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THE MAJOR QUESTIONS DOCTRINE AND THE THREAT TO
REGULATING EMERGING TECHNOLOGIES

Walter G. Johnson* & Lucille M. Tournas[±]

Emerging technologies offer the potential to improve health and quality of life but also pose notable risks to safety, wellbeing, and equity. Law and technology scholarship posits that robust policy and regulatory strategies in the public interest are required to manage these complex benefits, risks, and uncertainties. At the same time, the Supreme Court in its recent jurisprudence appears eager to revitalize nondelegation legal norms, especially through the major questions doctrine—a shifting administrative law doctrine that increasingly appears to act as a clear statement rule when interpreting statutory grants of authority to regulatory agencies. This article argues the major questions doctrine and other aggressive implementations of nondelegation principles pose both direct and indirect challenges to the regulation of emerging technologies. These challenges often involve not only novel rulemaking but also “inherited regulation,” or the process of extending existing rules to capture emerging technologies. Particularly considering the political incapacitation of Congress, the major questions doctrine could pose significant legal challenges (and uncertainty), creating new policy and political issues in administrative agency efforts to manage emerging technologies. Empirical studies are needed to determine exactly how and where aggressive nondelegation canons, such as the major questions doctrine, impact the regulation of emerging technologies. Accordingly, the article concludes by reflecting on coming challenges and opportunities for which state and non-state regulators and stakeholders should be prepared.

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I. INTRODUCTION

Emerging technologies offer the potential to improve health and quality of life across a number of domains. From artificial intelligence (AI) to genome editing, research and development in myriad new technologies promise to provide new products, services, or business models that may result in new medical treatments, transportation opportunities, tools to combat the harmful effects of climate change, and so on.¹ The public sector is often just as closely involved in promoting research, innovation, and development for these positive purposes as the private sector—if not more.²

Of course, these nascent, innovative technologies may also pose notable risks and challenges, including by threatening or exacerbating safety, wellbeing, or equity outcomes within and across societies.³ These emerging technologies developed and implemented by both public and private sectors may also threaten fundamental rights and values, including core rule of law norms such as liberty, autonomy, and democracy.⁴ Any risk-benefit analysis for such innovations is often complicated by substantial uncertainty over how these potential positive and negative outcomes will evolve, how likely or significant they will be, or even substantial uncertainty over what outcomes are made possible by technology.⁵ Compounding these issues is the reality of a “pacing problem,” where the rate of new developments in science and technology often outstrips the capacity of legislatures, regulators,

¹ See generally ORG. FOR ECON. CO-OPERATION & DEV., OECD SCIENCE, TECHNOLOGY AND INNOVATION OUTLOOK 2021: TIMES OF CRISIS AND OPPORTUNITY (2021), Executive Summary available at www.oecd.org/sti/oecd-science-technology-and-innovation-outlook-25186167.htm.

² See generally MARIANA MAZZUCATO, THE ENTREPRENEURIAL STATE: DEBUNKING PUBLIC VS. PRIVATE SECTOR MYTHS (2013).

³ E.g., ORG. FOR ECON. CO-OPERATION & DEV., *supra* note 1; WORLD ECON. FORUM, GLOBAL TECHNOLOGY GOVERNANCE: A MULTISTAKEHOLDER APPROACH 6–7 (2019), available at www3.weforum.org/docs/WEF_Global_Technology_Governance.pdf.

⁴ E.g., JULIE E. COHEN, BETWEEN TRUTH AND POWER: THE LEGAL CONSTRUCTIONS OF INFORMATIONAL CAPITALISM 238–40 (2019); INT’L BIOETHICS COMM., REPORT OF THE INTERNATIONAL BIOETHICS COMMITTEE OF UNESCO (IBC) ON THE ETHICAL ISSUES OF NEUROTECHNOLOGY 4–7 (Dec. 15, 2021).

⁵ E.g., Jonathan Lewallen, *Emerging Technologies and Problem Definition Uncertainty: The Case of Cybersecurity*, 15 REGUL. & GOVERNANCE 1035, 1036–39 (2021).

and the judiciary to consider and ultimately codify new legal rules to govern such innovations.⁶

Law and technology scholarship posits that robust, effective policy and regulatory strategies are required to manage these complex benefits, risks, and uncertainties to promote safe communities, protect the public health, and address equity issues.⁷ Indeed, meaningful (even if imperfect) oversight of technology benefits from comprehensive definitions of “regulation” highlighting various types of actors and tools that can engage in the regulatory project.⁸ The complexity of managing emerging technologies creates a need for regulatory and policy systems to strive for agility, flexibility, and responsiveness.⁹ Perhaps the most straightforward approach would entail enacting federal legislation setting forth a *sui generis* regulatory framework and clear regulatory body to administer that framework. Unfortunately, this often does not occur for new technologies, given issues around the “pacing problem.”¹⁰ Yet, there are other approaches for regulators and stakeholders to craft meaningful governance systems. One common option includes the use of “inherited regulation,” where regulators extend existing rules and regulatory frameworks (rather than creating new ones) to nascent technology—often in an incremental manner.¹¹ In the presence of legislative gridlock, crafting novel and efficacious

⁶ See generally THE GROWING GAP BETWEEN EMERGING TECHNOLOGIES AND LEGAL-ETHICAL OVERSIGHT (Gary E. Marchant, Braden R. Allenby & Joseph R. Herkert eds., 7th ed. 2011).

⁷ See generally *Law, Regulation, and Technology: The Field, Frame, and Focal Questions*, in THE OXFORD HANDBOOK OF LAW, REGULATION AND TECHNOLOGY (Roger Brownsword, Eloise Scotford & Karen Yeung eds., 2017).

⁸ Julia Black offers an often cited, broad definition of regulation that does not distinguish between state and non-state entities as regulators: “regulation is the sustained and focused attempt to alter the behaviour of others according to defined standards or purposes with the intention of producing a broadly identified outcome or outcomes, which may involve mechanisms of standard-setting, information-gathering and behaviour-modification.” Julia Black, *Critical Reflections on Regulation*, 27 AUSTL. J. LEGAL PHIL. 1, 20 (2002); see also Christine Parker & John Braithwaite, *Regulation*, in OXFORD HANDBOOK OF LEGAL STUDIES 119 (Mark Tushnet & Peter Cane eds., 2005) (“On this broadest view, regulation means influencing the flow of events.”).

⁹ E.g., Seung-Hun Hong, Jonghan Lee, Sanghoon Jang & Ha Hwang, *Making Regulation Flexible for the Governance of Disruptive Innovation: A Comparative Study of AVs Regulation in the United Kingdom and South Korea*, 29 J. EUR. PUB. POL’Y 1845–50 (2022); WORLD ECON. FORUM, *supra* note 1, at 10–11.

¹⁰ E.g., Marchant et al., *supra* note 6.

¹¹ See *infra*, Part III.

regulatory interventions from existing rules or statutory authorities may become a primary method of establishing oversight for technological innovations with transformative but also potentially harmful impacts for society.¹²

At the same time, in the United States at least, recent changes in the composition of the Supreme Court may result in shifts in administrative law and the policy rationales underpinning this body of law.¹³ Recent jurisprudence from the Supreme Court appears to have established a push towards resurrecting or revitalizing one or more nondelegation “canons” with the overall effect of ratcheting up judicial review of regulatory actions.¹⁴ In particular, the major questions doctrine – which appears to be evolving into a harsh clear statement rule for interpreting congressional delegations to administrative agencies – has become the subject of great scrutiny from scholars and jurists, who often seek to adjudicate broader constitutional and normative issues of separation of powers and the role of the state through this doctrine.¹⁵ The judiciary may adopt varying approaches to these doctrines and their rationales over time.¹⁶ Ultimately, however, there appears to be an emerging consensus on the Supreme Court that administrative law should be redefined to require that the judiciary

¹² See Jody Freeman & David B. Spence, *Old Statutes, New Problems*, 163 U. PA. L. REV. 1, 2–3 (2014); Elen Stokes, *Nanotechnology and the Products of Inherited Regulation*, 39 J.L. & SOC’Y 93, 94–95 (2012).

¹³ See Beau J. Baumann, *Americana Administrative Law*, 111 GEO. L.J. (forthcoming 2023) (manuscript at 21–22, 26–27, 29–30), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4033753; Mark A. Lemley, *The Imperial Supreme Court*, 136 HARV. L. REV. F. 97 (2022) (manuscript at 1–3, 16–21), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4175554; see generally Daniel T. Deacon & Leah M. Litman, *The New Major Questions Doctrine*, 109 VA. L. REV. (forthcoming 2023), https://repository.law.umich.edu/cgi/viewcontent.cgi?article=1350&context=law_econ_current.

¹⁴ See Cass R. Sunstein, *Nondelegation Canons*, 67 U. CHI. L. REV. 315, 330–35 (2000) (defining “nondelegation canons” as an array of canons holding “a clear congressional statement is necessary” for certain agency action, rather than a single nondelegation doctrine).

