must invest a large amount of resources to evade the unproductive activities of others. In many cases, evasion is the only way that productive opportunities can be made profitable. Because engaging in evasive activities involves a large amount of resources, the welfare implications of these efforts constitute a significant deadweight loss for society as a whole.").

224. Elert & Henrekson, *supra* note 206, at 1.

225. Thierer, *supra* note 200.

226. *Id.*

227. Elizabeth Pollman & Jordan M. Barry, *Regulatory Entrepreneurship*, 90 S. CAL. L. REV. 383, 399 (2017).

228. *Id.* at 398. The popular Silicon Valley saying "it's easier to ask forgiveness than it is to get permission" is of uncertain origin but it is often attributed to Grace M. Hopper, a computer scientist who was a rear admiral in the United States Navy. *See* Diane Hamblen, *Only the Limits of Our Imagination: An Exclusive Interview with RADM Grace M. Hopper*, CHIPS AHOY (July 1986), http://web.archive.org/web/20090114165606/http://www.chips.navy.mil/archives/86_jul/interview.html [https://perma.cc/36KZ-U4N2].

Today's regulatory entrepreneurs also push "'too big to ban' before regulators can act."[229] One way that regulatory entrepreneurs seek to do this is by mobilizing their user-bases to become citizen lobbyists on behalf of the company.[230] New devices and platforms are making it easier than ever for individuals and companies to not only openly defy rules that limit their freedom to create or use modern technologies but also to rally users around a political objective.

Uber, the ride-sharing company founded in 2009, is probably the most prominent example of a regulatory entrepreneur that has employed these tactics effectively—it uses "civil disobedience as a business model."[231] The firm has aggressively entered new local transportation markets across the globe without first seeking formal permission from most regulatory authorities.[232] When regulators have pushed back, the firm has harnessed the power of its network of drivers and customers to lobby on its behalf.[233] As Uber lobbyist Bradley Tusk described "[w]e ran $4 million in TV spots. We did radio ads. We did direct mail. We had digital ads. We mobilized our customers, over 100,000 of them, either e-mailed or tweeted at City Hall or the city council. We had five different lobbying firms."[234]

In this way, Uber successfully used the "too big to ban" strategy to make it almost impossible for the city to completely shut down their service.[235] Uber has been able to use this approach so frequently and effectively—both domestically and increasingly globally—that some have come to call it "Travis's Law" after former Uber CEO Travis Kalanick.[236]

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229. Pollman & Barry, *supra* note 227, at 390.

230. *Id.* at 390–91 ("[I]nformation technology continues to advance, making people more connected, generating large amounts of data about people's preferences and activities, and making it easier for citizens to express their preferences to policymakers.").

231. Rob Tracinski, *Civil Disobedience as a Business Model*, REALCLEARFUTURE (Apr. 12, 2017), http://www.realclearfuture.com/articles/2017/04/12/civil_disobedience_as_a_business_model_111952.html [https://perma.cc/TX5G-XPGW] ("The fact that Uber violates local laws is no secret. That's the company's whole business model.").

232. *See id.*

233. *See* Stephanie Mehta, *Meet Uber's Political Genius*, VANITY FAIR: HIVE (June 17, 2016, 10:24 AM), http://www.vanityfair.com/news/2016/06/bradley-tusk-fanduel-uber [https://perma.cc/2AGH-XNJD].

234. *Id.*

235. Tracinski, *supra* note 231 ("Legal technicalities aside, Uber's obvious strategy has been simply to flood city streets with its drivers and to keep regulators tied up in court long enough for urban riders to get used to having many more cars available at lower prices. The point is to offer a service people find so valuable that they question the very legitimacy of the laws that restrict it—and they form a political lobby sufficiently influential to override the entrenched interests of the taxi monopoly.").

236. Brad Stone, *The $99 Billion Idea: How Uber and Airbnb Fought City Hall, Outlasted Rivals, Won Over the People, and Figured Out the Sharing Economy*, BLOOMBERG BUSINESSWEEK (Jan. 26, 2017), https://www.bloomberg.com/features/2017-uber-airbnb-99-billion-idea [https://perma.cc/S486-VFXY] ("Kalanick had broken every rule of advocacy. Nevertheless, Uber's lawyers and lobbyists, who'd begged him,

While some decry Uber's "reputation for lawlessness" and "toxic culture of rule breaking"[237] and cite examples of the firm pushing the envelope too aggressively, Uber and other ride-sharing companies nonetheless continue to put enormous pressure on traditional regulatory regimes across the world with a high rate of success.[238]

Comma.ai, a start-up that designs a bolt-on solution to converting traditional human-operated vehicles into semi-autonomous vehicles, provides another case study in how an emerging technology innovator used the dual threats of engaging in global innovation arbitrage and technological civil disobedience to buck regulatory threats.[239] Comma.ai was founded by hacker George Hotz who, as a teenager in 2007, gained notoriety for being the first to hack and unlock an iPhone.[240] Hotz and Comma.ai had hoped to use cheap cameras, GPS technology, and their own proprietary software to create a $999 after-market kit called the "Comma One."[241]

However, in October 2016, regulators at the National Highway Traffic Safety Administration (NHTSA), the federal agency responsible for road safety and automobile regulation, took issue with Hotz's work. NHTSA notified Hotz that the agency was "concerned that [his] product would put the safety of [his] customers and other road users at risk," and proceeded to "strongly encourage [him] to delay selling or deploying [his] product on the public roadways unless and until" proven safe.[242]

Hotz escalated the controversy by reposting the full letter online and responding angrily to it via Twitter, decrying the

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unsuccessfully, to seek compromise and testify with humility, began to whisper in reverent tones about a new political dictate that contravened all their old assumptions. Travis's Law. It goes something like this: OUR PRODUCT IS SO SUPERIOR TO THE STATUS QUO THAT IF WE GIVE PEOPLE THE OPPORTUNITY TO SEE IT OR TRY IT, IN ANY PLACE IN THE WORLD WHERE GOVERNMENT HAS TO BE AT LEAST SOMEWHAT RESPONSIVE TO THE PEOPLE, THEY WILL DEMAND IT AND DEFEND ITS RIGHT TO EXIST.").

237. Matthew Yglesias, *Uber's Toxic Culture of Rule Breaking, Explained*, VOX (Mar. 21, 2017, 8:00 AM), http://www.vox.com/new-money/2017/3/21/14980502/uber-toxic-culture-rule-breaking-explained [https://perma.cc/8SQZ-2E9M].

238. *See* Patrick Sisson, *Uber and Lyft Return to Austin: What's Changed, and Why It's Important*, CURBED (June 14, 2017, 3:46 PM), https://www.curbed.com/2017/6/14/15803138/austin-uber-lyft-transportation-ride-hailing-return [https://perma.cc/ZK8A-Z8GT].

239. This case study adapted from Thierer, *supra* note 200. *See also* COMMA.AI, https://comma.ai/ [https://perma.cc/VLV6-TU9T].

240. Alex Heath, *Meet Geohot, the Guy Who Unlocked the First iPhone and Hacked the Sony PS3*, CULT MAC (Apr. 30, 2012, 4:55 PM), http://www.cultofmac.com/164137/meet-geohot-guy-who-unlocked-the-first-iphone-and-hacked-the-sony-ps3 [https://perma.cc/6WRR-XG3U].

241. Thierer, *supra* note 200.

242. Letter from Paul A. Hemmersbaugh, Chief Counsel, Nat'l Highway Traffic Safety Admin., to George Hotz, comma.ai 1 (Oct. 27, 2016), https://www.scribd.com/document/329218929/2016-10-27-Special-Order-Directed-to-Comma-ai [https://perma.cc/2ZMA-AXHG].

agency's "threats" and the absence of an "attempt at a dialog [sic]."[243] In two additional tweets that followed, Hotz said he would "rather spend [his] life building amazing tech than dealing with regulators and lawyers"[244] and would be canceling the Comma One in the United States and that his firm would "be exploring other products and markets. Hello from Shenzhen, China."[245]

Hotz's threat to leave the United States and embrace a global innovation arbitrage response drew a great deal of media coverage,[246] but the firm quickly abandoned that plan and instead announced that it would be open-sourcing its software and offering it freely to other developers.[247] In this way, Hotz was engaging in a rather creative form of technological civil disobedience: making it harder for regulators to control the technology by removing himself and his firm as the gatekeepers of it.

When these strategies are employed effectively, they can result in the "spontaneous private deregulation" of certain technologies and sectors, or the "*de facto* rather than the *de jure* elimination of traditional laws and regulations owing to a combination of rapid technological change as well the potential threat of innovation arbitrage and technological civil disobedience."[248]

Should such examples of "evasive entrepreneurship" and resulting "spontaneous private deregulation" be tolerated? The normative case in favor of it usually comes down to a desire to disrupt captured bureaucracies or inefficient regulatory regimes that have failed to serve the public interest.[249] By taking on

243. George Hotz (@comma_ai), TWITTER (Oct. 28, 2016, 4:02 AM), https://twitter.com/comma_ai/status/791958356042719234 [https://perma.cc/8T89-N98V].

244. George Hotz (@comma_ai), TWITTER (Oct. 28, 2016, 4:02 AM), https://twitter.com/comma_ai/status/791958385348321284 [https://perma.cc/F39M-PM5E].

245. George Hotz (@comma_ai), TWITTER (Oct. 28, 2016, 4:02 AM), https://twitter.com/comma_ai/status/791958413345382400 [https://perma.cc/6DXT-AR5A].

246. *See generally* Sean O'Kane, *George Hotz Cancels His Self-Driving Car Project After NHTSA Expresses Concern*, VERGE (Oct. 28, 2016, 10:40 AM), http://www.theverge.com/2016/10/28/13453344/comma-ai-self-driving-car-comma-one-kit-canceled [https://perma.cc/U5XR-6FSF]; Kyle Stock, *NHTSA Scared This Self-Driving Entrepreneur Off the Road*, BLOOMBERG TECH. (Oct. 28, 2016, 12:01 PM), https://www.bloomberg.com/news/articles/2016-10-28/nhtsa-scared-this-self-driving-entrepreneur-off-the-road [https://perma.cc/2J7C-W2SW]; Brad Templeton, *Comma.ai Cancels Comma-One Add-on Box After Threats from NHTSA*, ROBOHUB (Oct. 31, 2016), http://robohub.org/comma-ai-cancels-comma-one-add-on-box-after-threats-from-nhtsa [https://perma.cc/2Z4F-STZV].

247. Megan Geuss, *After Mothballing Comma One, George Hotz Releases Free Autonomous Car Software*, ARS TECHNICA (Nov. 30, 2016, 3:32 PM), http://arstechnica.com/cars/2016/11/after-mothballing-comma-one-george-hotz-releases-free-autonomous-car-software [https://perma.cc/C9MA-5B39].

248. Thierer, *supra* note 200.

249. Elert & Henrekson, *supra* note 206, at 20 ("[D]estructive evasive entrepreneurship is entrepreneurship that circumvents institutions and results in activities that reduce social welfare. Productive evasive entrepreneurship, meanwhile, is entrepreneurship that circumvents institutions while increasing social welfare."); *see also* Michael Farren, *Ending the Uber Wars: How to Solve a Special Interest Nightmare*, FISCAL TIMES (Aug. 11, 2015), http://www.thefiscaltimes.com/2015/08/11/Ending-Uber-Wars-How-Solve-Special-Interest-Nightmare [https://perma.cc/VY6C-74WF].

counterproductive regulations, "the entrepreneur increases social value, expanding the range of choice available to consumers and enabling further exchange. The costs incurred to this end . . . are all inputs into this productive activity."[250]

More generally, simply disrupting the status quo has a value to many, because it allows for creativity and flexibility.[251] As Joi Ito, a Japanese activist, entrepreneur, and venture capitalist, articulated:

> Society and institutions in general tend to lean toward order and away from chaos. In the process this stifles disobedience. It can also stifle creativity, flexibility, and productive change[—]and in the long run-society's health and sustainability. This is true across the board, from academia, to corporations, to governments, to our communities.[252]

Toward that end, Ito helped create a $250,000 "MIT Media Lab Disobedience Award," which was launched at the MIT Media Lab's Forbidden Research symposium in July 2016 and funded by Internet entrepreneur and LinkedIn co-founder, Reid Hoffman.[253]

To be sure, this disobedience—especially by innovators seeking to eventually make a profit—is controversial. Heated debates will continue to take place about where to draw the line between ethical versus unethical forms of technological civil disobedience.[254]

The normative considerations surrounding evasive entrepreneurship are not the focus of this paper, however. Instead, our point here is that these trends constitute another factor complicating traditional hard law enforcement efforts and will likely fuel the continued movement toward soft law alternatives.[255]

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250. Lucas & Fuller, *supra* note 222, at 47.

251. Joi Ito, *On Disobedience*, JOI ITO'S WEB (Mar. 21, 2016, 7:14 PM), https://joi.ito.com/weblog/2016/03/21/on-disobedience.html [https://perma.cc/7T2Q-ZZRH] [hereinafter *On Disobedience*]; *see also* Joi Ito, *About Joi Ito*, JOI ITO'S WEB https://joi.ito.com/about/ [https://perma.cc/E3DB-DEYD].

252. *On Disobedience*, *supra* note 251.

253. Tamara Best, *How Breaking the Rules Could Win You $250,000*, N.Y. TIMES (Mar. 9, 2017), https://nyti.ms/2mqrgKE [https://perma.cc/E5VH-K2TM].

254. Elert & Henrekson, *supra* note 163, at 32 ("The welfare effects of specific cases of evasive entrepreneurship can be more or less easy to evaluate, [but] the basic philosophy for doing so is easily understood. However, welfare analysis is not the only standard for judging the effects of evasive entrepreneurship. Other moral and ethical considerations must also be reckoned with when evasive actions are judged."); *On Disobedience*, *supra* note 251 ("There is a difficult line—sometimes obvious only in retrospect—between disobedience that helps society and disobedience that doesn't.").

255. Elert & Henrekson *supra* note 163, at 42–43 ("[T]heir status quo serving nature mean that institutions tend to lag behind technology-driven innovation and entrepreneurship, and this problem is likely to become even more serious in the future. If this legal gap continues to grow, the prevalence of institutional contradictions is likely to increase, as will the potential—or even the need—for challenging existing, obsolescent institutions. Evasive entrepreneurship may increasingly become a necessary strategy for entrepreneurs who seek to test new ideas in highly dynamic markets and cannot afford to wait for regulatory green light.").

G. Summary and Implications

To review, this section has argued that regulatory disruption, or "the idea that novel technologies or business practices can disturb existing regulatory frameworks,"[256] is a phenomenon that, while not new, is far more prevalent than it was in the past. That is equally true of the so-called pacing problem, which appears to be accelerating.[257] Moreover, as firms increasingly consider innovation arbitrage opportunities or resort to forms of evasive entrepreneurialism, the potential for regulatory disruption and evasion is likely to accelerate. Finally, we have argued that these trends will significantly challenge anticipatory governance efforts and Precautionary Principle-oriented policymaking.

With these insights in mind, we turn to the situation on the ground in the United States as it pertains to the governance of some specific emerging technologies.

III. SOFT LAW FOR EMERGING TECH

As noted above, emerging technologies pose a formidable challenge to regulators operating in the context of the digital age. Where previously the state commanded a position of absolute authority over the promulgation of regulations, "the emergence of new and uncertain technologies . . . has led to an increasing demand for adaptive regulation that is periodically revised to ensure that it updates its content to incorporate the latest available knowledge."[258] This new reality has necessitated the development of more flexible and decentralized governance approaches through which public policy matters reach a wider audience and hold out the hope of achieving rough consensus.[259]

As a result, the administrative state is now more of a co-equal in crafting regulations for emerging technologies and innovations—requiring more consent from industry and civil society to effectively regulate these new industries.[260] Scholars often refer to the need for new forms of "governance . . . that move beyond traditional command-and-control policymaking and enforcement to improve the effectiveness and legitimacy of regulation."[261] Another common term for this is "co-regulation," a form of governance driven by the "hope that active engagement with industry partners will make the resulting requirements more feasible and more widely accepted by

256. Cortez, *supra* note 87, at 182.

257. *See generally* COLLINGRIDGE, *supra* note 101.

258. Roca et al., *supra* note 195, at 1215.

259. *See* Aman, Jr., *supra* note 203 ("The need for increased bargaining on the part of the state to achieve goals that are realistically enforceable is indicative of a state that can no longer accomplish its objectives by direct command-control regulations.").

260. *See supra* Section I.

261. William McGeveran, *Friending the Privacy Regulators*, 58 ARIZ. L. REV. 959, 979–80 (2016).

regulated parties."[262] In this new governance space, soft law mechanisms are increasingly becoming the primary means by which federal agencies craft rules and regulations governing new emerging technologies.

This section will provide a more detailed exposition of how federal regulatory agencies and other government bodies currently use a variety of soft law mechanisms to address concerns surrounding emerging technologies and sectors. By identifying the commonalities between these soft law processes and how organizational cultures are increasingly reliant on their use, we can start to develop a broader framework to map out this emerging regulatory landscape. In particular, we examine "who" the co-equal stakeholders in regulatory proceedings are, "where" the forums for engagement and action are, "how" the soft law system works in practice, and "when" the time is ripe for engagement and promulgation of new governance activities.

A. Classifying the Regulatory Methodologies (the Who, What, and Where) of the New Soft Law System

This section attempts to craft a rough taxonomy of the many different types of soft law. This is not an exact science—the lines between the concepts and methods described herein are murky. Just as new emerging technologies often straddle categories, new governance mechanisms often blend together as well.

To simplify matters, we can use the same general categories outlined in Section I.B to classify the soft law mechanisms governing emerging technologies and clarify the processes from which they emerge.

1. "Soft Criteria"

The criteria that steer decisions by policymakers overseeing the development of emerging technologies go by many names. Whether informal guidance, standards, best practices, or codes of conduct, it suffices to consider these informal regulatory mechanisms under the broad banner of what we previously called "soft criteria." Though each subset of this category, as previously discussed in Section I, intimates slightly different distinctions, these criteria can have a significant impact on whether or how a new technology is "regulated," in a loose sense of the term. Some criteria begin with industry-led efforts to craft self-regulatory regimes, while others are established through a multistakeholder-driven process, which will be discussed in the next section.

Some modern examples of these soft criteria include:

262. *Id.* at 980.

- NHTSA **policy guidance** on autonomous vehicles[263] and **proactive principles** for improving motor vehicle cybersecurity;[264]

- NTIA privacy **best practice recommendations** for commercial facial recognition use;[265]

- Office of Science and Technology Policy (OSTP) **white papers** and **reports** on big data and artificial intelligence;[266]

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263. 2016 NHTSA AV GUIDANCE, *supra* note 196 (outlining best practices for the safe pre-deployment design, development and testing of HAVs prior to commercial sale or operation on public roads). The Model State Policy confirms that States retain their traditional responsibilities for vehicle licensing and registration, traffic laws and enforcement, and motor vehicle insurance and liability regimes. The shared objective is to ensure the establishment of a consistent national framework rather than a patchwork of incompatible laws. This section identifies potential new tools, authorities and regulatory structures that could aid the safe and appropriately expeditious deployment of new technologies by enabling the Agency to be more nimble and flexible.

264. NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., CYBERSECURITY BEST PRACTICES FOR MODERN VEHICLES (2016), https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/812333_cybersecurityformodernvehicles.pdf [https://perma.cc/MN4R-V4MZ]. These cybersecurity best practices came fresh on the heels of a January 2016 agreement NHTSA struck with 18 automakers in January 2016 to adopt "proactive safety principles." The objective of Section 4 of that agreement was to "enhance automotive cybersecurity," and encouraged the auto industry to "explore and employ ways to work collaboratively in order to mitigate cyber threats that could present unreasonable safety risks." U.S. DEPT. OF TRANSP., PROACTIVE SAFETY PRINCIPLES 2–3 (2016), https://www.transportation.gov/sites/dot.gov/files/docs/ProactiveSafetyPrinciples2016.pdf [https://perma.cc/7RVF-YVBH].

265. NAT'L TELECOMM. & INFO. ADMIN., PRIVACY BEST PRACTICE RECOMMENDATIONS FOR COMMERCIAL FACIAL RECOGNITION USE (2016) [hereinafter BEST PRACTICES FOR COMMERCIAL FACIAL RECOGNITION], https://www.ntia.doc.gov/files/ntia/publications/privacy_best_practices_recommendations_for_commercial_use_of_facial_recogntion.pdf [https://perma.cc/4234-LB8R] (encouraging transparency, development of good data management practices, allowing people to control the sharing of their data, security safeguards, ensuring data quality, and allowing problem resolution and redress).

266. COMM. ON TECH., NAT'L SCI. & TECH. COUNCIL, EXEC. OFF. OF THE PRESIDENT, PREPARING FOR THE FUTURE OF ARTIFICIAL INTELLIGENCE 14–16 (2016) [hereinafter WHITE HOUSE AI REPORT], https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf [https://perma.cc/2G7Q-6CR6] (making 23 recommendations including, but not limited to, encouraging agencies to prioritize open data standards, exploring ways for agencies to apply AI to their missions, and working with industry to expand sharing of data for safety and other purposes.); EXEC. OFF. OF THE PRESIDENT, BIG DATA: A REPORT ON ALGORITHMIC SYSTEMS, OPPORTUNITY, AND CIVIL RIGHTS 22–24 (2016), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/2016_0504_data_discrimination.pdf [https://perma.cc/VUD6-PNXD] (looking to the future of big data as important to: 1. support research; 2. encourage market participants to design algorithmic systems that include transparency and accountability mechanisms; 3. broaden participation in computer science and data science; and 4. consider the roles of government and the private sector in setting the rules of the road for how data is used); EXEC. OFF. OF THE PRESIDENT, BIG DATA: SEIZING OPPORTUNITIES AND PRESERVING VALUE 65 (2014), https://obamawhitehouse.archives.gov/sites/default/files/docs/big_data_privacy_report_may_1_2014.pdf [https://perma.cc/T6V4-Z8AZ] (publishing

- FDA **guidance for industry** on various best practices for conducting clinical trials,[267] "medical" smartphone apps,[268] and medical devices made through 3-D printing;[269]

- FTC staff reports and guidance documents on the IoT;[270] and

- FAA **advisory circulars** on small UAS.[271]

"Broad Principles: 1. Preserving Privacy Values: Maintaining our privacy values by protecting personal information in the marketplace, both in the United States and through interoperable global privacy frameworks; 2. Educating Robustly and Responsibly: Recognizing schools—particularly K-12—as an important sphere for using big data to enhance learning opportunities, while protecting personal data usage and building digital literacy and skills; 3. Big Data and Discrimination: Preventing new modes of discrimination that some uses of big data may enable; 4. Law Enforcement and Security: Ensuring big data's responsible use in law enforcement, public safety, and national security; and 5. Data as a Public Resource: Harnessing data as a public resource, using it to improve the delivery of public services, and investing in research and technology that will further power the big data revolution.").

267. *Selected FDA GCP/Clinical Trial Guidance Documents*, U.S. FOOD & DRUG ADMIN., https://www.fda.gov/ScienceResearch/SpecialTopics/RunningClinicalTrials/GuidancesInformationSheetsandNotices/ucm219433.htm [https://perma.cc/CN24-ZFMD] (last updated Oct. 11, 2018).

268. U.S. FOOD & DRUG ADMIN., MOBILE MEDICAL APPLICATIONS: GUIDANCE FOR INDUSTRY AND FOOD AND DRUG ADMINISTRATION STAFF (2015) [hereinafter FDA GUIDANCE], https://www.fda.gov/downloads/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/UCM263366.pdf [https://perma.cc/WFG9-S8WC].

269. U.S. FOOD & DRUG ADMIN., TECHNICAL CONSIDERATIONS FOR ADDITIVE MANUFACTURED MEDICAL DEVICES: GUIDANCE FOR INDUSTRY AND FOOD AND DRUG ADMINISTRATION STAFF (2017) [hereinafter TECHNICAL CONSIDERATIONS], https://www.fda.gov/downloads/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/UCM499809.pdf [https://perma.cc/W5DP-FKCY].

270. *See, e.g.*, FED. TRADE COMM'N, CAREFUL CONNECTIONS: BUILDING SECURITY IN THE INTERNET OF THINGS (2015), https://www.ftc.gov/system/files/documents/plain-language/pdf0199-carefulconnections-buildingsecurityinternetofthings.pdf [https://perma.cc/MW3Y-XFSK] (laying out several fundamental steps designers can use to protect connected devices such as designing the product with authentication in mind, using encryption, limiting permissions, and protecting the interfaces between the device and other devices or services); FED. TRADE COMM'N, INTERNET OF THINGS: PRIVACY AND SECURITY IN A CONNECTED WORLD (2015), https://www.ftc.gov/system/files/documents/reports/federal-trade-commission-staff-report-november-2013-workshop-entitled-internet-things-privacy/150127iotrpt.pdf [https://perma.cc/35CL-PFKA] (summarizing the workshop and providing staff's recommendations in this area, which focus on the types of products and services consumers are likely to encounter today and in the foreseeable future).

271. FED. AVIATION ADMIN., U.S. DEPT. OF TRANSP., SMALL UNMANNED AIRCRAFT SYSTEMS (sUAS) (2016), https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_107-2.pdf [https://perma.cc/2REU-F8AF] (providing guidance in the areas of airman (remote pilot) certification, aircraft registration and marking, aircraft airworthiness, and the operation of small Unmanned Aircraft Systems (sUAS) in the National Airspace System (NAS) to promote compliance with the requirements of Title 14 of the Code of Federal Regulations (14 CFR) Part 107, Small Unmanned Aircraft Systems). This advisory does not provide, nor is it intended to provide, a legal interpretation of the regulations. Remote pilots are encouraged to use this information as best practice methods for developing operational programs scaled to specific small

There are also other examples that receive less attention. In its draft guidance on "Technical Considerations for Additive Manufactured Devices," the FDA used the term "leapfrog guidance" ("LFG") to describe a mechanism by which the FDA can share its early-stage thinking about emerging technologies.[272]

LFGs are less official than policy "green papers"—documents that establish government policy thinking on an issue that remains open to reinterpretation—and serve to avoid formalizing a particular policy approach.[273] The objective is to retain enough adaptability to changing circumstances to enable the agency to reassess and reorient its approaches in the future.[274] For example, although the original 2016 NHTSA guidance on autonomous vehicles recommended expanded regulatory authorities, it explicitly noted the agency's intention to update the draft based on feedback and changing circumstances.[275] Indeed, in September 2017, NHTSA did just that. NHTSA's 2017 draft reflected far more willingness to embrace a hands-off regulatory approach, reiterating the need for industry to embrace "voluntary standards" so as to "not impede progress with unnecessary or unintended barriers to innovation."[276]

Such an about-face—and in so short a time—would have been difficult to imagine in previous eras. However, embracing these types of soft criteria is necessary in an age of rapid technological change. The pace of that change requires regulators to adopt an approach that is at least as flexible and adaptable as the level of innovation embraced by those industries they are charged with regulating. Such criteria communicate nascent-stage thoughts and are akin to the types of recommendations and guidance offered, for example, by federal advisory committees.[277]

In addition to the many guidance documents that a federal agency may issue, federal advisory committees also contribute to an ever-growing body of recommendations for emerging technologies. Many of these committees meet on an annual or semi-annual basis

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unmanned aircraft (UA), associated system equipment, and operations. Use of this AC is intended to assist the remote pilot in meeting the requirements of applicable 14 CFR regulations.

272. TECHNICAL CONSIDERATIONS, *supra* note 269, at 2 ("This guidance is a leapfrog guidance, a type of guidance that serves as a mechanism by which the Agency can share initial thoughts regarding emerging technologies that are likely to be of public health importance early in product development. This leapfrog guidance represents the Agency's initial thinking and our recommendations may change as more information becomes available.").

273. *See Policy Papers and Policy Analysis*, STAN. L. SCH., https://www-cdn.law.stanford.edu/wp-content/uploads/2015/04/Definitions-of-White-Papers-Briefing-Books-Memos-2.pdf [https://perma.cc/H3Y4-4UPQ] [hereinafter *Policy Papers*].

274. *Id.*

275. 2016 NHTSA AV GUIDANCE, *supra* note 196, at 9.

276. 2017 NHTSA AV GUIDANCE, *supra* note 198, at 4.

277. *Policy Papers*, *supra* note 273.

and provide formal or informal recommendations to the agencies.[278] In the case of emerging technologies, the Emerging Technology Research Advisory Committee (ETRAC) is of particular note.[279]

ETRAC lives under the Department of Commerce's Bureau of Industry Security (BIS) and provides recommendations to the Department on the "issuance of regulations."[280] Much of ETRAC's work involves analyzing the potential threats related to emerging technologies—specifically, those technologies that may qualify under dual-use export restrictions (technologies that could be used for both commercial and military purposes).[281] Perennial reevaluation of technologies is a key component of ETRAC's work, given the ongoing and often rapid change associated with technologies like optical imaging satellites.[282]

However, ETRAC does not actually set the threshold standard for what constitutes worthwhile restrictions; it merely advises BIS on when the Department of Commerce should start looking at evaluating a particular technology for export control restrictions and assessing the point at which an emerging technology becomes an emergent technology.[283] Such evaluations are a dialogue, not a metric.[284] However, whereas portions of every ETRAC meeting involve closed-door discussions,[285] discussions surrounding when and how to regulate emerging technologies reflect a similar approach used by other federal agencies: the multistakeholder process.

2. Multistakeholder Efforts

The multistakeholder process is arguably at the core of the regulatory process surrounding emerging technologies. Such processes sometimes begin with calls from individual agencies attempting to get ahead of emerging technology issues.[286] Other

278. *See* U.S. DEP'T OF COMMERCE, EMERGING TECHNOLOGY RESEARCH ADVISORY COMMITTEE CHARTER (2018), https://tac.bis.doc.gov/index.php/documents/pdfs/279-etrac-charter/file [https://perma.cc/AJP9-ZYN9].

279. *See id.* § 2.

280. *Id.* § 3.

281. *Id.*

282. *See* Joshua Hampson, *National Security Needs Robust Commercial Space*, NISKANEN CTR. (June 21, 2017), https://niskanencenter.org/blog/national-security-needs-robust-commercial-space/ [https://perma.cc/HVZ8-CVQQ].

283. RYAN HAGEMANN & JOSHUA HAMPSON, COMMENTS SUBMITTED TO THE BUREAU OF INDUSTRY AND SECURITY IN THE MATTER OF: EMERGING TECHNOLOGY AND RESEARCH ADVISORY COMMITTEE MEETING (2017), https://niskanencenter.org/wp-content/uploads/2017/03/NiskanenCenter_CommentsETRACMeetingBIS.pdf [https://perma.cc/5MM2-5Z4H].

284. *See id.*

285. Notice of Recruitment of Private-Sector Members, 79 Fed. Reg. 39,367 (July 10, 2014).

286. For example, following a request for comment on the threats posed by the emerging IoT, in 2016 the Department of Commerce and NTIA convened the first meeting of an ongoing multistakeholder process to address the "need for a secure lifecycle

times, like in NTIA's multistakeholder process on the privacy implications of UAS the proceedings are foisted upon the agency through an executive action.[287] These processes have become more commonplace throughout the administrative state and are not limited to emerging technologies.[288] Still, their use becomes more important in new technologies where regulators may lack expertise.[289]

Multistakeholder approaches have been the cornerstone of America's digital economy policy efforts for two decades.[290] In July 1997, the Clinton Administration released *The Framework for Global Electronic Commerce*, a statement of the Administration's principles and policy objectives toward the Internet.[291] Generally speaking, the *Framework* recommended relying upon "civil society, contractual negotiations, voluntary agreements, and ongoing marketplace experiments to solve information age problems."[292]

Specifically, the *Framework* said that "the private sector should lead" and the Internet should develop as a "market-driven arena, not in an environment that operates as a regulated industry."[293] It also significantly constrained the role of federal agencies by saying, "governments should encourage industry self-regulation . . . and support private sector leadership" and "avoid undue restrictions on electronic commerce."[294] The document added that "[p]arties should be able to enter into legitimate agreements to buy and sell products and services across the Internet with minimal

approach to IoT devices." Multistakeholder Process on Internet of Things Security Upgradability and Patching, 81 Fed. Reg. 64,139, 64,140 (Sept. 19, 2016) [hereinafter 2016 Security Notice].

287. The NTIA multistakeholder process for addressing privacy, transparency, and accountability issues with respect to commercial UASs was initiated by a Presidential Memorandum issued by President Obama in February 2015. Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems, 80 Fed. Reg. 9355 (Feb. 20, 2015) [hereinafter Presidential UAS Memorandum].

288. Indeed, multistakeholder processes are not even limited to the United States. At an international level, multistakeholder partnerships have even begun taking root within the United Nations, and are perceived by some as "the future of international cooperation, moving beyond traditional nation-state multilateralism." JENS MARTENS, MULTISTAKEHOLDER PARTNERSHIPS – FUTURE MODELS OF MULTISTAKEHOLDERISM? 4 (2007), http://library.fes.de/pdf-files/iez/04244.pdf [https://perma.cc/2SSK-CXGQ]; *see also supra* Section I.B.2.

289. *See supra* Section I.B.2.

290. Adam Thierer, *15 Years On, President Clinton's 5 Principles for Internet Policy Remain the Perfect Paradigm*, FORBES (Feb. 12, 2012, 1:16 PM), http://www.forbes.com/sites/adamthierer/2012/02/12/15-years-on-president-clintons-5-principles-for-internet-policy-remain-the-perfect-paradigm [https://perma.cc/M9RE-D9B7].

291. *See* William J. Clinton & Albert Gore, Jr., *The Framework for Global Electronic Commerce*, WHITE HOUSE (July 1997), https://clintonwhitehouse4.archives.gov/WH/New/Commerce/read.html [https://perma.cc/UW3N-CLNJ] [hereinafter Clinton Framework].

292. Thierer, *supra* note 290.

293. Clinton Framework, *supra* note 291.

294. *Id.*

government involvement or intervention."[295] "Where governmental involvement is needed," the *Framework* continued, "its aim should be to support and enforce a predictable, minimalist, consistent and simple legal environment for commerce."[296]

The multistakeholder principles found in the *Framework* guided the Clinton Administration's work in transitioning Internet governance and policymaking efforts from the National Science Foundation to NTIA and the Internet Corporation of Assigned Names and Numbers (ICANN).[297] More importantly, the approach and principles embodied by the *Framework* became the foundation for many future government efforts to create policy consensus through multistakeholder efforts.[298]

For example, in 2003, the Bush Administration released its National Strategy to Secure Cyberspace, which "was developed in close collaboration with key sectors of the economy that rely on cyberspace, state and local governments, colleges and universities, and concerned organizations."[299] The document repeatedly stressed that the "private sector and government must work together through a voluntary, collaborative process to protect the nation's connected infrastructure,"[300] and laid the groundwork for subsequent public-private multistakeholder efforts related to cybersecurity.[301]

More recently, in January 2017, the Department of Commerce Internet Policy Task Force & Digital Economy Leadership Team issued a green paper on "Fostering the Advancement of the Internet of Things," which also built on, and explicitly reaffirmed, the Clinton Administration's *Framework*.[302] This green paper cited the

295. *Id.*

296. *Id.*

297. *See* Management of Internet Names and Addresses, 63 Fed. Reg. 31,741 (June 10, 1998).

298. *See* Joe Waz & Phil Weiser, *Internet Governance: The Role of Multistakeholder Organizations*, 10 J. TELECOMM. & HIGH TECH. L. 331 (2012).

299. U.S. DEP'T OF HOMELAND SECURITY, THE NATIONAL STRATEGY TO SECURE CYBERSPACE 53 (2003), https://www.us-cert.gov/sites/default/files/publications/cyberspace_strategy.pdf [https://perma.cc/7ZQE-4NQ5].

300. U.S. DEP'T OF COMMERCE, FOSTERING THE ADVANCEMENT OF THE INTERNET OF THINGS 11 (2017) [hereinafter FOSTERING THE ADVANCEMENT], https://www.ntia.doc.gov/files/ntia/publications/iot_green_paper_01122017.pdf [https://perma.cc/Z96J-6C99].

301. 2016 Security Notice, *supra* note 286.