¹⁵ See generally Blake Emerson, *Administrative Answers to Major Questions: On the Democratic Legitimacy of Agency Statutory Interpretations*, 102 MINN. L. REV. 2019 (2018).

¹⁶ See generally Richard M. Re, *Personal Precedent at the Supreme Court*, 137 HARV. L. REV. (forthcoming), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4068518.

strike down regulatory agency decisions that courts determine exceed their congressional authorization.¹⁷

Should this aggressive assertion of nondelegation principles occur, especially through the major questions doctrine, regulatory bodies may be stripped of critical policy tools and political support needed to facilitate the oversight of emerging technologies. With Congress poorly situated to respond appropriately, these doctrines could pose significant legal challenges and create new policy issues for regulators aiming to manage emerging technologies.¹⁸ More fundamentally, the major questions doctrine's expansion of nondelegation principles aiming to promote rule of law norms may instead threaten to undermine these same values through corroding meaningful public oversight of innovation and technology development. Of course, technological development for good or for ill is not predetermined and outcomes depend on social and political economic processes and choices.¹⁹ Yet, public law and regulation offer vital (but not exhaustive) levers for modulating the goals and directions of innovation to push for more socially beneficial outcomes.²⁰ In an era of "regulatory capitalism," thoughtful and responsive regulatory institutions are needed to promote societal freedoms and guide the responsible development and use of technologies.²¹

In this article, we explore possible consequences for the regulation of emerging technologies in the United States should the judiciary advance such restrictive legal doctrines that aggressively strip regulatory agencies of the ability to craft new rules and flexibility to adapt pre-existing law or rules to new circumstances.²² In Part II, we open by briefly reviewing nondelegation and the rise of the major questions doctrine before examining recent Supreme Court jurisprudence on the doctrine. Part III then turns to scholarly perspectives on regulatory policy for emerging technologies, raising the pacing problem paradigm but focusing on inherited regulation as a notable, if limited, policy tool. We incorporate the proceeding sections

¹⁷ See, e.g., *West Virginia v. Env't Prot. Agency*, 142 S. Ct. 2587 (2022).

¹⁸ See *infra*, Part IV.

¹⁹ See generally Audley Genus & Andy Stirling, *Collingridge and the Dilemma of Control: Towards Responsible and Accountable Innovation*, 47 RSCH. POL'Y 61 (2018); Thomas P. Hughes, *Technological Momentum*, in DOES TECHNOLOGY DRIVE HISTORY? THE DILEMMA OF TECHNOLOGICAL DETERMINISM (Leo Marx & Merritt Roe Smith eds., 1994).

²⁰ See generally Brownsword et al., *supra* note 7.

²¹ See JOHN BRAITHWAITE, *REGULATORY CAPITALISM: HOW IT WORKS, IDEAS FOR MAKING IT BETTER* 198–99 (2008).

²² In doing so, we do not aim to take an explicit legal position on the major questions doctrine itself.

in Part IV to explore and analyze how the evolving major questions doctrine is expected to threaten regulatory strategies for emerging technologies, as well as the policy and political implications of such doctrinal moves. Part V reflects on the coming challenges that administrative law and political systems—primarily in the form of the major questions doctrine—may pose for regulating emerging technologies, in addition to considering other available regulatory tools and the potential need for new narratives about public oversight of emerging technology.²³

II. EVOLVING NONDELEGATION CANONS

Administrative law in conjunction with regulatory policy and practice has been fraught with legal, political, and normative conflicts for over a century in the United States.²⁴ This has affected technology policy as well as any other sector.²⁵ In the past several decades, judicial deference to administrative agency interpretations of statutes has

²³ Before proceeding, we wish to make an important qualification. We would note that regulation for emerging technologies is neither a silver bullet nor a necessarily positive intervention and will depend on institutional factors such as accountability as well as broader considerations including geopolitical and global political economic forces. Instead, robust and coordinated regulation in the public interest provided by both state and non-state actors provides one primary (but not exclusive) means of placing meaningful checks on private power and promoting non-domination in the setting of rapid technological innovation. Here, we take issue with the major questions doctrine given its potential to cut into agile and adaptive regulatory systems, with implications for state *and* non-state regulation, thereby interfering with the democratic governance of emerging technologies and elevating private power over public health, safety, and equity.

²⁴ See generally Gillian E. Metzger, *1930s Redux: The Administrative State Under Siege*, 131 HARV. L. REV. 1 (2017).

²⁵ For example, a case that would go on to be used as support for the major questions doctrine focused on issues of deference to an agency on an element of its telecommunications regulatory framework dating back to the early 1980s, grounded in a 1934 statute. See *MCI Telecomm. Corp. v. AT&T*, 512 U.S. 218, 220–23, 229 (1994) (“Since an agency’s interpretation of a statute is not entitled to deference when it goes beyond the meaning that the statute can bear, . . . the Commission’s permissive detariffing policy can be justified only if it makes a less than radical or fundamental change in the Act’s tariff-filing requirement.”).

become very controversial.²⁶ Garnering the most attention has been the *Chevron* doctrine, which—while peppered with caveats and carve-outs—generally directs courts to defer to an agency’s interpretation of ambiguous statutory text when the agency’s reading is considered reasonable.²⁷ Similarly, courts have generally deferred to reasonable agency interpretations of their finalized rules²⁸ and the scope of their own jurisdiction.²⁹ In *City of Arlington*, Justice Scalia, writing for the majority, even suggests that attempts to question agency interpretations regarding their jurisdiction are merely veiled attempts to weaken *Chevron* deference and allow unauthorized judicial policymaking power:

The false dichotomy between “jurisdictional” and “non-jurisdictional” agency interpretations may be no more than a bogeyman, but it is dangerous all the same. . . . [I]t is conjured by those with greater quarry in sight: Make no mistake—the ultimate target here is *Chevron* itself. Savvy challengers of agency action would play the “jurisdictional” card in every case. . . . The effect would be to transfer any number of interpretive decisions—archetypal *Chevron* questions, about how best to construe an ambiguous term in light of competing policy interests—from the agencies that administer the statutes to federal courts. We have cautioned that “judges ought to refrain from substituting their own interstitial lawmaking” for that of an agency. That is precisely what *Chevron* prevents.³⁰

However, over the past several years, the focus of this conflict in U.S. administrative law has begun to drift from *deference* and

²⁶ See, e.g., Cass R. Sunstein, *Law and Administration After Chevron*, 90 COLUM. L. REV. 2071, 2072–76 (1999).

²⁷ *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 842–45 (1984); see generally Cary Coglianese, *Chevron’s Interstitial Steps*, 85 GEO. WASH. L. REV. 1339 (2017).

²⁸ *Auer v. Robbins*, 519 U.S. 452, 461 (1997). The Court more recently seems skeptical of this doctrine, however. See *Kisor v. Wilke*, 139 S. Ct. 2400, 2414–18 (2019).

²⁹ *City of Arlington v. Fed. Comm’n Comm’n*, 569 U.S. 290, 307 (2013).

³⁰ *Id.* at 304–05 (citations omitted).

towards *delegation*.³¹ That is, attention appears to be shifting from whether courts should defer to an agency's interpretation of a statute to whether Congress has appropriately (or at all) delegated to agencies the decision-making authority they claim to support regulatory activities.³² Renewed attention to nondelegation principles has raised the specter of a new era for the nondelegation doctrine.³³ Beyond the classic nondelegation doctrine, scholars have identified many other established administrative legal canons as having nondelegation features—meaning, they aim to speak to separation of powers issues in the administrative state.³⁴ This jurisprudential shift may involve many “nondelegation canons,” not merely nondelegation in its classic doctrinal form.³⁵ Professor Sunstein argues this constellation of canons is united under the broader principle that “[e]xecutive agencies cannot make certain kinds of decisions unless Congress has explicitly authorized them to do so.”³⁶ Even canons that once focused judicial attention on deference—including the major question doctrine—have now received increasing interest by jurists and scholars seeking to target delegation, leading to concerns of scaling up attacks on

³¹ *E.g.*, Lisa Heinzerling, *Climate Change in the Supreme Court*, 386 NEW ENG. J. MED. 2255, 2256–57 (2022).

³² *See* Baumann, *supra* note 13, at 21–22, 26–27, 29–30; Nathan Richardson, *Antideference: COVID, Climate, and the Rise of the Major Questions Canon*, 108 VA. L. REV. ONLINE 174, 194–95 (2022); Marla D. Tortorice, *Nondelegation and the Major Questions Doctrine: Displacing Interpretive Power*, 67 BUFF. L. REV. 1075, 1075–78, 1130–31 (2019).

³³ *See generally* Julian Davis Mortenson & Nicholas Bagley, *Delegation at the Founding*, 121 COLUM. L. REV. 277 (2021); Ilan Wurman, *Nondelegation at the Founding*, 130 YALE L. REV. 1490 (2021).