302. FOSTERING THE ADVANCEMENT, *supra* note 300, at 11 ("Dating back at least to the 1997 Framework for Global Electronic Commerce, the U.S. Government has been operating under the principle that the private sector should lead in digital technology advancement. Even where collective action is necessary, the U.S. Government has encouraged multistakeholder approaches and private sector coordination and leadership where possible. When governmental involvement is needed, it should support and enforce a predictable, minimalist, consistent, and simple legal environment for commerce"); *see also* Niskanen Ctr., Comment Letter on Green Paper: Fostering the Advancement of the Internet of Things (Feb. 8, 2017), https://www.ntia.doc.gov/files/ntia/publications/niskanencenter_commentsiotgreenpaperntia.pdf [https://perma.cc/ZN9B-

importance of multistakeholder approaches almost twenty times in the document.[303]

The principles from the *Framework* have long served as general guidance for the government's approach to regulating emerging technologies and continue to inform multistakeholder proceedings.[304] The concrete deliverables that result from such efforts have included NTIA's Voluntary Best Practices for UAS Privacy, Transparency, and Accountability[305] and working group documents from the ongoing multistakeholder process addressing IoT security upgradability and patching of devices and systems.[306]

In both multistakeholder processes, the focus was on public meetings in which various interested parties—including industry, trade associations, civil society organizations and nonprofits, and representatives from NTIA—discussed their concerns with various governance approaches.[307] The general sentiment of those involved was one of skepticism towards the ability of traditional command-and-control regulations to effectively govern these new technologies.[308] Although some individuals and organizations demurred from this perspective, they were a small minority in both processes.[309]

For some, the stakes were high enough that participants were able to assemble in force and repeatedly push against provisions they viewed as harmful to their interests. For example, in the UAS multistakeholder process, representatives from the Newspaper Association of America (NAA) and other organizations representing newsgatherers pushed for provisions that would exempt their members from the consensus best practices.[310] As a result of their efforts, and in order to acquire support for the final document, the stakeholders explicitly exempted "newsgatherers and news reporting organizations" from the voluntary provisions.[311]

U56L] (expressing the Department of Commerce's reaffirmation of the principles of the Clinton Framework, *supra* note 291).

303. FOSTERING THE ADVANCEMENT, *supra* note 300.

304. *See* Statement of Policy, Management of Internet Names and Addresses, 63 Fed. Reg. 31,741 (June 10, 1998).

305. VOLUNTARY UAS BEST PRACTICES, *supra* note 73.

306. *See* Multistakeholder Process on Internet of Things (IoT) Security Upgradability and Patching, 82 Fed. Reg. 47,482 (Oct. 12, 2017); *see also Multistakeholder Process: Cybersecurity Vulnerabilities*, NAT'L TELECOMM. & INFO. ADMIN., https://www.ntia.doc.gov/other-publication/2016/multistakeholder-process-cybersecurity-vulnerabilities [https://perma.cc/SMP6-ALSU].

307. *Id.*

308. *Id.*

309. *Id.*

310. Tonda F. Rush, *FAA Proposes Drone Use Regulations*, NAT'L NEWSPAPER ASS'N (Feb. 26, 2015), http://www.nnaweb.org/article?articleId=1024 [https://perma.cc/7ZGW-9PW3].

311. VOLUNTARY UAS BEST PRACTICES, *supra* note 73, at 7.

The UAS multistakeholder process was, at times, contentious.[312] This was most likely the result of its focus on privacy—a topic that can often elicit very strong emotional responses in the policy arena.[313] By contrast, the IoT cybersecurity multistakeholder process has been far less antagonistic. Whereas the UAS-focused proceeding involved a single group discussion at every meeting, the IoT multistakeholder efforts are broken out into numerous separate working groups focused on distinct topics.[314] The result has been a number of working draft documents that delve far deeper into the details of IoT cybersecurity than the equivalent UAS best practices document.[315] The differences between the UAS and IoT multistakeholder processes are most likely accounted for by the involvement of more technical experts and wider agreement on the appropriate responses to cybersecurity concerns.

In general, both of the UAS and IoT processes embraced a democratic governance process. While these negotiations were public, there was political brinksmanship and strategic horse trading occurring behind the scenes.[316] If the conversation became too heated or strayed from its intended purpose, then a representative of NTIA arbitrated but never attempted to dictate the terms of the discussion.[317] The experience closely mirrored a legislative process, but with the explicit understanding that the deliverables ultimately promulgated would be voluntary and non-binding.[318]

Although these proceedings emphasized the voluntary nature of the resulting deliverables, it is important to note that even the

312. *See* Hagemann, *supra* note 69, at 260–61.

313. *See* Adam Thierer, *Ongoing Series: Moral Panics/Techno-Panics*, TECH. LIBERATION FRONT, https://techliberation.com/ongoing-series/ongoing-series-moral-panics-techno-panics/ [https://perma.cc/3BBF-JS4Q] (defining techno-panic); *see also* DANIEL CASTRO & ALAN MCQUINN, THE PRIVACY PANIC CYCLE: A GUIDE TO PUBLIC FEARS ABOUT NEW TECHNOLOGIES (2015), http://www2.itif.org/2015-privacy-panic.pdf [https://perma.cc/DC7K-V7N8] (arguing that warnings about privacy risks associated with new technologies lead to a cycle of hysteria); Ryan Hagemann, *The Parallel Fears Driving Perceptions of AI and Genomics*, NISKANEN CTR. (Aug. 30, 2017), https://niskanencenter.org/blog/parallel-fears-driving-perceptions-ai-genomics [https://perma.cc/K2EH-SA8G] (discussing public hysteria surrounding AI and genetics).

314. Hagemann, *supra* note 69, at 261.

315. Ryan Hagemann contributed to the NTIA IoT Working Group on Incentives, Barriers, and Adoption, which addressed the issue of how stakeholders can "foster greater adoption of appropriate patching and updating practices" for IoT devices. *See* Tech. Capabilities & Patching Expectations Working Grp., Voluntary Framework for Enhancing Update Process Security (Sept. 12, 2017) (unpublished manuscript), https://www.ntia.doc.gov/files/ntia/publications/iot-patching-capabilities-sept12.pdf [https://perma.cc/DSP9-7VZV]; *see also* Existing Standards, Tools & Initiatives Working Grp. (WG1), Catalog of Existing IoT Security Standards: Version 0.01 (Sept. 12, 2017) (unpublished manuscript), https://www.ntia.doc.gov/files/ntia/publications/iotsecurity standardscatalog_draft_09.12.17.pdf [https://perma.cc/7SRG-XQF6].

316. *See* Hagemann, *supra* note 69, at 259–62.

317. *Id.*

318. *Id.*

most deferential self-regulatory regime is still fundamentally co-regulatory in nature. Industry will always be beholden to some public interest-driven regulatory authority, like the FTC Act's Section 5 power to address unfair and deceptive practices.[319]

Beginning in the 2000s, the FCC created "a model of co-regulation, with a private sector collaborative body operating under its oversight" when it initially began looking into broadband network management and "net neutrality" matters.[320] This co-regulation model "involves industry self-policing through an independent and credible body subject to government accountability and oversight."[321] These attempts at self-regulation and co-regulatory governance can also manifest through third-party validators.[322]

The co-regulatory process has been clearly observed in both the soft law and self-regulation of the autonomous vehicle (AV) industry. In early 2017, the Commission on Autonomous Vehicle Testing and Safety, a project of Securing America's Future Energy (SAFE), released a report with various self-regulatory best practices to address "public policy and safety issues that have the potential to slow or halt deployment of autonomous vehicles."[323] The industry-led self-regulatory framework included recommendations aimed at recognizing the obstacles facing AV adoption, including the risks of lackluster public acceptance and overly burdensome regulations compounded by a "complex network of national, state, and local laws."[324] Importantly, the report noted that "[a]s the party responsible for building the technology, industry is ultimately accountable for educating regulators and customers on the state of the technology, and the steps being taken to ensure it is deployed in a safe and responsible fashion."[325]

Recognizing potential obstacles to the deployment of a new technology, firms may call for the creation of formal or informal consortiums that help to set early-stage standards, thereby preempting calls for more stringent regulatory rulemaking processes.[326] This may also set the stage—intentionally or

319. Federal Trade Commission Act §5(a), 15 U.S.C. § 45 (2012).

320. Weiser, *supra* note 9, at 529.

321. *Id.* at 553.

322. *See, e.g.*, *About Us*, ONLINE TR. ALLIANCE, https://otalliance.org/about-us [https://perma.cc/WDE7-CKNY] (aiming to assemble advocates, industry, policymakers, and others by "developing and promoting best practices" through multistakeholder initiatives on issues related to online security and IoT cybersecurity).

323. COMM'N ON AUTONOMOUS VEHICLE TESTING & SAFETY, A PROJECT OF SECURING AMERICA'S FUTURE ENERGY 6 (2017), http://secureenergy.org/wp-content/uploads/2017/01/Commission-on-Autonomous-Vehicle-Testing-and-Safety.pdf [https://perma.cc/37D3-G7ZW].

324. *Id.* at 8–9.

325. *Id.* at 9.

326. *See, e.g.*, Eric Horvitz & Mustafa Suleyman, *Introduction from the Founding Co-Chairs*, PARTNERSHIP ON AI (Sept. 28, 2016), https://www.partnershiponai.org/

unintentionally—for a multistakeholder process. Additionally, self-regulatory efforts are not confined to consortiums or nascent standards development. Guidelines and best practices may also emerge from industry and professional societies.[327]

In other contexts, self-regulatory efforts will build upon or better formalize the "privacy by design," "safety by design," and "security by design" efforts for technologies like the IoT and AVs that are already underway throughout the private sector.[328]

"Privacy by design" refers to efforts to embed "privacy into the architecture of technologies and practices" for organizations.[329] Various trade associations have already worked with others (including government agencies) to formulate privacy and security "by design" best practices for online advertising,[330] connected cars,[331] and personal wellness devices.[332] Over the past two decades, many of these online safety best practices and online privacy guidelines have been implemented by various third-party validators and industry groups.[333] In addition, a number of

introduction/ [https://perma.cc/SH7W-UAZX] (stating that the partnership was founded in 2016, ostensibly to "invest more attention and effort on harnessing AI to contribute to solutions for some of humanity's most challenging problems"). However, its emergence came following a comprehensive White House report examining emerging and potential concerns associated with AI, suggesting that industry recognizes the need to engage proactively on issues in order to head off potentially onerous legislative proposals or regulations before momentum can materialize. *See* WHITE HOUSE AI REPORT, *supra* note 266. Interestingly, the Partnership is structured much in the same way that a future AI multistakeholder process might be constructed: "Crucially, the Partnership on AI has been explicitly designed to bring together researchers, academics, businesses, policy makers, and all with an interest in this endeavor, in a structure that ensures balanced governance by diverse stakeholders." *Id.*

327. Marchant & Allenby, *supra* note 1, at 112–13 ("Another example of a soft-law instrument comes in the form of guidelines produced by professional societies. For example, the International Society of Stem Cell Research has produced guidelines on stem cell research that restrict certain types of research and provide ethical safeguards for other types of research. Although not directly enforceable, these guidelines set professional expectations for stem cell researchers, and can be indirectly enforced by research institutions, funding agencies, and scientific journals requiring scientists to comply.").

328. Thierer & Camp, *supra* note 126, at 50. *See generally* Ira S. Rubinstein, *Regulating Privacy by Design*, 26 BERKELEY TECH. L.J. 1409 (2011); Peter Schaar, *Privacy by Design*, 3 IDENTITY IN INFO. SOC'Y 267 (2010).

329. Ann Cavoukian, *2011: The Decade of Privacy by Design Starts Now*, IT BUS. (Jan. 15, 2011), http://blogs.itbusiness.ca/2011/01/2011-the-decade-of-privacy-by-design-starts-now [https://perma.cc/RA3A-SZJJ].

330. *The DAA Self-Regulatory Principles*, DIGITAL ADVERT. ALLIANCE, http://www.aboutads.info/principles [https://perma.cc/C6J6-JMGZ].

331. ALL. OF AUTO. MANUFACTURERS, INC. & ASS'N OF GLOB. AUTOMAKERS, CONSUMER PRIVACY PROTECTION PRINCIPLES: PRIVACY PRINCIPLES FOR VEHICLE TECHNOLOGIES AND SERVICES (2014), https://autoalliance.org/wp-content/uploads/2017/01/Consumer_Privacy_Principlesfor_VehicleTechnologies_Services.pdf [https://perma.cc/DB7U-7WPK].

332. Press Release, Consumer Tech. Ass'n, Association Unveils First-of-Its-Kind, Industry Supported Principles on Wellness Data Privacy (Oct. 26, 2015), https://www.cta.tech/News/News-Releases/Press-Releases/2015-Press-Releases/Association-Unveils-First-of-Its-Kind,-Industry-Su.aspx [https://perma.cc/AL82-CAUG].

333. ADAM THIERER, PARENTAL CONTROLS & ONLINE CHILD PROTECTION: A SURVEY OF TOOLS AND METHODS **(**2009), http://www.pff.org/parentalcontrols/Parental%20

organizations and consortiums have cropped up to serve as independent standards-creation bodies that help hold firms accountable to these types of design standards and best practices.

One example is the Online Trust Alliance (OTA), which recently released the second version of its IoT Trust Framework, aimed at establishing standards for privacy and security on IoT devices.[334] Another is the "Voluntary Principles for Energy Efficient Connected Devices" from the Connected Devices Alliance (CDA), an initiative from the Group of 20 (an international forum for governments from the world's twenty largest economies), which provides guidance to designers, manufacturers, and policymakers in order to drive continual improvement in the energy efficiency of connected devices.[335] In recent years, the number of third-party organizations dedicated to setting standards and best practice in the emerging technologies space has blossomed, and will likely continue cropping up to serve the expectations of the regulatory environment.[336]

In addition to the IoT- and AV-related actions, in June 2016, the NTIA issued the "Privacy Best Practice Recommendations for Commercial Facial Recognition Use."[337] In the report, a multistakeholder group came up with best practices that included transparency requirements, good data management practices, limitations on data use, security safeguards, and redress methods should problems develop.[338] The report noted that these best practices were "intended to provide a flexible and evolving approach to the use of facial recognition technology, designed to keep pace with the dynamic marketplace surrounding these technologies."[339] Like other best practices developed through the multistakeholder

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Controls%20&%20Online%20Child%20Protection%20[VERSION%204.0].pdf [https://perma.cc/6ACZ-SXX6].

334. *See OTA Calls IoT Cyberattacks "Shot Across the Bow,"* ONLINE TR. ALLIANCE (Jan. 5, 2017), https://otalliance.org/news-events/press-releases/ota-calls-iot-cyber attacks-%E2%80%9Cshot-across-bow%E2%80%9D [https://perma.cc/4UJL-AXME].

335. Press Release, Consumer Tech. Ass'n, CTA Applauds Connected Devices Alliance's Voluntary Principles for Energy Efficiency (Mar. 21, 2017), https://www.cta .tech/News/Press-Releases/2017/March/CTA-Applauds-Connected-Devices-Alliance% E2%80%99s-Voluntar.aspx [https://perma.cc/RM2S-896Z].

336. Although the growth and proliferation of such bodies is difficult to reduce to a single number, it has been noted that since the late 1980s, standards-setting organizations not traditionally considered part of the "Big Is"—the International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), or International Telecommunications Union (ITU)—have risen to accommodate the unique needs of new emerging ICT sectors. *See* Andrew Updegrove, *Standards, Cycles and Evolution: Learning From the Past in a New Era of Change*, 4 CONSORTIUM STANDARDS BULL. 5, 8 (2005), https://www.consortiuminfo.org/bulletins/pdf/may05.pdf [https://perma.cc/4R7J-HTHV] ("By the end of the [1980s], a dramatic shift in the center of effort had begun with the launch of a trickle, and then an increasing flood, of new organizations that were neither governmental in membership, accredited in process, nor anticipating eventual endorsement by and of the Big Is of their output.").

337. BEST PRACTICES FOR COMMERCIAL FACIAL RECOGNITION, *supra* note 265.

338. *Id.*

339. *Id.* at 1.

process, the recommendations did not create a binding rule; rather, the facial recognition best practices were "left to implementers and operators to determine the most appropriate way to implement each of these privacy guidelines."[340]

Such recommendations are an increasingly common output of multistakeholder processes. Regulators have begun to understand that the technological pacing problem has significantly constrained their ability to regulate new digital technologies, and are increasingly reliant on the expertise housed in private firms to execute best practices and standards.[341] Privacy and safety professionals within immersive technology companies will need to work with others to devise their own best practices for their devices and applications as privacy, safety, or security red flags arise.[342]

Whatever the costs and benefits of the multistakeholder process (addressed more directly in Section IV), it remains a central nexus around which the soft criteria for addressing emerging technologies are assessed. As Hagemann has previously noted in other work, multistakeholderism has become, and will likely continue to be, an important component of the regulatory rulemaking process for emerging technologies."[343] However, this process can and should be improved. "Ensuring consistent processes, transparency, and clear and accelerated timelines for such engagements . . . will be key to ensuring that innovation isn't hamstrung by unnecessarily complicated and lengthy bureaucratic timetables."[344]

Despite some drawbacks, the multistakeholder process has been relatively successful at avoiding the worst of precautionary regulation—due in part to the inclusive, collaborative, and consensus-based nature of multistakeholderism.[345] Because "consensus best-practice standards" are predicated on an inclusive dialogue, they result in a diminished likelihood that advocacy organizations opposed to any particular technology entering the market sans regulatory oversight will be forcefully opposed to them down the road. Inclusion in the multistakeholder process can effectively neuter otherwise vociferous opponents by giving them an

340. *Id.*

341. *See* Thierer & Camp, *supra* note 126, at 35.

342. *Id.*

343. Ryan Hagemann, *New Rules for New Frontiers: A Regulatory Manifesto for Emerging Technologies*, NISKANEN CTR. (Jan. 30, 2017), https://niskanencenter.org/blog/new-rules-new-frontiers-regulatory-manifesto-emerging-technologies/ [https://perma.cc/7GQM-4WPN].

344. *Id.*

345. Cohen, *supra* note 156, at 399 ("Collaborative (or co-regulatory) proceedings typically culminate in consensus best-practice standards intended to guide both compliance and enforcement, and may rely significantly on self-regulation or private enforcement.").

equal voice in a forum aimed at achieving ideal outcomes for all parties involved.[346]

While multistakeholder efforts are aimed at achieving broad consensus on a set of best practices or voluntary standards, other soft law mechanisms, as discussed in Section IV, are more narrowly tailored toward individual firms seeking *ex ante* approval for operational deployment or testing of a new technology, as discussed in the following section. Although consulting with regulatory agencies can sometimes yield innovation-friendly outcomes, at other times the use of such pipelines result in implicit, but informal, suggestions from regulators. The next section discusses these and other soft law alternatives to multistakeholderism.

3. Sandboxing, Jawboning, and Agency Threats

Prior to convening multistakeholder processes or more official interactions with innovators, agencies may engage in an informal process of quasi-regulation through sandboxing, jawboning, or other agency threats.

Sandboxing refers to an invitation to discuss potential regulatory actions before an innovator or business engages in certain behaviors.[347] The setting is more informal and the discussion is off-the-record unlike the process of requesting a formal advisory opinion from an agency.[348]

Sandboxing is becoming more prevalent in the field of financial regulation.[349] Such processes can range in formality but typically involve a meeting between a disruptive technology provider and regulators to discuss either how to promote the new innovation or perhaps deal with concerns associated with it.[350] Some industries and regulators have whole-heartedly embraced this approach; Arizona Attorney General Mark Brnovich recently proposed a

346. Again, recall the previous example of the NAA's involvement in the UAS privacy best practices multistakeholder process. Had the NAA and other stakeholders not been able to ask for an exemption for newsgatherers from the best practices, the organization likely would have been publicly critical of the end result.

347. *See* Ivo Jenik, *Regulatory Sandboxes: Potential for Financial Inclusion?*, CGAP (Aug. 17, 2017), http://www.cgap.org/blog/regulatory-sandboxes-potential-financial-inclusion [https://perma.cc/U4M8-5BDR].

348. *See* WORLD BANK GRP., DIGITAL FINANCIAL INCLUSION: EMERGING POLICY APPROACHES 12 (2017), http://www.gpfi.org/sites/default/files/documents/Digital%20Financial%20Inclusion-CompleteReport-Final-A4.pdf [https://perma.cc/9SLP-RV5G] (describing the U.S. Consumer Financial Protection Board's new initiative, Project Catalyst, which provides unique engagement opportunities including informal office hours).

349. *See* Jenik, *supra* note 347.

350. Brian Knight & Chad Reese, *Fintech Sandboxes at the Bureau of Consumer Financial Protection,* MERCATUS CTR.: BRIDGE (June 13, 2018), https://www.mercatus.org/bridge/commentary/fintech-sandboxes-bureau-consumer-financial-protection [https://perma.cc/PKF9-ZMNH] ("A regulatory sandbox is generally a program that allows companies to offer products and services in a limited way under a modified regulatory regime while providing information on the experiment to their regulator.").

state-level sandboxing experiment, noting that other countries that instituted sandboxing were seeing promising results.[351] Brnovich anticipates that a sandboxing approach in Arizona will "reduce the regulatory barriers preventing companies from testing their products in the United States."[352]

Of course, it's not always the regulators who initiate these conversations. Tech companies often engage privacy regulators in a process of "regulatory friending."[353] This generally refers to efforts to work in a more collaborative fashion with policymakers and engage in constructive dialogue to achieve policy objectives without resorting to hard law solutions. For example, when privacy regulators in the United States and Ireland investigated Facebook's privacy practices in 2011, policymakers on both sides of the Atlantic utilized "responsive regulation," which "emphasizes less adversarial techniques and considers formal enforcement actions more of a last resort."[354] This is an effective way to address many privacy-related concerns and "help regulators to encourage companies to improve their practices continually, retain the flexibility to deal with changing technology, and discharge their oversight duties cost-effectively . . . ."[355]

Of course, these quasi-regulatory processes could become more problematic when agency officials engage in "jawboning" strategies or other types of highly informal "agency threats."[356] Under these circumstances, agencies do not issue restrictive rules but rather off-the-record suggestions of behavior under threat of more formal or informal regulation.[357] These tactics are not new. As noted earlier, for many decades the FCC effectively used LOIs and other public and private jawboning tactics to engage in "regulation by raised eyebrow."[358] These were subtle but clear warnings to encourage radio and television programmers to modify content so that the

351. Mark Brnovich, *Regulatory Sandboxes Can Help States Advance Fintech*, AM. BANKER (Sept. 5, 2017, 9:30 AM), https://www.americanbanker.com/opinion/regulatory-sandboxes-can-help-states-advance-fintech [https://perma.cc/4MHT-3PDL] ("Countries already encouraging fintech investment by instituting sandboxes include the United Kingdom, Singapore and Australia, and the results so far are promising.").

352. *Id.* ("To become a sandbox company in Arizona, an applicant would describe the product, including how it benefits consumers, and propose a reasonable plan to any customer impacts if the product were to fail. Such contingency plans would vary depending on the product, but could include record-keeping for unwinding transactions, for instance. The sandbox term would be 12 months with possible extensions. Companies that successfully test a product or service could remain in the sandbox — and continue to offer the new product or service to consumers — while seeking full licensure. We anticipate this sandbox would reduce the regulatory barriers preventing companies from testing their products in the United States.").

353. McGeveran, *supra* note 261, at 959.

354. *Id.*

355. *Id.* at 1025.

356. *See supra* Section I.B.3; *see also* Bambauer, *supra* note 88, at 57–58.

357. *See* Bambauer, *supra* note 88, at 57–58.

358. *See, e.g.*, David L. Bazelon, *FCC Regulation of the Telecommunications Press*, 1975 DUKE L.J. 213, 216–18 (1975).

agency did not need to pursue direct censorship strategies, which would have been far more likely to be litigated and struck down under the First Amendment.[359]

Threats are still a feature of tech policymaking today.[360] Former Mercatus scholar Jerry Brito has documented the continued use of threats by various agencies "to avoid executive regulatory review and other accountability measures that ostensibly slow the regulatory process."[361] Needless to say, efficiency or expedience is not a good excuse for such heavy-handed behavior. Another benefit to threats and jawboning is that agencies provide motivation for compliance when they maintain "the well-oiled 'shotgun behind the door.'"[362] While these tactics will likely always be a feature of modern regulatory processes, their use can upset the collaborative efforts and undermine trust, credibility, and accountability within soft law systems. Section IV will discuss such concerns in more detail.

B. Modeling the Pathways to Regulation (the How and When)

As Alfred Kahn once noted, legislatures and regulatory commissions continue to have a responsibility to find "the best possible mix of inevitably imperfect regulation and inevitably imperfect competition."[363] The current soft law regulatory ecosystem encapsulates that sentiment. How it does so, however, can be an understandably unwieldy process to imagine. To that end, Figure 1 attempts to apply the multistakeholder soft law taxonomy developed in Section III.A.

359. *See* John Greenya, *Can They Say That on the Air? The FCC and Indecency*, WASH. LAW. (Nov. 2005), http://www.dcbar.org/bar-resources/publications/washington-lawyer/articles/november-2005-indecency.cfm [https://perma.cc/TZX9-KYZQ].

360. Bambauer, *supra* note 88.

361. Jerry Brito, *"Agency Threats" and the Rule of Law: An Offer You Can't Refuse*, 37 HARV. J.L. & PUB. POL'Y 553, 553 (2013).

362. McGeveran, *supra* note 261, at 1025.

363. ALFRED E. KAHN, THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS, at xxxvii (1988); *see also id.* at 114.

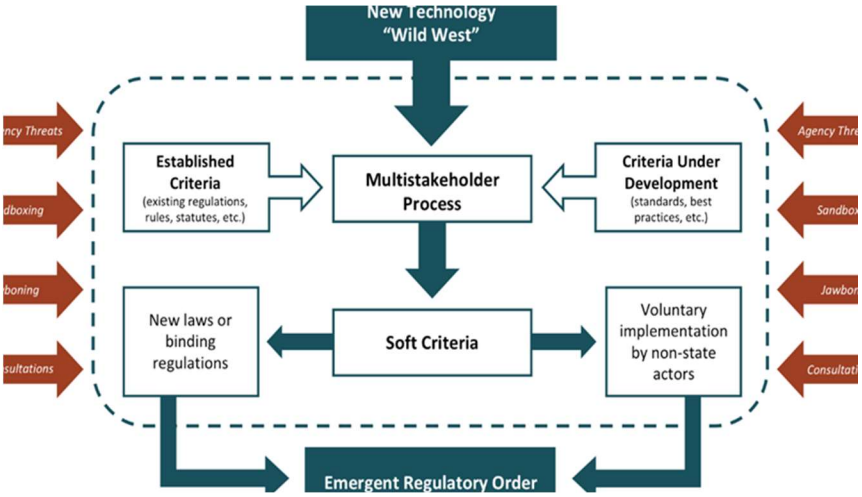

FIGURE 1: PATHWAYS FOR THE REGULATION OF NEW TECHNOLOGY

This flowchart describes the various pathways by which a new technology can become "regulated" in a multistakeholder-driven environment.

Although the regulatory ecosystem for emerging technologies can be conceptually confusing, there is a general method to the proverbial madness. The process tracks roughly along the following lines.

First, a new technology emerges into a "Wild West" of regulatory uncertainty. Existing agencies, like the FTC, may possess broad authorities to regulate certain related issues, like privacy; however, the complexity of many new technologies means there is often regulatory overlap. As a result, it is not always immediately clear which agency possesses the statutory authority to promulgate new rules to govern this technological advancement, often leaving it to legislators to propose interagency collaborations that can, and often do, lead to further confusion.[364]

364. As one example, there remains considerable uncertainty surrounding which federal agency is appropriately situated to address cybersecurity concerns for networked AVs. One legislative proposal calls for both NHTSA and the FTC to establish federal standards that would apply to both cybersecurity as well as privacy. However, NHTSA has no historic role in regulating cybersecurity or privacy. Similarly, the FTC, while possessing broad authority to police "unfair and deceptive practices," has no expertise or historical involvement in developing standards. Notably absent from the proposal is any mention of the National Institute of Standards and Technology, which does, in fact, have both a historic role and existing expertise to address cybersecurity. Press Release, Ed Markey, Mass. Sen., Markey, Blumenthal to Introduce Legislation to Protect Drivers from Auto Security and Privacy Vulnerabilities with Standards and "Cyber Dashboard" (Feb. 11, 2015), https://www.markey.senate.gov/news/press-releases/markey-blumen t hal-to-introduce-legislation-to-protect-drivers-from-auto-security-and-privacy-vulnerabilities-with-standards-and-cyber-dashboard [https://perma.cc/E5QP-P6TU].

This confusion often prompts policymakers and regulators, wary of being the first pioneers of new frontiers, to call for *something to be done*.[365] As a result, a government agency—of its own accord, in consultation with other agencies, or at the direction of Congress or the President—may convene a multistakeholder process. Sometimes, however, the private sector beats agencies to the punch and establishes an industry consortium to develop its own set of best practices or standards.

Alternatively, the new technology may so clearly impact public safety (such as the case with UASs) that government convenes a multistakeholder process even before industry has a chance to develop robust criteria for adoption on its own.[366] At any of these stages, multistakeholderism may be suggested as a mechanism to help adjudicate some of the more pressing concerns associated with commercial deployment. Industry may develop new standards and convene a multistakeholder process or workshop thereafter, or the multistakeholder process may be circumnavigated entirely.

Throughout this entire process, consultations and sandboxing, or agency threats and jawboning, may result—injecting greater uncertainty into the developmental ecosystem than would result from using only one form of soft law criteria at a time.[367] At a certain point, however, some regulatory framework will ultimately emerge. It may be technology-specific, predicated on voluntary adoption of industry-led standards and self-regulation, or from a more formal rulemaking process.[368] Whether or not the multistakeholder process plays a pivotal role in the emergence of such a regime, it often remains the default fallback for guiding a technology through regulatory maturation.

The next section of this article will discuss the costs and benefits associated with soft law governance as a model for emerging technologies.

IV. ADVANTAGES AND DISADVANTAGES OF NEW SOFT LAW REGIMES

In assessing the impact that soft law has had on emerging technology regulations, it is clear that the advantages and disadvantages of this approach are bundled together in confusing and sometimes conflicting ways.[369] The advantage of the multistakeholder process and corresponding soft law mechanisms is that excessively prophylactic rules can be avoided.[370] Although

365. *See* AYRES & BRAITHWAITE, *supra* note 70; Hagemann, *supra* note 69, at 235.
366. Presidential UAS Memorandum, *supra* note 287.
367. *See* AYRES & BRAITHWAITE, *supra* note 70, at 87.
368. *See id.* at 102.
369. *See id.*; *see also* Knight & Reese, *supra* note 350.
370. Roca et. al, *supra* note 195, at 1218 ("[A]daptive regulation . . . offers a series of policy mechanisms to balance technology uncertainty and the need for innovation, independent of regulatory style.").

regulations can provide a degree of market certainty for firms investing in new technologies, overly prescriptive rules can conversely have a negative impact on those investments.[371] The disadvantage, however, is that non-binding soft criteria not promulgated through an official regulatory rulemaking can result in less certainty.[372] But, overall, the soft law regime seems to have positively promoted emerging technologies, balancing a light-touch regulatory approach with the public interest concerns of federal agencies.[373]

Against that backdrop, it makes sense why soft law governance would arise for emerging technologies. Soft criteria are easier to issue than a formal rule and, perhaps more importantly, soft law allows agencies to act when they might otherwise be hamstrung, where they do not have the explicit authority to act.[374] There are also, however, certain costs to the soft law system. The following section will discuss both.

A. Legitimacy, Trust, and Market Certainty

1. Legitimacy

At first glance, a soft law approach to technological governance seems to undermine the legitimacy in, and accountability of, the government agencies responsible for promoting the public interest.[375] If agencies create law through administrative decisions that are unchecked by elected officials or an independent judiciary, it seems to undermine foundational principles of a democratic system.[376] But there are ways to rein in these dangers.

Checks and balances on the power of regulatory agencies, given to both Congress and the judiciary, can be used to lend legitimacy

371. *See* Brian Knight, *Regulating FinTech: Creating a Regulatory Regime that Enables Innovation While Providing Appropriate Consumer Protection*, MERCATUS CTR. (May 12, 2016), https://www.mercatus.org/publication/regulating-fintech-creating-regulatory-regime-enables-innovation-while-providing [https://perma.cc/3ARQ-MNFU] (discussing such concerns regarding innovation in financial services such as FinTech).

372. *See, e.g.*, Ariel Dora Stern, *Innovation Under Regulatory Uncertainty: Evidence from Medical Technology*, 145 J. PUB. ECON. 181, 191 (2017).

373. *See id.* at 192–93.

374. Weiser, *supra* note 64, at 2043 ("[Experimental governance efforts] . . . will mostly arise in cases where agencies possess broad authority without specific authorizations to act. In cases where regulatory agencies are specifically barred from proceeding in a particular area, they cannot take any actions, experimental or otherwise. In cases where they are specifically authorized to act, there is no cause for concern.").

375. FRITSCHLER & RUDDER, *supra* note 13, at 2 (noting that "delegated power of bureaucracies creates major challenges to political accountability and for democratic processes").

376. *Id.* at 48 (opining that "policymaking by an independent bureaucracy would contradict traditional theories of representation on which democratic systems are built").

to the administrative state's actions or inaction.[377] While both the nature of those powers and the efficacy with which they are wielded may be too wide-ranging, or perhaps not wide-ranging enough, that discussion is beyond the scope of this paper.[378] Suffice to say, most people consider these institutions to be legitimate on their face, whatever their shortcomings may be.[379] But if regulatory agencies begin delegating their own rulemaking authority to coteries of industry and civil society stakeholders, does that threaten their perceived legitimacy, or enhance it?

The answer may depend on how the agency attempts to reach out to stakeholders and the public. "Broad stakeholder outreach and dialogue can bring credibility, new ideas, current information, continual feedback, and public trust to a governance system."[380] Such delegation can help build trust by increasing the mechanisms through which industry stakeholders and the public can engage with administrative regulation and add to the democratic underpinnings to the system.

However, legitimacy arguably comes not from the public trust but from legal authority and the ability to enforce actions through acceptable legal means.[381] Both elements must be present for soft law to truly be effective. Stakeholders, consumers, and regulators must buy into the process as a replacement for hard law options, and the solutions must be enforceable to achieve the desired behavior.

2. Trust

While the legitimacy of soft law mechanisms can be a double-edged sword, the trust that emerges from multistakeholder engagements is beneficial to innovators, regulators, and consumers alike. To even enter into a soft law process, a certain level of trust must exist between the regulatory body, the innovator, and the public. They must all believe that actions and agreements will be undertaken in reasonably good faith and that all interests will be appropriately balanced and considered. Soft law mechanisms can be especially helpful in building trust among stakeholders who

377. *See, e.g.*, Paul R. Verkuil, *The Checks & Balances of the Regulatory State*, REAL CLEAR POL'Y (Oct. 24, 2016), http://www.realclearpolicy.com/articles/2016/10/25/the_checks__balances_of_the_regulatory_state_1752.html [https://perma.cc/7F72-Z8K8].

378. *See, e.g.*, PHILIP HAMBURGER, IS ADMINISTRATIVE LAW UNLAWFUL? 493 (2014) (calling administrative law a "revival of absolute power," a "consolidated governmental power outside and above the law," which "threatens to overwhelm the Constitution").

379. *E.g.*, JOHN A. ROHR, TO RUN A CONSTITUTION: THE LEGITIMACY OF THE ADMINISTRATIVE STATE, at ix–x (1986). *But see* PHILIP WALLACH, THE ADMINISTRATIVE STATE'S LEGITIMACY CRISIS (2016), https://www.brookings.edu/wp-content/uploads/2016/07/Administrative-state-legitimacy-crisis_FINAL.pdf [https://perma.cc/QCA9-NJLY] (arguing against an idealistic justification of government).