³⁴ Sunstein, *supra* note 14, at 330–35; *see* Joshua S. Sellers, “Major Questions” Moderation, 87 GEO. WASH. L. REV. 930, 948–49 (2019); Cass R. Sunstein, *The American Nondelegation Doctrine*, 86 GEO. WASH. L. REV. 1181, 1184–85, 1192–93 (2018); *see generally* John F. Manning, *The Nondelegation Doctrine as a Canon of Avoidance*, 2000 SUP. CT. REV. 223 (2000).

³⁵ *See* Sunstein, *supra* note 14, at 316 (“What I mean to identify here are the *nondelegation canons*, not organized or recognized as such, but central to the operation of modern public law. These are nondelegation canons for the simple reason that they forbid administrative agencies from making decisions on their own.”).

³⁶ Sunstein, *American Nondelegation*, *supra* note 34, at 1182.

administrative authority or legitimacy.³⁷

In this Part, we review both established and evolving nondelegation canons with possible implications for the regulation of emerging technologies regarding the legal and political dimensions of Congressional delegation to administrative agencies.³⁸ While this Part reviews Supreme Court jurisprudence and commentary, it should be noted that lower federal courts will have some latitude to differentially implement these nondelegation canons, within the confines of *stare decisis*, as has occurred with *Chevron*.³⁹

A. *Traditional Nondelegation Doctrine*

Article 1, Section 1 of the U.S. Constitution has formally been interpreted to mean that all legislative powers are vested in Congress and therefore cannot be delegated.⁴⁰ The Vesting Clause of the Constitution arguably supports the direct democratic accountability of the legislative branch,⁴¹ but its meaning and application has been contested and modified by the Supreme Court. Yet the Court has also applied a more nuanced definition of delegation.⁴² In *Wayman v. Southard*, Chief Justice John Marshall wrote, “a general provision may be made, and power given to those who are to act under such general provisions, to fill up the details.”⁴³

The two cases where the Court struck down legislative delegation entirely are now generally seen as irregular and spurred by

³⁷ *Gundy v. United States*, 139 S. Ct. 2116, 2141 (2019) (Gorsuch, J., dissenting); see also Lisa Heinzerling, *The Power Canons*, 58 WM. & MARY L. REV. 1933, 1981–82 (2017) (arguing newer nondelegation canons “instruct Congress itself to speak clearly or to have its voice go unheard” and “are problematic independent of their rejection of deference under *Chevron*”); Lemley, *supra* note 13, at 4–5.

³⁸ See generally Blake Emerson, *Liberty and Democracy Through the Administrative State: A Critique of the Roberts Court’s Political Theory*, 73 HASTINGS L. J. 371 (2022).

³⁹ Kent Barnett & Christopher J. Walker, *Chevron in The Circuit Courts*, 116 MICH. L. REV. 1 (2017).

⁴⁰ U.S. CONST. art. 1, § 1.

⁴¹ *Arizona v. California*, 373 U.S. 546, 626 (1963) (Harlan, J., dissenting in part).

⁴² Yet, case law and its rationales does not always cohere well, with the Court at times strictly indicating “the legislative power of Congress cannot be delegated.” *United States v. Shreveport Grain & Elevator Co.*, 287 U.S. 77, 85 (1932).

⁴³ *Wayman v. Southard*, 23 U.S. 1, 43 (1825); see Mortenson & Bagley, *supra* note 33, at 279–80.

their historical context: both instances were connected with widening Presidential power associated with the New Deal agenda.⁴⁴ In *Panama Refining*,⁴⁵ the Court ruled that the Roosevelt Administration's authority to place restrictions on petroleum goods (when produced beyond state quotas) violated Constitutional nondelegation norms. The 1935 Court reasoned that vested legislative power was inappropriately passed to the executive, as Congress "declared no policy" but rather "left the matter to the President without standard or rule to be dealt with as he pleased."⁴⁶ The same year in *A.L.A. Schechter*, the Court struck down administrative rules regulating price, sale, and wages in the poultry industry, finding the authorizing statute lacking guiding standards for the executive.⁴⁷

Despite these two opinions, the Supreme Court has not formally struck down a legislative delegation to an administrative agency since the 1930s. The modern standard around nondelegation flows from *J.W. Hampton, Jr. & Co.*, in which the Court in 1928 upheld the President's authority, under the Tariff Act of 1922, to set and impose custom duties on imported goods.⁴⁸ The Court determined that Congress could appropriately delegate powers to the executive branch, even with some flexibility for administrators to make further decisions, so long as Congress "lay down by legislative act an intelligible principle" to guide and bind executive officials.⁴⁹ The *Mistretta* Court in 1989 reinforced the use of the intelligible principle standard by explicitly applying it to uphold a legislative delegation, finding that "in our increasingly complex society, replete with ever-changing and more technical problems, Congress simply cannot do its job absent an ability to delegate power under broad general directives."⁵⁰ Across multiple

⁴⁴ Metzger, *supra* note 24, at 87–88; *see generally* National Industrial Recovery Act of 1933, Pub. L. 73–67, 48 Stat. 195 (1933).

⁴⁵ *Panama Refining Co. v. Ryan*, 293 U.S. 388 (1935).

⁴⁶ *Id.* at 418, 430.

⁴⁷ *A.L.A. Schechter Poultry Corp. v. United States*, 295 U.S. 495, 529–30, 541–42 (1935).

⁴⁸ *J.W. Hampton, Jr. & Co. v. United States*, 276 U.S. 394, 410–11 (1928).

⁴⁹ *Id.* at 404–05, 409.

⁵⁰ *Mistretta v. United States*, 488 U.S. 361, 372–74 (1989). However, in Justice Scalia's dissent he rejected this broad interpretation of the intelligible principle, suggesting "[i]f rulemaking can be entirely unrelated to the exercise of judicial or executive powers, I foresee all manner of 'expert' bodies,

cases, the Court has consistently approved “Congress’s ability to delegate power under broad standards.”⁵¹

B. *Rise of the Major Questions Doctrine*

While many nondelegation canons have been established and relatively stable for decades, others have continued to evolve or have recently gained recognition at the Supreme Court. One example of the latter is the “cost-consideration canon” from *Michigan v. EPA*, which empowers courts to require administrative agencies to consider the costs of proposed regulation unless Congress has explicitly indicated otherwise.⁵² How this novel canon may be implemented or morph over time in federal courts remains unclear. An example of the former case of a continuously evolving nondelegation canon is the major questions doctrine, which appears unstable in the approximately three to four decades in which it has existed.⁵³ We briefly trace the major underpinnings to the doctrine below, but encourage interested readers to review more in-depth overviews.⁵⁴

One building block comes from *Industrial Union Department v. American Petroleum Institute* (i.e., “the Benzene” case), where a private party contested an Occupational Safety and Health Administration (OSHA) standard that lowered the level of permissible benzene workplace exposure.⁵⁵ A plurality of the Court in 1980 found that the agency’s statutory authority could not be read to permit such a

insulated from the political process, to which Congress will delegate various portions of its lawmaking responsibility.” *Id.* at 422 (Scalia, J., dissenting).

⁵¹ *Mistretta*, 488 U.S. at 373–74; *see also* Gundy, 139 S. Ct. at 2121, 2130; *Whitman v. Am. Trucking Ass’ns., Inc.*, 531 U. S. 457, 472–76 (2001).

⁵² *Michigan v. EPA*, 576 U.S. 743, 759–60 (2015); *see* Heinzerling, *supra* note 37, at 1968; Sunstein, *American Nondelegation*, *supra* note 34, at 1197–98.

⁵³ *See, e.g.*, Deacon & Litman, *supra* note 13, at 2–3; Cass R. Sunstein, *There are Two “Major Questions” Doctrines*, 73 ADMIN. L. REV. 475, 477–78, 480–82 (2021).

⁵⁴ *See e.g.*, Emerson, *supra* note 15, at 2033–41; Jacob Loshin & Aaron Nielson, *Hiding Nondelegation in Mouseholes*, 62 ADMIN. L. REV. 19, 26–45 (2010); Jonas J. Monast, *Major Questions About the Major Questions Doctrine*, 68 ADMIN. L. REV. 445, 453–62 (2016); Abigail Moncrieff, *Reincarnating the “Major Questions” Exception to Chevron Deference as a Doctrine of Non-Interference (Or Why Massachusetts v. EPA Got It Wrong)*, 60 ADMIN. L. REV. 593, 597–607 (2008); Nathan Richardson, *Keeping Big Cases from Making Bad Law: The Resurgent “Major Questions” Doctrine*, 49 CONN. L. REV. 355, 363–81 (2016); Sellers, *supra* note 34, at 939–45.