380. Mandel, *supra* note 2, at 90.

381. *Id.* at 91–92.

would otherwise be engaged in a media firestorm of barb-slinging and muckraking against one another and regulators.[382]

That a soft law system can promote greater trust amongst these organizations means the ultimate outcome can yield a more broad-based acceptance of the results. This type of engagement is far more substantial and productive than mere comment filings, where commenters have less incentive to hold back from strongly rebuking the opposing side. Engagement is more likely to achieve a consensus-based result that addresses the most important issues on all sides.[383]

While regulatory comment filings can add on-the-record analysis for regulators to consider, they can also undermine thoughtful policy prescriptions.[384] One need only look to the recent rulemaking surrounding the FCC's proposed changes to net neutrality to see how grassroots activism often eschews reasoned discourse for digital mob rule.[385] The Information Technology and Innovation Foundation discussed these issues in a paper about how such populist sentiments can, in fact, undermine technological progress. It argues that

> Populism . . . has found a new target in the technologies that are increasingly ubiquitous in the economy and everyday life. Technology policy discussions have thus morphed into emotionally charged battlefields where sound bites and slogans trump facts and reason. This phenomenon is undermining effective innovation policy and slowing the pace of innovation progress.[386]

Although public engagement can benefit agency determinations in proposed rules, the traditional rulemaking process can become quickly log-jammed by spurious comments unsubstantiated by evidence.[387] Indeed, death threats towards law and policymakers underscore how populist sentiments can deteriorate law and policymakers trust of the public.[388]

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382. *See* Hagemann, *supra* note 69, at 249.

383. *See id.* at 247.

384. *See* Press Release, Fight for the Future, Fraudulent Comments that Undermine the FCC's Net Neutrality Comment Process Must Be Investigated (June 28, 2017), https://www.fightforthefuture.org/news/2017-06-28-fraudulent-comments-that-undermine-the-fccs-net/ [https://perma.cc/AE4C-BB97].

385. *See id.*

386. ROBERT D. ATKINSON ET AL., HOW TECH POPULISM IS UNDERMINING INNOVATION 1–2 (2015), http://www2.itif.org/2015-tech-populism.pdf [https://perma.cc/Q97R-CSKG].

387. *See* Marcus Hobley, *Public Opinion Can Play a Positive Role in Policy Making*, GUARDIAN (Sept. 3, 2012, 3:00 PM), https://www.theguardian.com/public-leaders-network/2012/sep/03/public-opinion-influence-policy [https://perma.cc/6FQG-T7X3].

388. *See*, *e.g.*, Colin Lecher, *FCC Chairman Ajit Pai Condemns Death Threat Allegedly Sent to Congressman over Net Neutrality*, VERGE (Nov. 30, 2017, 12:14 PM), https://www.theverge.com/2017/11/30/16719824/ajit-pai-net-neutrality-death-threat [https://perma.cc/CB6S-MGJE].

Although most multistakeholder processes also rely on direct participant engagement, they appeal primarily to those individuals and organizations who have an interest or expertise in the issue being debated.[389] They, therefore, do not draw nearly the public engagement that the net neutrality debate did, and typically those not involved are unaware until results are complete. As a result, a soft law approach can build trust between disparate perspectives, while promoting compromise by disincentivizing the most zealous castigations from those less inclined to bargain.[390]

One on hand, forgoing public comments or consultation with industry leaders, agencies may undermine the perceived democratic legitimacy of their actions.[391] However, during the soft law process, consulting with multiple stakeholders can help build trust among stakeholders in the industry where the agency is acting. While the public may still question whether the result is merely an agency succumbing to an industry's wishes, it provides more legitimacy than regulation promulgated without any consultation. In the end, the public and the industry both typically view soft law actions to be as legitimate as hard law processes.[392]

3. Certainty

Soft law can provide a type of flexible certainty for innovators by providing parameters of what to expect in terms of possible regulation. These procedures add certainty to the regulatory process without the severe negative consequences that might occur through top-down formal regulation.

Uncertainty can stymie the inflow of resources into a market, slowing or preventing innovation.[393] This is particularly true for newer, more disruptive startups and industries that are seeking external funding or insurance.[394] Because "markets place a high value on risk mitigation and predictability of outcomes," regulatory uncertainty "has the potential to increase both the costs and time needed for development, thereby making the commercialization

389. *See* Eugene Scalia, *The Value of Public Participation in Rulemaking*, REG. REV. (Sept. 25, 2017), https://www.theregreview.org/2017/09/25/scalia-public-participation-rulemaking/ [https://perma.cc/7NGT-NM7Y].

390. *See id.*

391. *See* McGeveran, *supra* note 261, at 987 (stating that actions "[c]an be perceived by the public as a charade, undermining confidence in the seriousness of enforcement of the law").

392. *See id.* at 987–88.

393. *See* Robert A. Hoerr, *Regulatory Uncertainty and the Associated Business Risk for Emerging Technologies*, 13 J. NANOPARTICLE RES. 1513 (2011); Roca et. al, *supra* note 195, at 1218.

394. *See, e.g.*, Amy Huffman, *Venture Capital and Regulations Impact Future and Success of Telehealth Companies*, WRAL: TECHWIRE (Dec. 9, 2016), https://www.wraltechwire.com/2016/12/09/venture-capital-and-regulations-impact-future-of-telehealth-sector-in-nc-161209/ [https://perma.cc/TZF2-KP3Z].

process unpredictable and, in the worst case, incapable of being financed."[395]

Technologies like AVs benefit from an increase in certainty for innovators, investors, and consumers.[396] By contrast, technologies with greater sectorial overlap (such as AI) often face demands for new agencies and regulatory regimes to provide policy certainty instead of relying on existing soft law.[397]

Less defined and less rigidly-proscribed rules can also mean *less* certainty in crafting soft criteria. This is particularly true if an innovator wishes to not comply with or to otherwise challenge a soft law regulation. Under a more traditional regulation framework, an innovator has both administrative and legal remedies to pursue should it seek to challenge an agency's actions. With soft law, there is less certainty if (or when) such actions can even be challenged.[398] These less defined procedures for remedy or challenge can also create uncertainty for the agency regarding what deference will be given to their actions if they are challenged.[399]

Companies that straddle multiple regulated industries face another potential uncertainty related to soft law actions: relying on guidance from the wrong regulator. For example, a company is likely to find itself in a precarious position when it has been following the FTC's best practice guidelines for privacy and security to manufacture its product, only to later learn that the FDA has come to consider its product a medical device and therefore subjects that product to new and different set of guidance and regulations.[400] This same scenario could unfold for driverless car innovators if a regulatory turf war develops between the FTC and NHTSA over which agency's guidance documents should control. Even if those two agencies worked closely together on guidance (or carved up topics like they currently seem to be doing, with NHTSA covering safety concerns and the FTC covering privacy issues), there is no guarantee that confusing "middle" issues will not muddle that enforcement picture.[401] For example, the cybersecurity concerns

395. Hoerr, *supra* note 393.

396. *See* THIERER, *supra* note 109, at 4–5.

397. *See, e.g.*, Ali Breland, *Elon Musk: We Need to Regulate AI Before 'It's Too Late*,' HILL (July 17, 2017, 12:23 PM), http://thehill.com/policy/technology/342345-elon-musk-we-need-to-regulate-ai-before-its-too-late [https://perma.cc/NE39-V8VA].

398. *See* Gwendolyn McKee, *Judicial Review of Agency Guidance Documents: Rethinking the Finality Doctrine*, 60 ADMIN. L. REV. 371 (2008).

399. *See, e.g.*, Lydia Wheeler, *Sessions: DOJ Prohibited from Issuing Guidance that Creates New Rules*, HILL (Nov. 17, 2017, 2:35 PM), http://thehill.com/regulation/administration/360930-sessions-issues-memo-prohibiting-doj-from-issuing-regulatory [https://perma.cc/4ADD-SS26].

400. *See generally* FDA GUIDANCE, *supra* note 268 (providing an update on guidance for mobile medical applications including the definition of a medical device and examples of mobile apps that are not medical devices).

401. *See* Press Release, Fed. Trade Comm'n, FTC, NHTSA to Conduct Workshop on June 28 on Privacy, Security Issues Related to Connected, Automated Vehicles (Mar. 20,

surrounding connected cars (i.e., the "hackability" of these vehicles) could give rise to both safety and privacy concerns later.[402] In that case, whose guidance prevails and how would challenges to it be handled without a clear Congressional directive?

The courts have previously handled deference questions when agencies conflict.[403] However, a lack of clear delegation of authority, combined with a disagreement over the nature of the technology, would further complicate the question.[404] In order to prevail, a company would need to prove either that (a) the agency's action went beyond Congress' grant of authority to the agency and Congress' grant was unambiguous or (b) the agency interpretation is unreasonable or beyond the statutory grant given the circumstances.[405]

Paradoxically, what makes traditional administrative action incapable of keeping pace with new technological realities is also what gives the system legitimacy. That is, doing things by the book means a painstakingly slow process that may be irrelevant for the technology by the time it is finished. The average rule takes twelve months from proposal to enactment through APA processes.[406] For rapidly-evolving technologies, such a timeframe may present unnecessary delay for innovators awaiting a regulatory pronouncement or result in ineffective regulation as a result of rapid technological advancement in the industry.

In short, soft law can both alleviate and aggravate issues of uncertainty. But even in situations where soft law diminishes certainty, it is not at all apparent that a more formal hard law alternative would be a net benefit.

B. Speed, Flexibility, and Adaptability

As discussed in Section II.C, both agencies and innovators may view soft law as a means of overcoming the pacing problem, because it relieves agencies of many of the burdens that would otherwise prevent quick, focused, and responsive action.

Scholars have argued the speed, flexibility, and adaptability of soft law makes such mechanisms useful to regulators—it allows for

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2017), https://www.ftc.gov/news-events/press-releases/2017/03/ftc-nhtsa-conduct-workshop-june-28-privacy-security-issues [https://perma.cc/7W2L-3RTG].

402. *See id.*

403. *See infra* Section IV.E; *see also* City of Arlington v. FCC, 569 U.S. 290 (2013).

404. *See* Jacob E. Gerensen, *Overlapping and Underlapping Jurisdiction in Administrative Law*, 2006 SUP. CT. REV. 201, 211 (2006).

405. *See* Jonathan H. Adler, *No Chevron Deference for Agency Interpretation of Court's Jurisdiction*, VOLOKH CONSPIRACY (Aug. 10, 2013, 2:58 PM), http://volokh.com/2013/08/10/no-chevron-deference-for-agency-interpretation-of-courts-jurisdiction/ [https://perma.cc/384A-8NAM].

406. *See* James Hobbs, *Is the Rulemaking Process Really a Quagmire?*, REG. REV. (Jan. 17, 2013), https://www.theregreview.org/2013/01/17/17-hobbs-regulatory-breakdown-chapter-8/ [https://perma.cc/SXZ4-W9LF].

a "continuing dialogue rather than fixed dictates."[407] This flexibility and adaptability results in "a particularly strong response to situations where lawmakers have difficulty staying abreast of rapid technological change."[408] In summary:

> By using responsive regulation based on broader principles, regulators can secure compliance even as the details of technology change. At the same time, the resulting flexibility enables continuous change and improvement of interfaces and business methods—indeed, not just enables but encourages it. Rather than giving up on the possibility of controlling the inexorable evolution of technology, responsive regulation allows agencies to respond to those changes and ameliorate privacy impacts without throttling productive innovation.[409]

These unique features of soft law can be used either to harm or help technology, depending on whether the regulatory culture takes a precautionary or permissionless approach to technology. Some scholars, like Juma, hope that "decisive," "adaptive," and "flexible" leaders will steer a sensible policy course with an eye toward limiting "the spread of political unrest and resentment toward technological innovation."[410] But the tools remain even when sensible regulators are not in power, which therefore yields justifiable concerns about the risk of such power when the intent is to stifle or control an industry.

While there are certain risks involved in allowing regulators to use a less scrutinized process, the existing market for a specific technology has the potential to mitigate these risks.[411] What is more, ignoring the existing market and innovator information in either a formal or soft law process can result in regulation that has a negative impact on innovative technology or disruptive industries.[412]

The likelihood of mistakes—which can be made in any type of regulatory intervention—is significantly higher when one ignores the inchoate nature of certain technologies, or views it rather naively as another facet of the market or user behavior.[413] As a result, agencies should avoid intervention "when dealing with an inchoate technology . . . increas[ing] in proportion to the level of inchoateness—which, in turn, increases unpredictability and the

407. McGeveran, *supra* note 261, at 987.
408. *Id.*
409. *Id.*
410. JUMA, *supra* note 137, at 284–86.
411. *See* Gervais, *supra* note 190, at 675–76.
412. JUMA, *supra* note 137, at 302.
413. *See* Gervais, *supra* note 190, at 670.

ability of the technology and its users to circumvent the regulatory objective."[414]

In addition, the variety of options available under soft law, though overused, fosters a trial-and-error system of regulation, which enables both regulators and innovators to adapt to changing norms and technology.[415] Proponents of this view are not concerned by some of the uncertainty or separation of power trade-offs that must be made to allow for this flexibility. Instead, they find the evolution of the regulatory process—yielding its own self-regulatory system of review—sufficient.[416]

Recent FTC actions may provide the most thorough example of how this may play out. Observers closely monitoring the FTC's recent soft law activities have agreed that the agency has increasingly relied on such guidance to expand its authority and its definition of unfair practices.[417] The FTC has used the benefits of soft law to become the default regulator, not only for merger and antitrust but also broad applications of data security, privacy, and other potential "unfair" practices.[418] Its ability to develop such an area of regulatory expertise shows that soft law provides adaptability advantages, not only for the innovator but also for the "entrepreneurial state."[419] Indeed, the FTC has adapted to the new era of technology to gain regulatory control of new technologies by using new and existing soft law tools without formal grants of power from lawmakers.

René von Schomberg, Director General for Research at the European Commission, makes a similar argument, noting that "[a] good governance approach . . . might be one which allows flexibility in responding to new developments."[420] In particular, von

414. *Id.* at 701.

415. *See, e.g.*, Weiser, *supra* note 64, at 2019 (noting "considerable flexibility for a range of alternative options exists within current structures and is already being used by agencies and private entities to great effect. . . . [A]gencies can spearhead and implement this model successfully through entrepreneurial leadership and a culture of trial-and-error problem solving.").

416. *Id.* at 2043 ("The value of allowing administrative agencies some degree of 'common-law-like' authority is that they can address emerging issues as they arise rather than await specific congressional authorization.").

417. *See, e.g.*, Michael C. Gilleran, *The Rise of Unfair and Deceptive Trade Practice Act Claims*, A.B.A. (Oct. 17, 2011), http://apps.americanbar.org/litigation/committees/businesstorts/articles/fall2011-unfair-deceptive-trade-practice-act-claims.html [https://perma.cc/TRN8-EHJL].

418. *See* Christopher Koopman et al., *Informational Injury in FTC Privacy and Data Security Cases*, MERCATUS CTR. (Oct. 27, 2017), https://www.mercatus.org/publications/informational-injury-ftc-privacy-and-data-security-cases [https://perma.cc/7YPZ-JBWR].

419. *See* Weiser, *supra* note 64.

420. René von Schomberg, *The Precautionary Principle: Its Use Within Hard and Soft Law*, 3 EUR. J. RISK REG. 147, 154 (2012) (arguing that "the power of governments is arguably limited by their dependence on the insights and cooperation of societal actors when it comes to the governance of new technologies: the development of a code of conduct, then, is one of their few options for intervening in a timely and responsible manner").

Schomberg points to the philosophy behind the European Commission's Code of conduct to underscore how the Commission "promote[s] active and inclusive governance and communication."[421]

Against that backdrop, soft law's responsiveness and ease of use make soft law preferential in many cases but, at the same time, requires monitoring to ensure such power is not abused without recourse. The best method for this check on power may vary depending on the technology regulated and the method used.

C. Clarity and Precision

Another potential objection to soft law governance methods relates to clarity and precision. These concerns, however, that agency actions lack clarity, are related to subsequent attempts to modify or change existing guidance or the continued accumulation of guidance.[422] An additional concern is that when guidance is unclear or imprecise, there may be neither administrative nor judicial remedies clearly available.[423] Furthermore, unclear guidance undermines the advantages of delegation to "ensure[] a single interpretation prevails."[424]

Still, soft law specifically targeting an emerging technology can provide some degree of clarity about regulatory intent, rather than attempting to figure out which agency and which regulations should be used to regulate a technology after it has fully developed. This is especially needed in light of the many problems—from interagency coordination failures to a growing corpus of voluminous regulations and rules that often contradict.[425] The FDA, for example, has used regulatory guidance to provide initial clarity in emerging fields such as nanotechnology before the agency was ready to issue more formal binding guidance.[426] This has prevented some of the problems of creating an agency standard that would prevent innovation in such fields, while also clarifying what type or direction of development might be preferred.[427] As a result, both regulators and regulated entities can more appropriately, and more precisely, prioritize research and allocate resources.

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421. *Id.* ("[The European Commission] assigns responsibilities to actors beyond governments, and promotes these actors' active involvement against the backdrop of a set of basic and widely shared principles of governance and ethics. Through codes of conduct, governments can allocate tasks and roles to all actors involved in technological development, thereby organizing collective responsibility for the field.").

422. *See* CREWS, *supra* note 28.

423. *See* McKee, *supra* note 398.

424. Robin Kundis Craig, *Agencies Interpreting Courts Interpreting Statutes: The Deference Conundrum of a Divided Supreme Court*, 61 EMORY L.J. 1, 5–6 (2011).

425. *See supra* Section II.E.

426. *See* Noah, *supra* note 56, at 120–22.

427. *Id.*

Similarly, agencies can be more precise in using soft law. In addition to multistakeholder proceedings, the sandboxing conversations discussed in Section III can occur between a particular innovator or business and an agency prior to action. While this may seem overly precautionary, it may prevent much more restrictive action by allowing these negotiations to occur in advance (while limiting their scope). Likewise, opinion letters and other traditional agency soft law mechanisms can provide a company with clarity—of possible regulatory trajectory or impact—to adequately weigh its next steps.

While soft law lacks the type of clarity achieved through hard statutes or agency rules, it does provide a different type of clarity, which is *ex ante* rather than *ex post*. Of course, there are risks that must be managed, but often the clarity achieved through soft law is preferable to the uncertainty that occurs when there are either regulatory overlap or, alternatively, gaps in the regulatory scheme.

D. Transparency, Accountability, and Oversight

Doing things by the book has traditionally been viewed as an essential element of transparency and accountability. However, the current multistakeholder-focused process of soft law for emerging technologies does not typically follow the strictures expected of regulatory rulemaking. This means that the potential for uncertainty in policymaking is more pronounced and opens the door to public policy entrepreneurs whose goals may not be the advancement of socially beneficial technologies; a public policy entrepreneur:

> is one who takes advantage of the power of position to aggressively tackle an issue and strategically advance it. Public [policy] entrepreneurs do not 'go by the book,' or, in less colloquial terms, they do not necessarily follow the bureaucratic rules if those rules are obstacles to achieving the desired goal.[428]

One of the drawbacks of a soft law system is that such individuals may act in concert with others through non-transparent channels, with no oversight from, or accountability to, the broader stakeholder community engaged in the process.

This is a near timeless feature of policymaking. In suggesting effective courses of advocacy for technology law policy, regulatory practices are seldom driven by the rules as written, which:

428. FRITSCHLER & RUDDER, *supra* note 13, at 134.

> Can be a let-down for students coming out of law school who, having learned about rules, how they are made, and how to do things with rules, think they finally get it. For the more creative, it is salvation. The sooner they allow for the fact that cases can be lost on policy even where the rules are in their favor, the sooner that deeper realizations, deeper thinking, deeper creativity, and better lawyering can emerge. From that, hopefully comes the empowering realization that they can use the inherent complexities and flexibility of the regulatory system to create better solutions.[429]

Although one of the benefits of formal rulemaking is that "it subjects agency assumptions to greater scrutiny," this can also be a drawback, for it creates path-dependent solutions and outcomes.[430] As a result, public policy entrepreneurship can be both an advantage and a disadvantage to the transparency and accountability of a soft law regime.[431] Of course, there are compliance and transparency checks even within the soft law system. For example, OMB has established best practices for standard setting that require openness, balance, due process, review, and the development of consensus.[432]

Additionally, some scholars and advocates criticize the multistakeholder process for failing to adequately consider concerns of consumers or those affected beyond the corporations.[433] These concerns are perhaps most prevalent in areas such as data security and privacy where consumers are less likely to have direct contact with the industry and technology.[434] Some critics have argued that participation costs and time requirements limit the accessibility of such processes only to those companies or groups with the most resources, and thereby stifle marginalized or disempowered groups.[435] Furthermore, concerns have been voiced about whether "civil society" advocates or "invited experts" assigned to represent such groups actually advocate for their own

429. J. Brad Bernthal, *Procedural Architecture Matters: Innovation Policy at the Federal Communications Commission*, 1 TEX. A&M L. REV. 615 app. at 676 (2014).

430. Aaron L. Nielson, *In Defense of Formal Rulemaking*, 75 OHIO ST. L.J. 237, 288 (2014).

431. *Id.*

432. Weiser, *supra* note 64, at 2045.

433. *See, e.g.*, Omer Tene & J. Trevor Hughes, *The Promise and Shortcomings of Privacy Multistakeholder Policymaking: A Case Study*, 66 ME. L. REV. 437, 452–56 (2014) (stating that a sample multistakeholder process involving "protracted discussions, necessary travel, and substantial participation fee meant that the group was captured not by the industry as a whole, but rather by a small subset consisting of large, multinational corporations [and] [s]mall- and medium-sized enterprises, which make up a large portion of the Internet economy, particularly in areas still vibrant with entrepreneurship and growth, were thus underrepresented and greatly disadvantaged").

434. *Id.* at 456 ("[R]egardless of procedural rules [in a multistakeholder process], the deck was stacked against civil society given that a good result for industry would be for the [process] to achieve no result at all.").

435. *Id.* at 455–56.

opinion or that of certain demographic or market groups they are said to represent.[436] These concerns about representation can derail the process or undermine the legitimacy of multistakeholder outcomes. Notably, such concerns led to a walkout during the "Do Not Track" discussions by some non-profit advocacy organizations.[437]

Generally speaking, agencies should follow the formalities set out under the APA, even when engaging in "softer" forms of policymaking.[438] The incorporation of a notice and comment procedure into an agency's soft law activities are not particularly onerous.[439] And posting notices or agency determinations in the *Federal Register* does not seem like too much to ask. In fact, many agencies have already been doing both these things for agency workshops and multistakeholder processes.[440] Issuing soft law regulatory changes for comments, however, carries the risk of public backlash. The recent hostility over proposed FCC changes to its Open Internet Order,[441] for example, illustrates why some agencies may prefer to keep soft law mechanisms more informal rather than deal with public or industry outcry from a middle-of-the-road approach.

Agencies also need to be more careful about using other informal mechanisms. On the one hand, using social media platforms (such as Twitter) can be applauded as an admirable way of informing the public of new agencies' activities and engaging in public dialogue. Yet when an agency comments publicly via social media about new agency reports and documents, it is unclear (a) whether those statements should be construed as agency interpretations, and (b) what force these statements may have later.[442] At least under the APA, these are not clearly defined policy vehicles or legal instruments, and agencies should understand that noble attempts to "clarify" new standards via social media may

436. *Id.* at 455.

437. *Id.*

438. *See* Final Bulletin for Agency Good Guidance Practices, 72 Fed. Reg. 3432 (Jan. 25, 2007).

439. *See, e.g.*, *supra* Section I.

440. *See* CREWS, *supra* note 28; *see also*, FOOD & DRUG ADMIN., FOOD AND DRUG ADMINISTRATION REPORT ON GOOD GUIDANCE PRACTICES: IMPROVING EFFICIENCY AND TRANSPARENCY (2011), https://www.fda.gov/downloads/AboutFDA/Transparency/TransparencyInitiative/UCM285124.pdf [https://perma.cc/CZ38-5TGM].

441. *See* David French, *Constant Hysterics Damage Our Democracy,* NAT'L REV. (Dec. 15, 2017, 7:25 PM), https://www.nationalreview.com/2017/12/net-neutrality-hysteria-constant-hysterics-damage-democracy/ [https://perma.cc/VN7B-BEHX].

442. *See* Elizabeth Landers, *White House: Trump's Tweets are 'Official Statements*,' CNN: POLITICS (June 6, 2017, 4:37 PM) http://www.cnn.com/2017/06/06/politics/trump-tweets-official-statements/index.html [https://perma.cc/A65S-DJ75]; Dahlia Lithwick, *Trump's Tweets Must Now Be Taken Seriously*, SLATE (June 12, 2017, 6:36 PM), http://www.slate.com/articles/news_and_politics/jurisprudence/2017/06/the_9th_circuit_just_decreed_that_trump_s_twitter_feed_must_be_taken_seriously.html [https://perma.cc/2Y68-YKXY].

actually make things more confusing.[443] It would be better for agencies to clarify whether social media posts are legally binding agency statements. After all, the FDA has issued guidance and admonishment related to how regulated companies use social media,[444] and there is no reason why agencies cannot issue similar such guidance for their own use.

Concerns over delegation and deference are not new and are not isolated to the technology policy area.[445] Such concerns are highly relevant to any discussion of soft law administrative actions.

E. Delegated Policymaking: Congress and the Courts

There has long existed broad, non-partisan concern about the accountability and legitimacy of delegated policymaking. This concern is not without merit. However, after nearly 50 years of debate, it seems Congress is unable or unwilling to address the issue in a substantive manner. While recent use of the Congressional Review Act and attempts to update the APA for greater congressional oversight show promise, the overarching stagnation of Congress means it is unlikely that some degree of moderate delegation will ever truly end. Discussion of congressional delegation is the subject of much more scholarship, and we do not attempt to resolve the issue here; however, we do wish to briefly acknowledge it due to its relevance to any discussion of agency actions and the administrative state.

Of course, transfers of legislative or judicial power from the legislative branch to executive branch agencies call into question the democratic accountability and legitimacy of such actions. This transfer of rulemaking authority "means that law is no longer formulated by those who are required to address citizens as constituents. Instead, professional or administrative criteria become paramount and the standards to be implemented are set by enforcers rather than with the consent of the governed."[446]

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443. *See* OFFICE OF THE FED. REGISTER, A GUIDE TO THE RULEMAKING PROCESS (n.d.), https://www.federalregister.gov/uploads/2011/01/the_rulemaking_process.pdf [https://perma.cc/Y5E3-BJ46].

444. Letter from Robert Dean, Div. Dir, Food & Drug Admin., to Eric Gervais, Exec. Vice President, Duchesnay, Inc. (Aug. 7, 2015), https://www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation/EnforcementActivitiesbyFDA/WarningLettersandNoticeofViolationLetterstoPharmaceuticalCcompanies/UCM457961.pdf [https://perma.cc/T5WK-JFHQ]; Thomas Abrams, *FDA Issues Draft Guidance for Industry on Social Media and Internet Communications About Medical Products*, ECN MAG. (June 18, 2014, 2:27 PM), https://www.ecnmag.com/blog/2014/06/fda-issues-draft-guidances-industry-social-media-and-internet-communications-about-medical-products [https://perma.cc/AFY8-57RS].

445. *See infra* Section IV.E.

446. Vincent Ostrom & Barbara Allen, *The Continuing Constitutional Crisis in American Government*, *in* THE INTELLECTUAL CRISIS IN AMERICAN PUBLIC ADMINISTRATION 116, 130 (Vincent Ostrom ed., 3d ed. 2008).

Additionally, such transfers also raise the concern that "[p]lacing rulemaking in the hands of enforcers rather than legislators, who face citizens as constituents, is yielding a transformation in the nature of law."[447]

1. Congressional Delegation

Still, delegating authority to agencies does not leave Congress without any control over agency actions. Specifically, the appropriations power and the Congressional Review Act provide Congress continued oversight for agency actions after they have delegated the regulatory power to the agency. Agencies are sensitive to this, acutely aware that Congress has the ability to punish them through legislative action and the power of the purse and to embarrass them by bringing agency officials before Congress to explain their actions.[448]

Of course, the effectiveness of this oversight in part depends on Congress's willingness to carry through on such oversight. Additionally, the oversight alone does impact the policies and form of policies of an agency except on the margins.[449]

Congress has shown that it will act when it believes an agency has exceeded the appropriate use of delegated powers.[450] Previously, Congress exercised extreme restraint in undertaking such actions and only used its review powers in the most egregious cases.[451] However, at the start of the Trump administration, Congress overturned several administrative actions using the Congressional Review Act.[452] In the past, Congress has also shown a willingness to use its appropriations power to regulate an over-stepping agency; it did so in the late 1970s and early 1980s when

447. *Id.*

448. FRITSCHLER & RUDDER, *supra* note 13, at 81 ("It is difficult to generalize about the nature, quality, and ethics of congressional oversight. It can be weak in terms of both general policy guidance and influence on the millions of policy decisions that bureaucrats make. On the other hand, it can be devastating to an agency that out of ignorance or hubris defies the wishes of its small but powerful and important congressional constituency.").

449. *Id.* at 82.

450. Alden Abbot, *Targeting Federal Agency Regulatory Overreach through the Congressional Review Act (CRA)*, HERITAGE FOUND. (Feb. 27, 2017), https://www.heritage.org/government-regulation/commentary/targeting-federal-agency-regulatory-overreach-through-the [https://perma.cc/87HP-XGDX].

451. Stuart Shapiro, *The Congressional Review Act Rarely Used and (Almost Always) Unsuccessful*, HILL (Apr. 17, 2015), https://thehill.com/blogs/pundits-blog/lawmaker-news/239189-the-congressional-review-act-rarely-used-and-almost-always [https://perma.cc/DM4F-9M2Z].

452. Stephen Dinan, *GOP Rolled Back 14 of 15 Obama Rules Using Congressional Review Act*, WASH. TIMES (May 15, 2017), http://www.washingtontimes.com/news/2017/may/15/gop-rolled-back-14-of-15-obama-rules-using-congres/ [https://perma.cc/B8ZU-9ZLT].

threatening to shut down the FTC for its unregulated and unspecified expansion of power related to deceptive practices.[453]

Of course, agency heads have their own interests, including their positions, budget, and authority, and therefore are somewhat beholden to the political authorities that appoint them and fund their agencies. As a result, these agency actors may have just as concentrated an interest as their politically elected counterparts.[454]

Administrative law scholars have expressed particular concern about the potential for agencies to abuse powers that are broadly delegated.[455] Yet Congress has the power to rein in agencies or limit delegation. Perhaps, these concerns over delegation instead reflect the increasing ossification and non-responsiveness of the legislative process.[456]

Needless to say, such concerns will only be elevated as the use of soft law governance mechanisms becomes more common.

2. Judicial Delegation and Deference Standards

Soft law concerns are not limited merely to squabbles between the legislative and executive branches over checks and balances or authority. Rather, the courts' deference to agencies and view of separation of powers also greatly impact the enforceability and attraction of soft law actions. This is especially true when examining the deference the courts give to agency actions.

Chief Justice John Roberts has warned that "the danger posed by the growing power of the administrative state cannot be dismissed."[457] Excessive court deference to agency interpretations

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453. Geoffrey Manne & Berin Szoka, *Time for Congress to Stop the FTC's Power Grab on Antitrust Enforcement*, FORBES (Dec. 20, 2012, 2:24 PM), https://www.forbes.com/sites/beltway/2012/12/20/time-for-congress-to-stop-the-ftcs-power-grab-on-antitrust-enforcement/#16c3bb751fc8 [https://perma.cc/TFC9-L74U].

454. DAVID SCHOENBROD, POWER WITHOUT RESPONSIBILITY: HOW CONGRESS ABUSES THE PEOPLE THROUGH DELEGATION 13 (1993) ("Agency heads are usually not apolitical and, indeed, concentrated interests often prevail more easily in an agency than they can in Congress. Effective participation in agency lawmaking usually requires expensive legal representation as well as close connections to members of Congress who will pressure the agency on one's behalf. The agency itself is often closely linked with the industry it regulates. Not only large corporations, but also labor unions, cause-based groups, and other cohesive minority interests sometimes can use delegation to triumph over the interests of the larger part of the general public, which lacks the organization, finances, and know-how to participate as effectively in the administrative process.").

455. *E.g.*, RAUCH, *supra* note 178; Brito, *supra* note 361; Noah, *supra* note 89, at 873.

456. John D. Graham & James Broughel, *Regulation by Stealth: Time to Re-Examine Federal Agencies*, MERCATUS CTR. (July 22, 2014) ("In the end, however, much of the problem lies with Congress. It is Congress, after all, that delegates so much of its legislative authority to the executive branch. Congress needs to begin holding agencies accountable, through oversight, setting agency budgets, and legislation that more clearly defines agency duties and powers. Until Congress admits its own role in creating these problems, agencies will continue to evade the checks and balances that have been put in place over the last century, and the American public can have little faith that agency actions actually advance the public interest.").

457. City of Arlington v. FCC, 569 U.S. 290, 315 (2013) (Roberts, C.J., dissenting).

of their own statutory authority has led to an administrative state that "wields vast power and touches almost every aspect of daily life."[458]

By their nature, soft law mechanisms lack the same substantive expectations or direct enforceability of traditional "hard law" processes. This development raises various questions regarding the enforceability and legitimacy of soft law processes through the legal system. In this section, we examine a narrow slice of this controversy: what will happen when these soft law tools get challenged in court?

Thus far, there have not been significant legal challenges to recent tech-oriented soft law activities. This may be because those soft law processes followed many of the traditional requirements set forth in the APA in terms of public notices, and the opportunity for comments to be filed with the agency.[459] It may also be the case that affected parties played a role in shaping the final product outside traditional notice and comment and are thus unlikely to pursue legal action.[460] Or it may simply be because the soft law mechanisms lacked clear enforcement "teeth" and did not raise novel issues that anyone felt the need to challenge in court.[461]

Still, while these challenges have not yet reached the courts, it is important to understand the levels of deference (described in greater detail in Figure 2) agencies may face, to clearly understand the true power of soft law. Similarly, these standards provide greater insight into how to navigate potential judicial obstacles that may arise if and when such standards are challenged.

The matrix on the following page outlines the various standards of judicial deference that courts have developed in response to the extent of a federal agency's interpretation of its rulemaking authority.

458. *Id.* at 313.

459. *See* Cortez, *supra* note 87, at 206–17.

460. *See* Nick Sinai, *Sandboxing and Smart Regulation in an Age of A/B Testing*, TECHCRUNCH (Jan. 30, 2015), https://techcrunch.com/2015/01/30/sandboxing-and-smart-regulation-in-an-age-of-ab-testing/ [https://perma.cc/EGT3-GP3V].

461. *See* Cortez, *supra* note 87, at 187.

Judicial Standard	Level of Deference to Administrative Agency	When It Applies
Chevron[462]	Deference to agency interpretation unless unreasonable	Ambiguity in a statutory grant to an agency concerning the issue; agency has acted through formal or informal rulemaking
Skidmore[463]	Deference accorded assuming thoroughness, validity, consistency, and persuasiveness of action	Agency interpretations and statements that "lack the force of law"
Auer[464]	Controlling unless clearly erroneous	Agency interpretations of its own regulations

TABLE 1: VARIOUS STANDARDS OF JUDICIAL DEFERENCE

Under these judicial standards, courts are more likely to favor the agency's interpretations;[465] however, how much so depends on how the agency created the regulation and the purported source of authority to do so.

462. Chevron U.S.A., Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837 (1984).
463. Skidmore v. Swift & Co., 323 U.S. 134 (1944).
464. Auer v. Robbins, 519 U.S. 452 (1997).
465. *See* DAVID BORGEN & JENNIFER LIU, SIGNIFICANT LEGAL DEVELOPMENTS IN WAGE & HOUR LAW: DEFERENCE STANDARDS 4–7 (2017), http://gbdhlegal.com/wp-content/uploads/article/NELA_Paper.2007.pdf [https://perma.cc/US7R-3TXC].