⁵⁵ *Indus. Union Dep’t v. Am. Petroleum Inst.*, 448 U.S. 607, 625–27, 630–40 (1980).

standard, concluding that “[i]n the absence of a clear mandate in the Act, it is unreasonable to assume that Congress intended to give the Secretary the unprecedented power over American industry,” and arguing the nondelegation doctrine would apply to an expansive construction of the statute.⁵⁶ A second building block comes from *MCI Telecommunications Corp. v. AT&T*,⁵⁷ where the Court disapproved of action by the Federal Communications Commission (FCC). The 1994 Court held “[i]t is highly unlikely that Congress would leave the determination of whether an industry will be entirely, or even substantially, rate-regulated to agency discretion” and took particular issue with delegation “through such a subtle device as permission to ‘modify’ rate-filing requirements.”⁵⁸ The opinion again formed a basis for judicial challenges to the scope of delegation based on the significance of the authority claimed by an agency, particularly when agency decision-making would alter the core regulatory framework.⁵⁹

In *FDA v. Brown & Williamson*, the Court in 2000 articulated a clearer iteration of the major questions doctrine to block FDA regulation of tobacco products under its existing authority to oversee medical products.⁶⁰ The majority denied to apply *Chevron* deference because “[i]n extraordinary cases . . . there may be reason to hesitate before concluding that Congress has intended such an implicit delegation.”⁶¹ The Court takes particular issue that the agency “asserted jurisdiction to regulate an industry constituting a significant portion of the American economy” and argues the agency’s authorizing

⁵⁶ *Id.* at 640–46 (referring to the Occupational Safety and Health Act, Pub. L. No. 91-596, 84 Stat. 1590 (1970) (amended 2004)); see Monast, *supra* note 54, at 455.

⁵⁷ *MCI Telecomm. Corp.*, 512 U.S. at 220–22, 231.

⁵⁸ *Id.* at 231.

⁵⁹ Sellers, *supra* note 34, at 940.

⁶⁰ *Food & Drug Admin. v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 160–61 (2000).

⁶¹ *Id.* at 159. The majority cites to an article published by Stephen Breyer prior to joining the Court to bolster their rationale, although Justice Breyer dissented in the case. See *id.* (citing Stephen Breyer, *Judicial Review of Questions of Law and Policy*, 38 ADMIN. L. REV. 363, 370 (1986)) (“A court may also ask whether the legal question is an important one. Congress is more likely to have focused upon, and answered, major questions, while leaving interstitial matters to answer themselves in the course of the statute’s daily administration”).

statute cannot be read to permit tobacco regulation.⁶² Subsequently, the majority concludes “that Congress could not have intended to delegate a decision of such economic and political significance to an agency in so cryptic a fashion.”⁶³ Undergirding this rationale was the finding that tobacco regulation would be inconsistent with the FDA’s authorizing statute as a whole, and that Congress had enacted legislation related to tobacco without expressly delegating regulatory authority to the agency.⁶⁴

In the 2000s, the Court issued two more opinions expanding on the major questions doctrine. Justice Scalia wrote for the majority in *Whitman v. Am. Trucking Ass’n*, citing *MCI* and reading it to mean “Congress . . . does not alter the fundamental details of a regulatory scheme in vague terms or ancillary provisions—it does not, one might say, hide elephants in mouseholes.”⁶⁵ In *Gonzales v. Oregon*, the Court cites *Whitman* and *Brown & Williamson* to again apply this rationale that the legislature cannot provide an agency “broad and unusual authority through an implicit delegation,” that is, without explicit legislative text.⁶⁶ Commentators have connected this elephants-in-mouseholes canon to nondelegation principles and the major question doctrine, identifying it as a canon requiring explicit statutory text – in particular and expected regions of a statute – to support agency decision-making resulting in notable increases in authority or significant changes to regulatory frameworks.⁶⁷

In 2014, the Court provided arguably its most definitive statement of the major questions doctrine to date with *UARG v. EPA*, declaring “[w]hen an agency claims to discover in a long-extant statute an unheralded power to regulate ‘a significant portion of the American economy’ . . . we typically greet its announcement with a measure of skepticism. We expect Congress to speak clearly if it wishes to assign to an agency decisions of vast ‘economic and political significance’.”⁶⁸ The majority opinion in *UARG* emphasizes judicial scrutiny for agencies aiming to extend authority provided by older statutes, decrying “an enormous and transformative expansion in . . . regulatory authority without clear congressional authorization.”⁶⁹ The Court

⁶² *Brown & Williamson*, 529 U.S. at 159; see Heinzerling, *supra* note 37, at 1950–51.

⁶³ *Brown & Williamson*, 529 U.S. at 160–61.

⁶⁴ *Id.* at 161.

⁶⁵ *Whitman*, 531 U.S. at 468.

⁶⁶ *Gonzales v. Oregon*, 546 U.S. 243, 267 (2006).

⁶⁷ Loshin & Nielson, *supra* note 54, at 21–24; Richardson, *supra* note 54, at 371–76.

⁶⁸ *Util. Air Regul. Grp. v. Env’t Prot. Agency*, 573 U.S. 302, 394 (2014).

⁶⁹ *Id.* at 306.

further appears to direct Congress to predict the future if it wishes to delegate authority to agencies navigating unforeseen circumstances.⁷⁰

The following year in *Burwell*, the Court further solidified the major questions doctrine by invoking it to reject deference to an agency's interpretation of an ambiguous statutory provision and then justifying the Court providing its own statutory interpretation.⁷¹ At least part of this rationale came from the perception of mismatch between the area of policy in the statute (health) and the expertise of the agency in question (tax law and policy), despite the statute actually assigning the contested authority to the Internal Revenue Service (IRS).⁷² Moreover, the *Burwell* Court appears to indicate that the judiciary can invoke the major question doctrine even when an agency has not made a decision to change course on policy, as in prior cases such as *MCI* or *Brown & Williamson*, as the decision targeted an agency's initial interpretation of new legislation.⁷³

C. Recent Nondelegation Jurisprudence

Nondelegation principles are arguably in the midst of a revival in the Supreme Court, pushing jurisprudence far from deference to agencies, especially through the major questions doctrine.⁷⁴ Scholars and jurists have become increasingly critical of the intelligible principle test, including Justice Gorsuch, who in 2019 referred to the standard as a “misadventure,” and the Court in recent years appears to be positioning itself to reassert some type of nondelegation doctrine,

⁷⁰ See Heinzerling, *supra* note 37, at 1947–49 (arguing “*UARG* privileges, in a new and very un-*Chevron* way, stasis over change” and “[t]he Court might as well have instructed Congress to fabricate a crystal ball”).

⁷¹ *King v. Burwell*, 576 U.S. 473, 484–89 (2015); see Abbe R. Gluck, *Imperfect Statutes, Imperfect Courts: Understanding Congress's Plan in the Era of Unorthodox Lawmaking*, 129 HARV. L. REV. 62, 93–96 (2015); Richardson, *supra* note 54, at 380.

⁷² *King*, 576 U.S. at 486 (“It is especially unlikely that Congress would have delegated this decision to the *IRS*, which has no expertise in crafting health insurance policy of this sort. This is not a case for the *IRS*.”) (citations omitted); see Heinzerling, *supra* note 37, at 1956, 1959. Some commentators have made efforts to read *Burwell* narrowly. See e.g., Mila Sohoni, *King's Domain*, 93 NOTRE DAME L. REV. 1419, 1421–22 (2018). However, more recent case law seems to take a more expansive view of past major questions jurisprudence. See Heinzerling, *supra* note 31, at 2255–57.

⁷³ See Emerson, *supra* note 15, at 2038–39.

⁷⁴ Ronald M. Levin, *The APA and the Assault on Deference*, 106 MICH. L. REV. 125, 125–30 (2022); Richardson, *supra* note 32, at 174–78.

even if not in the classic form.⁷⁵ Justices Thomas, Alito, Gorsuch, Kavanaugh, Barrett, and Chief Justice Roberts have all written or joined opinions in the last several years which either directly attack legislative delegations or raise separation of powers issues regarding delegations to administrative agencies.⁷⁶ One particularly notable opinion comes from Justice Gorsuch's dissent in *Gundy*, joined by Justice Thomas and the Chief Justice, arguing that legislative delegation to the U.S. Attorney General regarding sex offender rules "scrambles" the Constitutional norm "that only the people's elected representatives may adopt new federal laws restricting liberty."⁷⁷ The dissent suggests replacing the intelligible principle standard with another principle, where the legislature can only delegate power under three circumstances: (1) to "fill up the details"; (2) to "make the

⁷⁵ *Gundy*, 139 S. Ct. at 2141 (Gorsuch, J., dissenting). This reflects arguments from legal scholarship arguing a soft nondelegation doctrine acts as a rubber stamp to administrative action and threatens the core structure of the Constitution. See e.g., Ronald A. Cass, *Delegation Reconsidered: A Delegation Doctrine for the Modern Administrative State*, 40 HARV. J.L. & PUB. POL'Y 147, 151 (2017); Keith E. Whittington & Jason Iuliano, *The Myth of the Nondelegation Doctrine*, 165 U. PA. L. REV. 379, 429 (2017).