Chevron provides the highest level of deference to agency interpretations.[466] If Congress' statutory grant of authority was ambiguous and the agency has gone through formal or informal rulemaking processes, then the courts will be highly deferential to the agency's interpretation, provided that it is reasonable given the ambiguity in the original statutory language at issue.[467] Still, this deference is not absolute and requires ambiguity that would necessitate agency interpretation.[468] Under *Skidmore* deference, courts give persuasive weight to agency interpretations or reinterpretations made through subsequent agency actions—e.g., additional guidance documents, clarification letters, amicus briefs, etc.[469] *Skidmore* deference does not require there to be ambiguity in the original interpretation or guidance; it is designed to allow agencies to change interpretation or policy.[470] *Auer* deference provides a high level of deference to agency interpretations of its own regulations so long as that interpretation is not plainly erroneous or clearly a *post hoc* rationalization.[471]

In the end, all three standards are highly deferential toward agency interpretations and reinterpretations. *Chevron* remains the most deferential,[472] but the sort of soft law activities related to the disruptive technologies that we are witnessing today will likely increasingly implicate *Auer* and *Skidmore*.

3. Issues in Applying Judicial Deference to Soft Law

Both formal and informal guidance documents have become prevalent tools for agencies.[473] Yet there is no clear or established definition of what constitutes "guidance documents."[474] It also remains unclear whether guidance documents are as "voluntary" as agencies might insist, especially when the plain language of the documents makes clear demands of affected parties.[475] As a result, the appropriate deference due to these new soft law recommendations under the current standards may not be uniform, making it difficult to determine when and how they may be challenged in court. The D.C. Circuit questioned the potential misuse of agency guidance power in *Appalachian Power Co. v. EPA*,

466. *Id.* at 4.
467. *Chevron*, 467 U.S. at 842–43.
468. *See* BORGEN & LIU, *supra* note 465, at 5.
469. Skidmore v. Swift & Co., 323 U.S. 134, 139–40 (1944).
470. BORGEN & LIU, *supra* note 465, at 6–7.
471. Auer v. Robbins, 519 U.S. 452, 462–63 (1997).
472. *See* BORGEN & LIU, *supra* note 465, at 4–7.
473. *See* CREWS, *supra* note 28.
474. *Id.*
475. Adam Thierer, *DOT's Driverless Cars Guidance: Will "Agency Threats" Rule the Future?*, TECH. LIBERATION FRONT (Sept. 20, 2016), https://techliberation.com/2016/09/20/dots-driverless-cars-guidance-will-agency-threats-rule-the-future/ [https://perma.cc/K49L-GKHL].

stating that the result is law made "without notice and comment, without public participation, and without publication in the *Federal Register* or the *Code of Federal Regulations*."[476] The problem of uncertainty stifling innovation takes on greater weight when an agency has the ability to enforce a "recommendation" for emerging technologies with little to no warning or input.[477]

Drawing on the use of soft law in other sectors can potentially help with inferring how to use soft law in the emerging technology regulations context. In *Perez v. Mortgage Bankers Association*, for instance, the Department of Labor had issued a 2006 opinion letter stating that, under the Fair Labor Standards Act (FLSA), mortgage officers are generally non-exempt employees.[478] In 2010, the Department of Labor issued an Administrative Interpretation withdrawing the 2006 opinion letter and stating instead that mortgage officers fall under the administrative exemption of the 2004 FLSA regulations.[479] As interpretative rules, neither of these opinions had required procedural notice and comment. The Supreme Court held that the notice and comment procedure is not required when an agency is changing its interpretation of previously-issued interpretative rules or guidance.[480] The Court did, however, note that agencies are "require[d] to provide more substantial justification when 'its new policy rests upon factual findings that contradict those which underlay its prior policy; or when its prior policy has engendered serious reliance interests.'"[481]

Likewise, the courts have at least questioned the scope of deference regarding an agency's ability to determine its jurisdiction when such jurisdiction is ambiguous. In *City of Arlington v. FCC,* the Supreme Court held that an agency's interpretation of the scope of its jurisdiction is subject to *Chevron* deference when the statutory grant of authority is ambiguous.[482] However, Chief Justice Roberts and his fellow dissenters sought to distinguish such questions from more typical administrative actions.[483] They argued that it was for the courts to determine if an agency was entitled to interpretive authority "because Congress has conferred on the agency interpretative authority over the question at issue."[484] Roberts' dissent stated, "[a]n agency cannot exercise interpretative authority until it has it; the question whether an agency enjoys that authority must be decided by a court, *without deference to the*

476. Appalachian Power Co. v. EPA, 208 F.3d 1015, 1020 (D.C. Cir. 2000).
477. *See* Mark Seidenfeld, *Substituting Substantive for Procedural Review of Guidance Documents*, 90 TEX. L. REV. 331, 376 (2011).
478. Perez v. Mortg. Bankers Ass'n, 135 S. Ct. 1199, 1204 (2015).
479. *Id.* at 1204–05.
480. *Id.* at 1208–09.
481. *Id.* at 1209.
482. *See* City of Arlington v. FCC, 569 U.S. 290 (2013).
483. *Id.* at 312.
484. *Id.*

agency."[485] Justice Scalia, writing for the majority, rejected this distinction, arguing that it was too broad in scope for *de novo* judicial review of agency jurisdiction and would result in the force of agency actions becoming "unpredictable and destroy[ing] the whole stabilizing purpose of *Chevron*."[486] As a result, an agency may not egregiously overstep its bounds or claim authority over technology clearly delegated to another agency (the FAA cannot declare itself the regulator of high-speed rail, for example); however, when authority is ambiguous, the agency's own interpretation is likely to prevail.[487]

Chevron deference requires first that the Congressional expression of intent be ambiguous, and then that the agency interpretation of that ambiguity be reasonable.[488] Therefore, if an agency has been delegated to regulate certain related policy areas or provided with a catchall, the agency's interpretation of its own authority over emerging technology is likely valid under *City of Arlington*.[489]

The clearest example of how conflicts between emerging technology and judicial deference of the hard law era standards may play out through litigation is FlyteNow's recent challenge to the FAA's legal interpretation of the company's compliance with existing federal aviation regulations.[490] The FAA reinterpreted its definition of common carriage to be more expansive, thereby subjecting FlyteNow pilots to regulations which they were previously not subjected to, effectively rendering the business model illegal.[491] FlyteNow challenged the FAA's decision to expand this interpretation.[492]

Unfortunately, the D.C. Circuit ruled that, because the FAA was providing a reinterpretation of existing regulations, the agency was entitled to *Auer* deference.[493] This means that the agency's interpretations of its own regulations are given controlling weight

485. *Id.* (emphasis added).
486. *Id.* at 307.
487. *Id.*
488. Chevron U.S.A., Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837, 842–43 (1984).
489. City of Arlington v. FCC, 569 U.S. 290, 296–97 (2013).
490. Stewart B. Herman & Timothy J. Lynes, *Flytenow v. FAA Decision: Flight-Sharing Requires FAA Part 119 Certification,* NAT'L L. REV. (Mar. 1, 2016), https://www.natlawreview.com/article/flytenow-v-faa-decision-flight-sharing-requires-faa-part-119-certification [https://perma.cc/F5D3-CMMP].
491. Christopher Koopman, Defining Common Carriers: Flight Sharing, the FAA, and the Future of Aviation 3 (2017) (unpublished manuscript), https://www.mercatus.org/system/files/mercatus-koopman-common-carriers-flight-sharing-v1.pdf [https://perma.cc/GT25-ARSH].
492. Letter from Mark W. Bury, Acting Assistant Chief Counsel, Fed. Aviation Admin., to Gregory S. Winton, Aviation Law Firm (Aug. 14, 2014), https://www.faa.gov/about/office_org/headquarters_offices/agc/practice_areas/regulations/interpretations/data/interps/2014/winton-aviationlawfirm%20-%20(2014)%20legal%20interpretation.pdf [https://perma.cc/5T7F-9V37].
493. *See* Flytenow, Inc. v. FAA, 808 F.3d 882, 884 (D.C. Cir. 2015), *cert. denied*, 137 S. Ct. 618 (2017).

unless these interpretations are clearly erroneous or inconsistent with the regulations.[494] The application of *Auer*, in this case, showcases the breadth of agency power in determining a reasonable interpretation, which includes the ability to reinterpret definitions that had previously been established and generally accepted.[495]

For disruptive technologies, such deference presents three main challenges. First, an innovator cannot predict how an agency will reinterpret existing regulations, which may result in seemingly compliant activities being deemed illegal after the fact.[496] Second, agencies could attempt to use reinterpretations to shoehorn a new technology into a category that it does not properly fit. Finally, regulatory interpretations send a signal that innovation is not welcome and delay transformative changes.[497]

The courts will likely defer to the FAA's continued reinterpretations until Congress statutorily intervenes.[498] Such an intervention would be most helpful for long-standing definitions, such as common carriage, which may or may not have had time to evolve with technology.[499] Furthermore, subjecting such reinterpretations to notice and comment would foster a robust debate on the usefulness of the original regulation or definition. When agencies are changing long-standing traditional interpretations that regulated industries and individuals have relied upon, protecting APA-style processes would help ensure that such novel interpretations are consistent with legislative intent and democratic ideals.[500]

Because emerging technologies are often difficult to delimit or categorize, addressing deference to agency guidance or actions becomes problematic—especially when it is unclear whether the interpretation falls within the agency's jurisdiction.

Still, deference alone did not create the current regulatory quagmire, and providing deference creates certainty around enforceability for both innovators and regulators. While this certainty may not reach an ideal outcome, it at least provides a standard to challenge. In challenging the high level of deference when appropriate, disruptive technology can help advance a soft law mechanism that uses the benefits of the soft law process without allowing it to devolve into "soft despotism."[501]

494. Auer v. Robbins, 519 U.S. 452, 452–53 (1997).
495. *See Flytenow,* 808 F.3d at 889–90.
496. *See* Koopman, *supra* note 491, at 3–4.
497. Eli Dourado, *The FAA Is Constantly Thwarting Innovation*, SLATE (Feb. 17, 2016, 10:24 AM), http://www.slate.com/articles/technology/future_tense/2016/02/the_faa_is_constantly_thwarting_aviation_innovation.html [https://perma.cc/8UP8-B94J].
498. *See generally* Koopman, *supra* note 491.
499. *Id.*
500. *See* Graham & Liu, *supra* note 32, at 430.
501. *See infra* Section V.

V. ENSURING SOFT LAW DOES NOT DEVOLVE INTO "SOFT DESPOTISM"

It seems uncontroversial that "if a president or agency seeks to change regulatory policy, there are some basic administrative procedures that should be followed."[502] Adherence to these processes helps ensure greater transparency and accountability in the rulemaking process. Some administrative law scholars worry that "when presidents and their officers become accustomed to issuing binding administrative edicts, they can easily drift into utterly arbitrary and despotic acts," or what Philip Hamburger refers to as "soft despotism."[503] This is certainly a valid concern.

However, as noted throughout this paper, the steady growth of soft law efforts potentially makes such concerns even more acute because the process is even less constrained by formal administrative procedures. When confronted with this problem, critics of varying ideological perspectives usually argue that "Congress must reassert its lawmaking authority under Article I of the Constitution, and punish officials who engage in arbitrary behavior."[504] Such punishments could include using appropriations powers to cut funds to agencies that deliberately and repeatedly engage in such behavior or removing officials (including agency heads and cabinet-level officials) who encourage or engage in the behavior. On a smaller level, it could involve closer scrutiny requirements of agencies, including requiring Congressional review or more formal policy statements before an agency is able to take action.

A. Legislative Reform Efforts to Prevent Abuse of Soft Law

Scholars have outlined a wide variety of potential reform options aimed at curbing regulatory accumulation, curtailing the most costly rules, or at least bringing more transparency and accountability to the regulatory policymaking process.[505] Those reforms include a moratorium on new regulation, the compilation of an annual regulatory transparency report card, and expanded

502. Graham & Liu, *supra* note 32, at 430, 444 ("The lesson from this example is that regulators may be tempted, during settlement negotiations, to commit themselves to rulemakings that have not yet been analyzed from a cost-benefit perspective. If policymakers are serious about evidence-based regulatory reform, this practice needs to be restrained. Congress should consider new legislation that constrains agency powers to enter into such settlements without first conducting appropriate analysis to determine whether a rule is necessary and desirable. A public comment process is also needed before the agency makes the commitment. Congress should require that ample time be made available for public comments as well as for routine OMB review of the matter.").

503. HAMBURGER, *supra* note 378, at 508–09.

504. CREWS, *supra* note 28, at 45.

505. *See* Clyde Wayne Crews, Jr., *One Nation, Ungovernable? Confronting the Modern Regulatory State*, *in* WHAT AMERICA'S DECLINE IN ECONOMIC FREEDOM MEANS FOR ENTREPRENEURSHIP AND PROSPERITY 117, 123 (Donald J. Boudreaux ed., 2015).

resources for OIRA.[506] Similarly, lawmakers could implement legislative impact accounting, regulatory budgeting, regulatory review commissions, and hard caps on regulatory growth, to begin tackling this serious problem.[507]

All of these regulatory reform proposals have merit and are worthy of continued consideration; however, the prospects for comprehensive or even narrow regulatory reform seem dim. Most of these reform proposals have been under consideration for many years now, yet have failed to gain serious legislative traction. Meanwhile, possibly because of such regulatory reforms' inability to take root, the scope of federal regulation has steadily increased. Both the number of pages published in the *Federal Register* and the estimated budgetary costs of federal regulation have both grown precipitously over the past fifty years.[508]

Regardless, even if such reforms were implemented to address regulatory burdens, it is unclear how much, if any, impact such proposals would have on the soft law processes and mechanisms described in this paper. The informality of many soft law processes means that no "rules" are being implemented through traditional mechanisms. Most of these reform proposals are targeted at regulations that go through a traditional APA process.[509] As a result, it is difficult to know what, if any, impact they may have on the soft law mechanisms discussed earlier.

It may be the case that more formalized congressional or OIRA review is needed for the growing volume of soft criteria. Under the George W. Bush Administration, an executive order required agencies to submit "significant guidance" for review similar to that of formal rulemaking.[510] The Obama Administration repealed this requirement just two years later.[511] OMB still retained the right to review significant guidance, but even during the time that the Bush Administration's executive order was in effect, OIRA only reviewed one of over 400 FDA-issued guidance documents.[512] In order for such executive actions to yield more impactful reforms, they would have to broaden the definition of significant guidance for greater review. Even then, agencies could still attempt to escape such

506. *Id.* at 125.

507. Patrick McLaughlin & Michael Wilt, *Regulatory Accumulation: The Problem and Solutions*, MERCATUS CTR. (Sept. 27, 2017), https://www.mercatus.org/publications/regulatory-accumulation-problem-and-solutions [https://perma.cc/38EH-6W8X].

508. DUDLEY & BRITO, *supra* note 20, at 6–7.

509. McLaughlin & Wilt, *supra* note 507.

510. Exec. Order No. 13,422, 3 C.F.R. § 13,422 (2007).

511. Exec. Order No. 13,497, 3 C.F.R. § 13,497 (2009).

512. Richard Williams & James Broughel, *Where Is the OIRA Oversight of FDA Guidance Documents?*, MERCATUS CTR., (June 9, 2015), https://www.mercatus.org/publication/where-oira-oversight-fda-guidance-documents [https://perma.cc/V38P-G4GS].

review with more informal soft law processes rather than a formal issuance of guidance.

To the extent Congress wants to curtail soft law activities that are even less formal—such as multistakeholder processes, workshops, and best practice documents—the easiest way for it to do so would be to either directly order agencies to cease such activities altogether or, more simply, to cut the budgets of agencies that refused to limit such activities. This also seems unlikely, however, and leaves stepped-up oversight by relevant committees as the most practical way for Congress to influence federal agencies' soft law activities. Yet the prospect of either direct statutory constraints on soft law policymaking or agency budget cuts seems highly unlikely.

Congress could also address the level of deference accorded to regulatory activities. In January 2017, Rep. John Ratcliffe (R-TX) proposed the "Separation of Powers Restoration Act," which would demand that courts "decide de novo all relevant questions of law, including the interpretation of constitutional and statutory provisions, and rules made by agencies."[513] This bill would effectively end *Chevron* deference and require courts to apply stricter scrutiny of the scope of agency power.[514] But again, it is unclear whether this reform proposal would have any impact on soft law activities. This proposed legislation does include "major guidance" similar to the Bush Administration's executive order, but adds rules or guidance that are likely to have "significant adverse effects on . . . innovation" to the list of guidance and rules that would be subject to greater scrutiny.[515] Notably, the act adopts an expanded definition of "rule," which applies to rules that have a greater impact on small businesses.[516] Still, an expanded definition and more stringent oversight requirements would not address many of the soft law processes that agencies currently use.[517]

Clearly, such actions would impact *Chevron* deference and formal rulemaking; however, it is unclear whether such a legislative limitation would apply to more informal forms of soft law. These free-range agency actions more typically receive *Skidmore* or *Auer* deference. Additionally, formalizing such requirements might only lead to further administrative entrepreneurialism without having the desired impact, as seen

513. H.R. 76, 115th Cong. (2017).

514. Jarrett Dieterle, *Rep. John Ratcliffe on the Separation of Powers Restoration Act*, LEGBRANCH.COM, (Sept. 25, 2017), http://www.legbranch.com/theblog/2017/9/25/rep-john-ratcliffe-on-the-separation-of-powers-restoration-act [https://perma.cc/HF5E-C3QX].

515. H.R. 5, 115th Cong. (2017).

516. *Id.*

517. *Id.*

with the FDA's actions under the executive orders discussed above.[518]

B. Presidential Actions to Formalize Administrative Guidelines and BCA for Soft Law Enactments

While a president can take several steps to formalize regulatory reform, creating a more lasting version to accomplish significant changes in the administrative state would require congressional action, rather than an executive order. As seen with the rollback of the Bush-era Executive Order, executive orders do not create the guaranteed lasting regulatory change needed for true reform and can be easily undone by the next administration. A congressionally-passed statute would require much more action and heightened risk for an agency to overturn or circumvent than merely waiting for the next administration under an executive order.

Scholars have suggested that this could happen.[519]

But such a solution is not a silver bullet. Many agencies already formally or informally consider the costs and benefits of their actions. Encouraging a culture that would promote voluntary transparency and disclosure of such information as best practices could achieve the same result and also account for the more amorphous areas of soft law.[520]

Overall, it may be a regulatory culture shift that is needed. In such a change, agencies would embrace not only the new power and flexibility of soft law tools, but also transparency, dialogue, and restraint.

C. Opportunities for Increased Legislative Oversight

More generally, Congress also has an oversight role to play here—and not just when it comes to curtailing egregious agency threats. Many of the controversies associated with court deference to agency interpretations arise from poor congressional drafting of underlying statutes.[521] Agencies only have as much power as lawmakers say they do, but when Congress fails to clearly

518. *See* Williams & Broughel, *supra* note 512.

519. CURTIS W. COPELAND, ECONOMIC ANALYSIS AND INDEPENDENT REGULATORY AGENCIES 114 (2013), https://www.acus.gov/sites/default/files/documents/Copeland%20Final%20BCA%20Report%204-30-13.pdf [https://perma.cc/PA88-7CNN] (suggesting that "Congress could enact legislation clearly stating whether or not independent regulatory agencies should prepare cost-benefit or other types of economic analyses before issuing their rules. . . . Agency-specific or crosscutting legislation could also clearly indicate how independent regulatory agencies' cost-benefit analyses should be conducted").

520. *Id.*

521. *See* John F. Manning, *Inside Congress's Mind*, 115 COLUM. L. REV. 1911, 1949 (2015).

articulate and restrain agency power by statute, agencies will often take advantage of the process to be overly-creative (and expansive) in their reading of their authority.[522]

Ideally, if regulation of an emerging technology is necessary, Congress ought to speak directly to the issue and clarify what, if any, new regulatory authority is needed for those technologies and to what extent existing laws or agency rules should (or should not) cover those technologies. This could help ensure that if delegation is necessary, it is done as unambiguously as possible to provide notice and certainty to both regulators and regulated entities.

Again, if agencies overstep those boundaries, congressional oversight efforts become more essential to rein them in. Congress can preemptively do so by rewriting ambiguous legislation to control grants of agency authority, but can also do so retroactively via the "power of the purse."[523] The appropriations process provides Congress with a direct route to control agency budgets and encourage more accountability and transparency.[524] Congress previously exercised such control over the FTC following the agency's broad interpretation of its authority over unfair trade practices in the early 1970s.[525] After the related outcry, a Democrat-controlled Congress responded to the overreach by slashing the FTC's appropriations and requiring it to issue a formal policy statement on the use of its unfair trade practices power.[526] While Congress later codified the policy statement into law, this case study shows Congress can use its appropriations as well as its legislative power to curtail agency overreach.[527] Even when clarified and codified, such standards typically remain sufficiently broad to allow agencies flexibility and adaptability.

Finally, Congress could enact more formal regulatory reforms, such as the Regulatory Accountability Act[528] or the REINS Act,[529] which provide congressional oversight for significant regulatory actions. These proposed reforms would require congressional approval for major rule changes but might not have as significant an impact on guidance.[530] Still, by beginning to subject "significant" rule changes to congressional review, Congress can take back some

522. *See generally* JOHN F. MANNING & MATTHEW C. STEPHENSON, LEGISLATION AND REGULATION 767 (2d ed. 2013).
523. *Id.*
524. *See* Charles Tiefer, *Controlling Federal Agencies by Claims on Their Appropriations? The Takings Bill and the Power of the Purse*, 13 YALE J. ON REG. 501, 513 (1996).
525. Manne & Szoka, *supra* note 453.
526. *Id.*
527. *Id.*
528. H.R. 5, 115th Cong. (2017).
529. H.R. 26, 115th Cong. (2017).
530. *Id.*; H.R. 5.

control over agency decision-making and check the worst excesses.[531]

While Congress may not technically be able to overrule a court by legislation or limit the court's constitutional interpretations,[532] it can pass a law establishing a heightened level of evidence regarding the purpose of an administrative action.[533] For example, in Section 7 of the Federal Communications Act is a provision that places the burden of proof on an agency when trying to limit the use of a new technology.[534] Congress could shift the presumption of innocence more broadly to a new technology, thus creating the equivalent of an "innovator's presumption" across the administrative state.[535] This would force the burden of necessity upon those who want to limit a technology's use through regulatory requirements, rather than those who favor a more wait-and-see approach.[536]

Legislative oversight still has significant barriers and disadvantages. For example, for the reasons noted earlier in Section IV.E, growing dysfunction in the legislative branch makes it unlikely that these reforms will occur anytime soon. Meanwhile, agencies will undoubtedly continue to push the boundaries of their soft law authority.[537]

There are, of course, a few exceptions where Congress will overcome its dysfunction and address emerging technologies. Most recently, this has been seen in bills related to AVs that would pre-empt many state-level regulations and firmly establish federal control over certain aspects of the technology's research, testing, and deployment.[538] However, even in these cases, Congress has still acted more slowly than regulatory agencies or the states.[539] As a result, such congressional action most likely remains an exception when there is a growing consensus around the best regulatory

531. *See* Philip A. Wallach & Nicholas W. Zeppos, *How Powerful is the Congressional Review Act?*, BROOKINGS (Apr. 4, 2017), https://www.brookings.edu/research/how-powerful-is-the-congressional-review-act/ [https://perma.cc/5KNG-TQE9].

532. Leon Friedman, *Overruling the Court*, AM. PROSPECT (Dec. 19, 2001), http://prospect.org/article/overruling-court [https://perma.cc/V76Z-LT96].

533. *See, e.g.*, 42 C.F.R. § 1005.15 (2010) (setting the burden of proof for certain ALJ hearings).

534. *See* Brent Skorup, *Five Things the FCC Can Do to Promote Innovation*, PLAIN TEXT (Jan. 27, 2017), https://readplaintext.com/five-things-the-fcc-can-do-to-promote-innovation-16305b3e63d1 [https://perma.cc/NVK7-6QM5].

535. Adam Thierer, *Converting Permissionless Innovation into Public Policy: 3 Reforms*, PLAIN TEXT (Nov. 29, 2017), https://readplaintext.com/converting-permissionless-innovation-into-public-policy-3-reforms-8268fd2f3d71 [https://perma.cc/MT4H-UAZU].

536. *Id.*

537. *See* Stein, *supra* note 179.

538. S. 1885, 115th Cong. (2017); H.R. 3338, 115th Cong. (2017).

539. *See* Bradley Tusk, *Shockingly, Congress Acted Responsibly in Regulating Autonomous Cars . . . So What's Next?*, TECHCRUNCH (Sept. 10, 2017), https://techcrunch.com/2017/09/10/shockingly-congress-acted-responsibly-in-regulating-autonomous-cars-so-whats-next/ [https://perma.cc/695A-AYDE].

practices for a new technology or when it is clear the common law or agency actions risk serious harm. In short, legislation related to AVs is the exception to the rule of soft law in the modern era.

D. Reforming Judicial Oversight of Agency Actions

The limitations of executive orders and the ossification of legislative action leaves the courts as the principal check on agency overreach. This is especially relevant now that the era of nearly unlimited *Chevron* deference may be coming to a close.[540]

Although the courts remain highly deferential to agency interpretations in general, some have begun to show more restraint in granting such deference.[541] However, lower courts can only go so far and are still bound by previous Supreme Court decisions, such as *Chevron*.

Legislators seem aware that increased debate about the courts' deference to administrative actions is emerging. During his Senate confirmation hearing, Justice Neil Gorsuch was questioned on his opinion on the doctrine.[542] Prior to his appointment, Gorsuch wrote in his concurring opinion in *Gutierrez-Brizuela v. Lynch* that the *Chevron* doctrine allowed bureaucracy "to swallow huge amounts of core judicial and legislative power."[543] Similarly, Judge Kent Jordan of the Third Circuit recently questioned the negative impact of both *Chevron* and *Auer* deference on the proper separation of powers.[544] As discussed earlier, even Chief Justice Roberts has voiced concerns about the great deal of deference courts have given the administrative state.[545] Such a reassessment of agency deference is long overdue and would force agencies to be more careful about their soft law activities in the future.[546]

Limiting *Chevron*, however, would not fully solve concerns over judicial deference. The soft law issues addressed in this paper are not typically subject to *Chevron* deference and as a result, other judicial deference standards are more relevant to possible outcomes. Still, a judicial decision overturning or limiting *Chevron* deference would likely have a limiting impact—or at least call for a

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540. Jonathan H. Adler, *Another Federal Judge Questions Chevron Deference*, WASH. POST: VOLOKH CONSPIRACY (Mar. 25, 2017), https://www.washingtonpost.com/news/volokh-conspiracy/wp/2017/03/25/another-federal-judge-questions-chevron-deference/ [https://perma.cc/2KWJ-7BX3].

541. *Id.*

542. Tessa Berenson, *How Neil Gorsuch Could Dramatically Reshape Government*, TIME (Mar. 19, 2017), http://time.com/4701114/neil-gorsuch-confirmation-hearing-chevron-doctrine/ [https://perma.cc/TN8U-4PS9].

543. Gutierrez-Brizuela v. Lynch, 834 F.3d 1142, 1149 (10th Cir. 2016).

544. Adler, *supra* note 540.

545. City of Arlington v. FCC, 569 U.S. 290, 312 (2013) (Roberts, C.J., dissenting).

546. Ilya Somin, *Gorsuch Is Right About Chevron Deference*, WASH. POST (Mar. 25, 2017), https://www.washingtonpost.com/news/volokh-conspiracy/wp/2017/03/25/gorsuch-is-right-about-chevron-deference/?utm_term=.ae603603f60a [https://perma.cc/NF5F-3BFN].

renewed scrutiny of other standards of deference to agency decisions.

Furthermore, merely determining which soft law is subject to judicial review, and how, would help establish legal certainty for innovators and regulators.[547] But an alternative would be to establish the necessary standing and judicial oversight for regulated entities to challenge these less formal forms of regulation through the court, especially when such transparency did not previously exist.

Finally, it is worth noting that similar soft law trends are playing out at the state and local levels in various ways. These actions are particularly relevant in the AV and fintech industries. In such cases, the question of judicial deference is more complicated, but states generally follow a version of federal deference standards as applicable. *Chevron*, *Skidmore*, and *Auer* only apply to federal agencies and their actions.[548] State-level deference can vary.[549] This is the subject for another paper, but we can safely predict that many of the same issues raised here for federal soft law enactments will play out in the states in coming years.[550]

E. Agency-Based Safeguards

Congress could also establish oversight and safeguards for the most informal agency soft law actions, such as social media use and regulation by raised eyebrow. To make agency social media use more accountable, Congress could demand that agencies promulgate official guidelines regarding the nature and regulatory force of such comments and statements.[551] While this has recently become a larger debate in light of President Trump's widespread Twitter use, such standards must also be more formally stated for the social media presence of agencies and agencies' heads or principal officers.[552]

To limit the potential for abuse, Congress can take steps to rein in and limit delegation of open-ended powers to agencies in the

547. *See* Weiser, *supra* note 64, at 2023 ("[G]iven that there is no judicial oversight of best practices development, it is important that agencies pre-commit to a level of procedural regularity and fairness in how they develop them.").

548. Auer v. Robbins, 519 U.S. 452, 457 (1997); Chevron U.S.A., Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837, 842 (1984); Skidmore v. Swift & Co., 323 U.S. 134, 139 (1944).

549. *See* Knight, *supra* note 371.

550. *Id.*

551. *See* Broughel, *supra* note 97 ("[O]ne way to rein in abusive government use of social media may be to have the government write updated guidelines on the topic. The Office of Management and Budget is the logical agency to do this; it already writes guidelines for countless other regulatory agency functions. Such guidance should be published publicly in draft form in the Federal Register, it should be subject to rigorous third-party review (perhaps from the National Academy of Sciences) and the public should have adequate time to comment on the guidelines.").

552. *Id.*

future. At a minimum, legislators must make their regulatory intent and standards clearer *before* delegating authority to regulatory agencies, and if they fail to do so, courts should not be shy about declaring overly broad delegations of ambiguous authority to be presumptively invalid under the Constitution.[553]

Another positive deregulatory action would be the implementation of sunset provisions to require the reevaluation of effectiveness and ensure regulations do not become too cumulatively burdensome. Sunset provisions have been endorsed by a wide variety of scholars as a useful tool to encourage lawmakers and regulators to consider a little periodic house-cleaning.[554]

Sunsetting and reevaluating regulations become ever more important in light of the increasing speed of the pacing problem. If the same technology that was groundbreaking or relevant one, two, or five years ago is no longer groundbreaking or relevant, then the regulations that govern that technology should probably be reevaluated. Similarly, a provision could be created to mandate that a ruling stay in the guidance phase for only a set period of time before requiring more formal analysis and rulemaking to continue—a kind of "regulatory incubation" period.

Another solution to encourage regulatory housecleaning would be to apply the recent Trump Administration executive order regarding "one in, two out" more broadly to include guidance as well as more formal rules.[555] This would compel agencies to reevaluate the need for existing regulations, potentially helping ease the "volume of rules" problem identified in Section II.E. Of course, such an approach is not without tradeoffs. In an effort to require fewer regulations, agencies might default to broad, imprecise regulations rather than more appropriate, narrowly-tailored options. However, studies of smaller scale attempts have shown that these efforts typically do reduce the overall regulatory burden.[556]

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553. THEODORE J. LOWI, THE END OF LIBERALISM: THE SECOND REPUBLIC OF THE UNITED STATES 300 (2nd ed. 1979) ("The [Supreme] Court's rule must once again become one of declaring invalid and unconstitutional any delegation of power to an administrative agency or to the president that is not accompanied by clear standards of implementation.").

554. *See* Sofia Ranchordás, *Does Sharing Mean Caring? Regulating Innovation in the Sharing Economy*, 16 MINN. J.L., SCI. & TECH. 413, 451 (2015) ("Regulators can increase flexibility of regulations to accompany the pace of innovation both by including a sunset clause—which predetermines their expiry at the end of a certain period—or by experimenting with new rules. . . .Terminating regulations by employing sunset clauses or by experimenting on a small-scale can be useful to ensure that rules keep up with the changes in technology and society.").

555. Exec. Order No. 13,771, 82 Fed. Reg. 9339 (Jan. 30, 2017).

556. *See* N.S., THE BETTER REGULATION INITIATIVE (n.d.), https://novascotia.ca/lae/cci/docs/BR_Factsheet.pdf [https://perma.cc/JVY4-PX4W].

F. Consider Liberalization Opportunities and Deregulatory Alternatives

In many cases, efforts to exercise control over various technologies may not be necessary at all. Consumer welfare is often better served by allowing markets and culture to evolve naturally for some time to determine the appropriate tradeoffs between potential harms and benefits of technology.[557] Too often, attempts to promote consumer welfare for fear of the worst-case scenario prevent consumer choice and circumvent both the consumer and the innovator's personal responsibility.[558]

Policymakers should consider more tightly delimiting the horizons of the regulatory state and limiting its reach to only the most problematic issues. This increases not only the freedom of innovators, but also affords greater legitimacy and seriousness to those regulations and actions that agencies undertake.

Of course, this is a controversial proposal and one that hinges upon how "technological harm" is perceived and defined. That is a task for another paper. However, for purposes of this discussion, it is worth noting that overly expansive conceptions of "harm" should be avoided because agency resources are limited, and the pacing problem seems likely to continue accelerating.[559] Establishing clearer definitions for such harms would nonetheless be a good step towards greater certainty and objective standards for evaluating when such injuries have materialized.[560]

If that is indeed the case, policymakers should pick their battles wisely with an eye toward expending resources (and whatever control potential those resources have) on the most serious harms that are identified.

Similarly, far too many traditionally regulated sectors, such as transportation, telecommunications, and health, already have an inequitable playing field for new entrants. Too often incumbents push agencies to regulate disruptors in the same way, or even more stringently. Rather than solving a regulatory problem, "[a]symmetric regulation leads to distortions by providing protection to incumbents against the competition with new entrants."[561] Instead of trying to level the playing field by increasing the regulatory burdens across the industry, agencies should regulate new technologies at the lowest level until more regulation proves necessary. "[T]he solution is not to punish new

557. *See supra* Section IV.

558. *See* THIERER, *supra* note 109, at 83–84.

559. Koopman et al., *supra* note 418.

560. *See, e.g.*, Letter from Daniel Castro, Vice President, Info. Tech. & Innovation Found., and Alan McQuinn, Research Analyst, Info. Tech. & Innovation Found., to Fed. Trade Comm'n (Oct. 27, 2017), http://www2.itif.org/2017-informational-injury-comments.pdf [https://perma.cc/XYQ9-AHQ9].

561. Gervais, *supra* note 190, at 681.

innovations by simply rolling old regulatory regimes onto new technologies and sectors. The better alternative is to level the playing field by 'deregulating down' to put everyone on equal footing, not by 'regulating up' to achieve parity."[562]

CONCLUSION

We stand at a crossroads in terms of governance approaches for a great many emerging technologies. The era of hard law governance appears to be fading and the age of soft law is firmly underway. Scholars and policy advocates of quite different ideological dispositions may have reservations about this development, but that is unlikely to keep it from happening.

This paper has argued that many of those normative concerns about soft law regimes, while legitimate, will not be able to overcome the practical realities that are necessitating the increasing use of these formal governance mechanisms. It may also be the case that soft law mechanisms—especially those which incorporate multistakeholder processes—offer the best opportunity to achieve the sort of democratic deliberation and rough policy consensus that hard law regimes were supposed to advance but have either failed to or face formidable obstacles going forward.

It is our hope that these new mechanisms and processes come to offer a more "collaborative, transparent, adaptable system" of technological governance[563]—and one that accomplishes its goals without suffocating new types of life-enriching innovation.

In that sense, much like Winston Churchill once famously said that democracy represented "the worst form of Government except for all those other forms that have been tried from time to time," it may be the case that soft law represents the worst form of technological governance except for all those others that have been tried before.[564]

562. Christopher Koopman et al., *The Sharing Economy and Consumer Protection Regulation: The Case for Policy Change*, 8 J. BUS., ENTREPRENEURSHIP, & L. 529, 544 (2015).

563. Mandel, *supra* note 2, at 91.

564. Adam Thierer, Does "Permissionless Innovation" Ever Mean Anything?, Remarks at the Fifth Annual Conference on Governance of Emerging Technologies: Law, Policy & Ethics at Arizona State University (May 18, 2017), https://techliberation.com/2017/05/18/does-permissionless-innovation-even-mean-anything [https://perma.cc/2ZJG-GXQK].