⁷⁶ See, e.g., *West Virginia*, 142 S. Ct. at 2609 (2022); *Gundy*, 139 S. Ct. at 2130–31 (2019) (Alito, J., concurring), 2131 (Gorsuch, J., dissenting) (joined by Thomas, J., and Roberts, C.J.); *Paul v. United States*, 140 S. Ct. 342, 342 (2019) (Kavanaugh, J., concurring) ("I write separately because Justice Gorsuch's scholarly analysis of the Constitution's nondelegation doctrine in his *Gundy* dissent may warrant further consideration in future cases."); *Dep't of Transp. v. Ass'n of Am. Railroads*, 135 S. Ct. 1225, 1237 (2015) (Alito, J., concurring) ("The principle that Congress cannot delegate away its vested powers exists to protect liberty It would dash the whole scheme if Congress could give its power away to an entity that is not constrained by those checkpoints."), 1250–52 (Thomas, J., concurring) ("Today, the Court has abandoned all pretense of enforcing a qualitative distinction between legislative and executive power. To the extent that the "intelligible principle" test was ever an adequate means of enforcing that distinction, it has been decoupled from the historical understanding of the legislative and executive powers and thus does not keep executive "lawmaking" within the bounds of inherent executive discretion We should return to the original meaning of the Constitution: The Government may create generally applicable rules of private conduct only through the proper exercise of legislative power. I accept that this would inhibit the Government from acting with the speed and efficiency Congress has sometimes found desirable."); *United States Telecom Ass'n v. FCC*, 855 F.3d 381, 417–18 (2017) (Kavanaugh, J., dissenting) (writing prior to joining the Supreme Court); *United States v. Nichols*, 784 F.3d 666, 669–77 (2015) (Gorsuch, J., dissenting) (writing prior to joining the Supreme Court).

⁷⁷ *Gundy*, 139 S. Ct. at 2131 (Gorsuch, J., dissenting).

application of [a] rule dependent on executive fact-finding”; or (3) to “assign the executive and judicial branches certain non-legislative responsibilities.”⁷⁸

Most recently, particularly with the recent shift to an interested supermajority on the Court, the major questions doctrine has become a central tool in advancing nondelegation principles in Supreme Court jurisprudence.⁷⁹ This past term of the Court had several cases where the major questions doctrine played a major role, although two came from the “shadow docket” and ostensibly lack formal binding authority.⁸⁰ First, the doctrine is found in a case where the Centers for Disease Control and Prevention (CDC) had aimed to use its powers under the Public Health Service Act to establish a moratorium on housing evictions in high risk counties, given the increased risk of COVID-19 infection for people experiencing homelessness.⁸¹ Despite the statute’s broad text, the Court applies major questions precedent to support its determination that “this provision has rarely been invoked—and never before to justify an eviction moratorium,” which “would give

⁷⁸ *Id.* at 2136–37; see also Jonathan Skinner-Thompson, *Administrative Law’s Extraordinary Cases*, 30 DUKE ENV’T. L. & POL’Y F. 293, 308–10 (2020).

⁷⁹ *Gundy*, 139 S. Ct. at 2141 (“While it’s been some time since the Court last held that a statute improperly delegated the legislative power to another branch . . . the Court has hardly abandoned the business of policing improper legislative delegations. When one legal doctrine becomes unavailable to do its intended work, the hydraulic pressures of our constitutional system sometimes shift the responsibility to different doctrines We still regularly rein in Congress’s efforts to delegate legislative power; we just call what we’re doing by different names. Consider, for example, the ‘major questions’ doctrine.”).

⁸⁰ See Harvey L. Reiter, *Expanding ‘Major Questions Doctrine’ Risks Regulatory Stability*, BLOOMBERG LAW (July 12, 2022) (“But the CDC and OSHA decisions were made in the court’s “shadow docket.” So, while there was ample reason to worry about the doctrine’s expansion, I was hopeful that decisions made in the “shadow docket” would not become entrenched and that the court—with the benefit of full briefing in a merits case—would walk back from the cliff.”). On the “shadow docket,” see generally William Baude, *Foreword: The Supreme Court’s Shadow Docket*, 9 N.Y.U. J.L. & LIBERTY 1 (2015); Richard J. Pierce, *The Supreme Court Should Eliminate Its Lawless Shadow Docket*, 74 ADMIN. L. REV. 1 (2022).

⁸¹ *Alabama Ass’n of Realtors v. Dep’t of Health & Human Serv.*, 141 S. Ct. 2485, 2493–94 (2021); see, e.g., *Temporary Halt in Residential Evictions to Prevent the Further Spread of COVID-19*, 85 Fed. Reg. 55292, 55294 (2020).

the CDC a breathtaking amount of authority.”⁸² In another pandemic related case, OSHA used its statutory authority to regulate “grave danger” and “new hazards” in the workplace to set an emergency COVID-19 vaccine mandate for many workplaces, which the Court quashed using the major questions doctrine.⁸³ Citing the previous CDC case, the Court determined “[p]ermitting OSHA to regulate the hazards of daily life—simply because most Americans have jobs and face those same risks while on the clock—would significantly expand OSHA’s regulatory authority without clear congressional authorization.”⁸⁴ Already, these opinions illustrate how the majorities ground determinations of which questions are “major” in part on the novelty and scope of the agency’s action and authority claimed.⁸⁵

The blockbuster major questions case this past year, however, came from *West Virginia v. EPA*.⁸⁶ In rejecting the Environmental Protection Agency’s (EPA) earlier efforts – later withdrawn – to develop new rules for power plants, the majority opinion firmly establishes the major questions doctrine as a legal instrument in its own right⁸⁷ and reaffirms the need for “clear congressional authorization”

⁸² *Alabama Ass’n of Realtors*, 141 S. Ct. at 2487, 2489 (citing *Utility Air Regulatory Group v. EPA*, 573 U.S. 302 (2014)), 2486 (“It strains credulity to believe that this statute grants the CDC the sweeping authority that it asserts”); see also 42 U.S.C. § 264(a) (conferring power “to make and enforce such regulations . . . are necessary to prevent the introduction, transmission, or spread of communicable diseases”).

⁸³ *Nat’l Fed’n Indep. Bus. v. Occupational Safety & Health Admin.*, 142 S. Ct. 661, 663 (2022); see COVID-19 Vaccination and Testing; Emergency Temporary Standard, 86 Fed. Reg. 61402 (2021).

⁸⁴ *Nat’l Fed’n Indep. Bus.*, 142 S. Ct. at 665 (explaining that the mandate was “a significant encroachment into the lives—and health—of a vast number of employees” and thus constitutes an exercise of agency “power[] of vast economic and political significance”).

⁸⁵ Deacon & Litman, *supra* note 13, at 15; see Lawrence O. Gostin, Wendy E. Parmet & Sara Rosenbaum, *The US Supreme Court’s Rulings on Large Business and Health Care Worker Vaccine Mandates*, 327 J. AM. MED. ASS’N 713, 713–14 (2022) (noting the majority’s concern that the regulation “affects an estimated 84 million workers”); James G. Hodge, Jr., et al. *Regressive Federalism, Rights Reversals, and the Public’s Health*, 50 J.L. MED. & ETHICS, 375 (2022).

⁸⁶ *West Virginia*, 142 S. Ct. at 2596.

⁸⁷ *Id.* at 2602–04, 2609–10 (declaring with striking clarity “this is a major questions case”); see also Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations, 84 Fed. Reg. 32520 (2019).

as its core standard⁸⁸—all without ever mentioning *Chevron*. In doing so, the Court highlights how “both separation of powers principles and a practical understanding of legislative intent” drive this new doctrine’s power to shut down regulatory policy “in certain extraordinary cases,” especially novel policy, even when statutes are interpreted reasonably. Revisiting the OSHA vaccine mandate case, the majority reiterated that a strong marker for major questions intervention came from their determination that the agency “had never relied on its authority to regulate occupational hazards to impose such a remarkable measure.”⁸⁹ Finding that the EPA’s regulatory efforts were both too novel and too broad for the agency and lacked painfully specific textual support in its authorizing statutes, the majority struck down the (withdrawn) policy and concluded that “[a] decision of such magnitude and consequence rests with Congress itself.”⁹⁰ These cases clearly reject Congress’ own understanding that its legislation can and does empower administrative agencies to make significant policy decisions within broader legislative guidance and oversight.⁹¹

Efforts to comprehensively understand the scope and

⁸⁸ *West Virginia*, 142 S. Ct. at 2602–04, 2609–10 (noting of the statute at issue in the previous case *URG*, “[d]espite its textual plausibility, we noted that the Agency’s interpretation would have given it [novel] authority over [regulated entities] . . . that had never before been subject to such requirements”), 2641–42 (Kagan, J., dissenting) (“The current Court is textualist only when being so suits it. When that method would frustrate broader goals, special canons like the ‘major questions doctrine’ magically appear as get-out-of-text-free cards.”). The majority opinion uses the fact that “the dangers posed by greenhouse gas emissions ‘had become well known, [yet] Congress considered and rejected’ multiple times” legislative reforms as a point to support their legislative intent analysis. *Id.* at 2614.

⁸⁹ *Id.*

⁹⁰ *Id.* at 2610, 2612–16; see also Deacon & Litman, *supra* note 13, at 48–51 (illustrating “the Court’s willingness to declare an agency policy major—and therefore require clear congressional authorization for it—based on the policy being a ‘novel’ one”).

⁹¹ See Blake Emerson, “Policy” in the *Administrative Procedure Act: Implications for Delegation, Deference, and Democracy*, 97 CHI.-KENT L. REV. (forthcoming) (manuscript at 113, 116–19, 129–45, 156–59), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4043899. Even strictly textualist analyses have concluded Congress presumes significant administrative agency rules are lawful unless it objects, under the Congressional Review Act. See Chad Squitieri, *Who Determines Majorness?*, 44 HARV. J.L. & PUB. POL’Y 463, 465–66, 491–95 (2021).

application of the major questions doctrine pose notable challenges.⁹² For instance, Heinzerling aims to differentiate between at least two types of major questions: those of strong economic and political significance and those of core importance to a statutory scheme.⁹³ Sunstein also discerns two different forms of the major question doctrine—a “weaker” variant more centered on issues of deference and a “stronger” one containing a clear statement rule that looks more towards delegation.⁹⁴ Ultimately, however, the doctrine continues to evolve and case law provides few, clear limiting principles or guidance in distinguishing major questions from less/non-major ones, complicating efforts to assess the scope and dimensions of the doctrine.⁹⁵ Professors Deacon and Litman provide a useful analysis by highlighting trends and higher level norms in the doctrine.⁹⁶ They conclude the current major questions doctrine appears more likely to engage when a regulatory policy becomes politically controversial, even if only to minority political groups, and when an agency issues policy aiming to tackle a novel issue with its existing authority.⁹⁷ Especially given the hostility to novel regulatory policy, we illustrate below how this shift towards more aggressive nondelegation norms vis-à-vis the major questions doctrine may threaten or complicate effective, coordinated governance over new science and technology.⁹⁸

III. INHERITED REGULATION AND EMERGING TECHNOLOGIES

Ongoing innovation around many emerging technologies across sectors offers real potential for improving health or quality of

⁹² Further, what issues are deemed politically and economically significant could also shift depending on the makeup of the court. Each justice invariably has their own “personal precedent” that functionally (if not legally) dictates how they decide new cases in front of them. *See Re, supra* note 16, at 3–18.

⁹³ *See* Heinzerling, *supra* note 37, at 1950–51.

⁹⁴ *See* Sunstein, *supra* note 53, at 477–80, 488–93; *see also* Baumann, *supra* note 13, at 3.

⁹⁵ *See* Monast, *supra* note 54, at 456; Sellers, *supra* note 34, at 946; Sunstein, *American Nondelegation, supra* note 34, at 1204–05.

⁹⁶ Deacon & Litman, *supra* note 13, at 5–6.

⁹⁷ *Id.* at 32–37, 48–51; *see also* Emerson, *supra* note 15, at 2033–41 (illustrating how the major questions doctrine “has gradually expanded . . . into a general presumption that important questions are simply inappropriate for agency resolution”); Richardson, *supra* note 32, at 174, 201–02 (arguing the current major questions doctrine “adds a new veto point to the American political system, licensing judges to reject any delegation of power they deem economically or politically significant with little regard for statutory text”).

⁹⁸ *See infra*, Part IV.

life, as well as real risks to health, safety, and the environment. Beyond immediate concerns for human health and the environment, emerging technologies also raise broader, systemic issues that cry out for regulation, including threats to fundamental values and rights such as liberty, privacy, and equity. For example, AI in medicine may provide improved therapeutics, but can still lack efficacy and may reproduce or exacerbate discrimination in health care.⁹⁹ Innovations in animal and plant genomics could provide better food yields and reduce the spread of infectious diseases, but pose significant uncertainties in their long-term environmental consequences.¹⁰⁰ Digital technologies enable improved communication and new types of services just as much as they provide new routes to exploiting the data of individuals and populations, disseminating mis- and dis-information, and fostering hostility, poor mental health, or even violence.¹⁰¹

Law and technology scholarship has long held (though not unanimously) that robust regulatory frameworks, strategies, and approaches are required to manage these interacting benefits, risks, and uncertainties of emerging technologies. Technology itself and its development and use by private and public actors can lead to threats to fundamental values such as liberty and equity, so robust regulation of and by state and nonstate actors is needed to secure these values in novel, rapidly evolving contexts.¹⁰² The rising dominance of private industry power in the technology space and complexity of managing innovation more broadly raise challenging questions about how human dignity and wellbeing can be secured, with government regulation presenting a highly valuable (albeit imperfect) avenue for reasserting the public interest.¹⁰³ Governments and nonstate actors around the world have deployed various types of regulatory frameworks, strategies, and interventions to address these policy issues, and we start from the normative position that government regulation has a crucial

⁹⁹ See e.g., Timo Minssen et al., *Regulatory Responses to Medical Machine Learning*, 7 J.L. & BIOSCIENCES 1–2 (2020).

¹⁰⁰ See e.g., Jennifer Kuzma & Lindsey Rawls, *Engineering the Wild: Gene Drives And Intergenerational Equity*, 56 JURIMETRICS J. 279, 279–81 (2016).

¹⁰¹ See e.g., COHEN, *supra* note 4.

¹⁰² See generally Roger Brownsword, Eloise Scotford & Karen Yeung, *Introduction*, in THE OXFORD HANDBOOK OF LAW, REGULATION AND TECHNOLOGY (Roger Brownsword, Eloise Scotford & Karen Yeung eds., 2017).

¹⁰³ See generally COHEN, *supra* note 4; CRISTIE FORD, *INNOVATION AND THE STATE: FINANCE, REGULATION, AND JUSTICE* (2017).

role to play in protecting and advancing public health, wellbeing, and equity in the context of technological development.¹⁰⁴ We do not aim to provide a comprehensive review of approaches here, but focus on one prominent strategy for oversight that may be vulnerable to strengthened nondelegation canons: inherited regulation, the process of extending pre-existing regulatory frameworks to manage emerging technologies.¹⁰⁵ Nor should our focus on inherited regulation here discount the real capacity for administrative agencies to issue entirely novel rules around technology, which we consider in the next Part alongside inherited regulation.

A. *Inherited Regulation*

Sociological theorists, most prominently David Collingridge, have long observed the difficulty of regulating emerging technologies because widespread use entrenches their dominant form and its issues; but those problems remain difficult to diagnose before widespread use begins.¹⁰⁶ This observation gives rise to the pacing problem concept, which describes all branches of government as setting new policy or rules too slowly to match the rate of rapid innovation in society.¹⁰⁷ The governance strategies often recommended under a pacing problem analysis may include calling on the relevant industry to engage in thoughtful self-regulation and civil society bodies to regulate technology developers, all through legally voluntary “soft law” instruments such as codes of conduct, technical standards, or multi-stakeholder initiatives.¹⁰⁸ However, for some politically motivated actors, the pacing problem frame can transform the more empirical observation of the Collingridge Dilemma into a normative prescription for less government.¹⁰⁹

While the rate of technological development is no doubt rapid, the framing of the pacing problem is both contestable and contested. In

¹⁰⁴ On the role of normativity and pragmatism in law and technology scholarship, *see, e.g.*, Ryan Calo, *The Scale and the Reactor* (April 09, 2022) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4079851.

¹⁰⁵ Stokes, *supra* note 12, at 94–95. For examples of other approaches, typically requiring greater legislative involvement, *see, e.g.*, Sofia Ranchordás, *Innovation-Friendly Regulation: The Sunset of Regulation, the Sunrise of Innovation*, 55 JURIMETRICS J. 201 (2015).

¹⁰⁶ *See generally* Genus & Stirling, *supra* note 19.

¹⁰⁷ Marchant et al., *supra* note 6, at 19–22.

¹⁰⁸ *See generally* Ryan Hagemann, Jennifer Huddleston Skees & Adam Thierer, *Soft Law for Hard Problems: The Governance of Emerging Technologies in an Uncertain Future*, 17 COLO. TECH. L.J. 37 (2018).

¹⁰⁹ *See* Calo, *supra* note 104, at 22.

fact, legal scholars have debated for decades about whether and under what circumstances new technologies will require new law.¹¹⁰ Professor Stokes and others argue that the broad scope of many current regulatory systems ensures that most technologies will never be completely unregulated.¹¹¹ Instead, emerging technologies can “inherit” pre-existing regulatory regimes from a variety of domains including trade, health, or environmental protection.¹¹² Motivated stakeholders can and often do find some existing body of rules that could apply to a new technology itself, the developers of the technology, or the actors using the technologies. For instance, Stokes illustrates how regulators in the European Union extended and adjusted consumer protection regulation and related types of rules to manage nanotechnologies in the 2000s without (at first) the support of major new legislation.¹¹³ As opposed to the pacing problem, the inherited regulation perspective refocuses analysis around questions of whether pre-existing oversight can, does, and should capture newly emerging technologies.

Inherited regulatory analysis involves at least four types of issues: coverage, fitness, implementation, and compliance.¹¹⁴ First, the threshold issue in inherited regulation comes from the legal question of whether current rules can be successfully read to cover new technologies, complicated by any associated political challenges of

¹¹⁰ See generally Roger Brownsword & Han Somsen, *Law, Innovation and Technology: Before We Fast Forward—A Forum for Debate*, 1 L., INNOVATION & TECH. 1 (2009); David D. Friedman, *Does Technology Require New Law?*, 25 HARV. J.L. PUB. POL’Y 71 (2001); Bert-Jaap Koops, *Ten Dimensions of Technology Regulation - Finding Your Bearings in the Research Space of an Emerging Discipline*, in DIMENSIONS TECH. REGUL. 311, 315–16 (Morag Goodwin, Bert-Jaap Koops & Ronald Leenes eds., 2010).

¹¹¹ Stokes, *supra* note 12, at 94.

¹¹² *Id.* at 94–95 (declaring the term “regulatory regime” indicates that regulation is more than just a collection of individual substantive rules, as understanding regulatory systems in full will also require accounting for the values, narratives, procedural structures, and diverse types of stakeholders which also animate oversight); see also *Regulation and Regulatory Governance*, in HANDBOOK ON THE POLITICS OF REGULATION (David Levi-Faur ed., 2011).

¹¹³ Stokes, *supra* note 12, at 98–102.

¹¹⁴ Walter G. Johnson & Diana M. Bowman, *Inherited Regulation for Advanced ARTs: Comparing Jurisdictions’ Applications of Existing Governance Regimes to Emerging Reproductive Technologies*, 9 J.L. & BIOSCIENCES 1, 10 (2022).

(re)interpreting rules.¹¹⁵ Second, normative and policy questions must be addressed by considering whether the type of regulatory regime inherited has appropriate values, goals, and tools to manage the innovations at hand.¹¹⁶ Once policymakers have applied inherited regulation, analysts should address empirical questions around the outcomes and performance of the inherited system. This leads to the third question, of whether regulators have implemented the inherited regulation in a successful way, where evaluative criteria such as effectiveness and legitimacy can aid in guiding inquiry.¹¹⁷ Finally, analysts should consider how regulated actors developing or using the emerging technology have responded to the application of pre-existing regulation, as their (non)compliance will modulate assessments of the overall policy success and political acceptability of the inherited regulatory approach in practice.¹¹⁸ These analyses can then aid decision-makers in adjusting existing regulatory regimes through various, smaller mechanisms, instead of crafting entirely new, *sui generis* regulatory systems.¹¹⁹ However, should existing regulatory regimes provide poor coverage, fit, or policy outcomes, then policymakers should consider enacting new law or establishing novel regulatory frameworks.

Inherited regulation offers one legal and policy approach to managing emerging technologies, which will have its strengths and weaknesses compared to other policy strategies. Most notably, this strategy enables regulators to take early action on emerging technologies to protect the public interest. Of course, the tools used will necessarily come with the good and bad features of the original regulatory framework to be extended, which may not have goals or assumptions that line up well with the issues raised by new technologies.¹²⁰ Agencies will therefore need to take an active role in adjusting the pre-existing regulatory regime to new technology, accounting for these pre-existing strengths, weaknesses, goals, and tools made available—processes which will require adequate time, staffing, and deliberation with stakeholders to achieve. While there

¹¹⁵ Stokes, *supra* note 12, at 94; *see generally* Julia Black, *Regulatory Conversations*, 29 J.L. & SOC'Y 163 (2002).

¹¹⁶ Stokes, *supra* note 12, at 94.

¹¹⁷ Johnson & Bowman, *supra* note 114, at 10–11.

¹¹⁸ *Id.*; *see generally* Vibeke Lehmann Nielsen & Christine Parker, *Mixed Motives: Economic, Social, and Normative Motivations in Business Compliance*, 34 L. & POL'Y 428 (2012).

¹¹⁹ Elen Stokes & Diana M. Bowman, *Looking Back to the Future of Regulating New Technologies: The Cases of Nanotechnology and Synthetic Biology*, 2 EUR. J. RISK REGUL. 235, 241 (2012).

¹²⁰ *Id.*

could be concern of inherited regulation used to usher in policies without accountability, regulatory agencies often extend existing regulatory frameworks in close (sometimes adversarial) consultation with various stakeholders, including the regulated entities.¹²¹ Further, agencies, particularly today, are often mindful of the policy preferences of the legislative branch which oversees them and of the potential for judicial review, leading to inherited regulation generally favoring incrementalist approaches.¹²²

The end result of inherited regulation may be a system that, to varying degrees, *underregulates* a nascent technology rather than leaving it entirely *unregulated*, leaving policymakers with the challenging task of adjusting the existing system to gradually achieve more effective or normatively desirable policy outcomes.¹²³ Simpler cases come from the Securities and Exchange Commission (SEC) and Internal Revenue Service (IRS) extending existing securities and property tax principles to cryptocurrencies in recent years, which may still yield some legal or policy challenges.¹²⁴ In a more complex example, the Federal Trade Commission (FTC) has become the *de facto* data protection regulator in the United States through slowly extending its existing legislative authority on “unfair or deceptive acts or practices in or affecting commerce” to certain privacy harms.¹²⁵ This piecemeal approach to privacy regulation has resulted in incomplete and incremental oversight of a substantial issue, attracting skepticism

¹²¹ Johnson & Bowman, *supra* note 114, at 29, 33–35; see Anya Bernstein & Cristina Rodriguez, *The Accountable Bureaucrat*, 132 YALE L.J. 1, 51 (2022); see generally Black, *supra* note 115.

¹²² See Freeman & Spence, *supra* note 12, at 3; Sharon B. Jacobs, *The Administrative State's Passive Virtues*, 66 ADMIN. L. REV. 565, 623–24 (2014).

¹²³ Stokes & Bowman, *supra* note 119, at 241; Johnson & Bowman, *supra* note 114, at 3.

¹²⁴ U.S. INTERNAL REVENUE SERV., NOTICE 2014-21, INTERNAL REVENUE BULLETIN: 2014–16 (Apr. 14, 2014), https://www.irs.gov/irb/2014-16_IRB#NOT-2014-21; Strategic Hub for Innovation & Fin. Tech. (FinHub), *Framework for “Investment Contract” Analysis of Digital Assets*, U.S. SEC. & EXCH. COMM’N (Apr. 3, 2019), www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets.

¹²⁵ Federal Trade Commission Act, 15 U.S.C. § 45(a)(1) (2022); see generally Daniel J. Solove & Woodrow Hartzog, *The FTC and the New Common Law of Privacy*, 114 COLUM. L. REV. 583 (2014).

or criticism from various commentators.¹²⁶ Yet, while far from comprehensive, the FTC's inherited regulatory approach now offers some policy tools for acting in the public interest, where Congress has struggled to reach consensus on what form federal privacy legislation should take for decades.

In some cases, inherited regulation may also create an acceptable long-term (if not always politically simple in the short-term) regulatory outcome without significant modifications to the existing system. For example, the U.S. has chosen to functionally ban human reproductive cloning (also called somatic cell nuclear transfer, SCNT) through inherited regulation by the Food and Drug Administration (FDA) without actually enacting legislation prohibiting the technique. The 1997 announcement of the birth of Dolly, the sheep cloned by a scientific team in Scotland, set off an international debate and policy frenzy, upsetting lawmakers and the public in various jurisdictions.¹²⁷ After nearly a year of lawmaker inaction, FDA officials made a few unceremonious announcements that the agency definitively had authority to regulate human reproductive cloning through its existing medical products rules.¹²⁸ The agency sent a formal letter to institutional review boards informing them that research with human reproductive cloning could not proceed without submitting an investigational new drug (IND) application to the agency.¹²⁹ Though a few commentators raised objections to the FDA's legal basis for regulating human reproductive cloning,¹³⁰ neither lawmakers nor the courts intervened and the FDA has continued to publicly assert its

¹²⁶ See, e.g., Julie Cohen, *The Regulatory State in the Information Age*, 17 THEORETICAL INQUIRIES L. 369, 401–02 (2016); Ari Ezra Waldman, *Privacy Law's False Promise*, 97 WASH. U.L. REV. 773, 781, 795–96 (2020).

¹²⁷ Adèle Langlois, *The Global Governance of Human Cloning: The Case of UNESCO*, 3 PALGRAVE COMM'NS. 1, 2–3 (2017). On the announcement of human reproductive cloning, see Ian Wilmut et al., *Viable Offspring Derived from Fetal and Adult Mammalian Cells*, 385 NATURE 810, 810 (1997).

¹²⁸ Richard A. Merrill & Bryan J. Rose, *FDA Regulation of Human Cloning: Usurpation or Statesmanship?*, 15 HARV. J.L. & TECH. 85, 97–107 (2001).

¹²⁹ Stuart L. Nightingale, *Letter About Cloning*, U.S. FOOD & DRUG ADMIN. (Oct. 26, 1998), <https://www.fda.gov/science-research/clinical-trials-and-human-subject-protection/letter-about-human-cloning> (citing existing authority under the Public Health Service Act and the Federal Food, Drug, and Cosmetic Act).

¹³⁰ See Elizabeth C. Price, *Does the FDA Have Authority to Regulate Human Cloning?*, 11 HARV. J.L. & TECH. 619, 641 (1998).

oversight authority and refine its rationale.¹³¹ In retrospect, applying inherited regulation posed legal and political challenges, but produced the policy outcome Congress sought but had previously failed to achieve.¹³² To date, Congress has not enacted federal legislation prohibiting or managing reproductive cloning, instead relying on FDA inherited regulation as a *de facto* — but not *de jure* — prohibition on the technology.

B. *Cautious Optimism in Inherited Regulation*

The pacing problem and inherited regulation both recognize the inherent challenge of regulating emerging technologies, given their rapid pace of development and the uncertain benefit-risk profile arising from the correspondingly low level of evidence around such innovations. However, each frame offers different prescriptions for how to approach regulation in spite of these challenges. The pacing problem can present a fairly pessimistic image for the role of law — including legislation, regulation, and common or civil law jurisprudence — in responding to the policy issues posed by nascent technology.¹³³ While the pacing problem lens predicts that public bodies may achieve piecemeal, modest oversight of some technologies, the greater expectation is that innovation will overwhelm public law institutions.¹³⁴

Rather than the relative pessimism of the pacing problem, an inherited regulatory analysis offers a more robust image of the capacity of public regulatory bodies to engage in meaningful oversight of rapidly emerging technologies. This approach offers more potential in currently existing, governmental regulatory bodies to mobilize in various ways to establish legally binding oversight systems to manage these innovations and their benefits and risks.¹³⁵ Creative policymakers and analysts adopting an inherited regulatory frame should often be able to identify one or more sets of existing public law rules (with corresponding regulatory bodies to administer them) that could apply

¹³¹ See Merrill & Rose, *supra* note 128, at 149.

¹³² At the time, many in Congress appeared to want to prevent the use of human *reproductive* cloning without upsetting the potential for human cloning techniques to contribute to non-reproductive medicine. See, e.g., Gina Kolata, *Congress Is Cautioned Against Ban on Human-Cloning Work*, N.Y. TIMES (Mar. 13, 1997).

¹³³ See Marchant et al., *supra* note 6, at 19–22.

¹³⁴ *Id.*

¹³⁵ See Stokes & Bowman, *supra* note 119, at 235, 241.

to a nascent technology, its developers, or its uses.¹³⁶ Often, the more pertinent questions here are typically not whether a government regulator *could* oversee the technology, but whether the regulator has the most appropriate goals, tools, implementation strategies, and political support for moving forward in overseeing nascent technologies within their domain.¹³⁷ Of course, more shallow, inherited regulatory analyses could also downplay the real potential of private, civil society, and public-private institutions to participate in and contribute to the regulation of emerging technologies — but such a narrow focus on government regulation is by no means a necessary component of inherited regulation.

While inherited regulatory strategies do involve administrative agencies taking on new tasks or responsibilities, these processes do not happen outside of normal systems of accountability.¹³⁸ Congress, as the legislative overseer of agency activity, may still act at any time to hold a hearing on an agency's use of inherited regulation, adjust the budget for an agency or program, revoke an agency rule, or revise a regulatory framework should lawmakers question or disagree with the actions of an agency to tackle policy issues around emerging technologies.¹³⁹ Under *Chevron* deference, the Supreme Court has even treated agency determinations of their own jurisdiction — that is, what their authorizing but ambiguous statutes apply to — as appropriate, implicit delegations which agencies may interpret reasonably.¹⁴⁰ This rationale reflects the argument that agencies are the democratically rightful administrators of their authorizing statutes, as Congress used their legislative power and elected legitimacy to empower the agency to carry out broader statutory goals and functions.¹⁴¹ The President and bodies within the Executive Office of the President (EOP) can also wield notable power in reviewing, coordinating, and influencing

¹³⁶ See generally *id.*; Stokes, *supra* note 12, at 97.

¹³⁷ See Johnson & Bowman, *supra* note 114, at 9–11, 38.

¹³⁸ See e.g., David B. Spence, *Naïve Administrative Law: Complexity, Delegation and Climate Policy*, 39 YALE J. REGUL. 963, 1001–07 (2022).

¹³⁹ CONG. RSCH. SERV., THE CONGRESSIONAL REVIEW ACT (CRA): FREQUENTLY ASKED QUESTIONS 1–6 (Nov. 12, 2021), <https://sgp.fas.org/crs/misc/R43992.pdf>; see, e.g., Joint Resolution, Pub. L. No. 115-22, 131 Stat. 88 (2017) (expressing formal disapproval of the FCC rule titled “Protecting the Privacy of Customers of Broadband and Other Telecommunications Services” and declaring “such rule shall have no force or effect”); see generally CONG. RSCH. SERV., CONGRESSIONAL OVERSIGHT MANUAL (2021), <https://sgp.fas.org/crs/misc/RL30240.pdf>.

¹⁴⁰ See *City of Arlington v. Fed. Comm'n Comm'n*, 133 S. Ct. 1863, 1874–75 (2013).

¹⁴¹ See Freeman & Spence, *supra* note 12, at 70–72.

agency policymaking — including through inherited regulation — and successfully embed transparency and the elected President’s public policy priorities into regulatory activities.¹⁴² Moreover, regulators reinterpret current regulatory frameworks to apply to new technologies most often in the context of ongoing, formal and informal conversations with stakeholders, including regulated entities, introducing further routes to accountability.¹⁴³ Accounts describing administrative agencies as unaccountable behemoths often neglect very real political pressures regulators face to engage closely with stakeholders and regulated entities, as going too far can result in a collapse in their perceived legitimacy and political support which may result in stripping regulatory authority or reputation from agencies.¹⁴⁴

IV. JUDICIAL THREATS TO REGULATING EMERGING TECHNOLOGIES

In 2016, following *King v. Burwell*,¹⁴⁵ Professor Monast expressed concern that the major questions doctrine could potentially interfere with or chill administrative agency efforts to manage emerging technologies in the future.¹⁴⁶ Here, we expand on this concern to offer legal, policy, and political analyses across technology spaces to illustrate the contours of the claim in detail—reflecting on refinements to the doctrine over the past several years against the backdrop of a Supreme Court with a new supermajority. In particular, we argue the new major questions doctrine poses significant challenges not only for issuing new rules on technology, but also for inherited

¹⁴² See Elena Kagan, *Presidential Administration*, 114 HARV. L. REV. 2245, 2331–46 (2001). The EOP, for example, has notable power to assess and review agency action, including inherited regulatory approaches, through review tools provided to the Office of Budget and Management (OMB) and its Office of Information and Regulatory Affairs. See generally Susan E. Dudley, *The Office of Information and Regulatory Affairs and the Durability of Regulatory Oversight in the United States*, 16 REGUL. & GOVERNANCE 243 (2022).

¹⁴³ See generally Black, *supra* note 115; Bernstein & Rodriguez, *supra* note 121.

¹⁴⁴ See generally DANIEL CARPENTER, REPUTATION AND POWER: ORGANIZATIONAL IMAGE AND PHARMACEUTICAL REGULATION AT THE FDA (2010); Freeman & Spence, *supra* note 12, at 3–4, 81; Christine Parker, *The “Compliance” Trap: The Moral Message in Responsive Regulatory Enforcement*, 40 L. & SOC’Y REV. 591 (2006).

¹⁴⁵ *King*, 576 U.S. at 473.

¹⁴⁶ Monast, *supra* note 54, at 478–80.

regulatory strategies which regulators have already been using for decades to establish oversight of nascent technologies. Especially in the presence of a contemporary Congress hamstrung by polarization and structural obstacles,¹⁴⁷ we aim to illustrate how evolving nondelegation canons — particularly the major questions doctrine — pose threats to the capacity of regulatory agencies to promote the public interest with respect to emerging technologies.¹⁴⁸

Administrative agencies in virtually any sector will face issues of how to implement existing statutes when faced with new cases, situations, and policy problems, especially as authorizing legislation becomes older.¹⁴⁹ Yet, managing emerging technologies stands out as a particular area of regulatory practice that benefits from the ability to read statutes broadly and respond to unanticipated issues in a regulatory space. Congress as an institution has limited time, staffing, and expertise and can only consider a limited number of major issues in its legislative agenda at once, requiring many political, policy, and advocacy processes to align at once to add an item to the agenda.¹⁵⁰ Policy issues around regulating emerging technologies in particular rarely appear on Congress' legislative agenda, which may be perceived as obscure or lower priority than the major political issues of the day.¹⁵¹ In some cases, entire industries based on new technologies can appear without significant statutory guidance from Congress—the internet and digital economy offers a prominent example.¹⁵² In other cases, existing industries develop or adopt new technologies which raise challenging questions yet still receive little attention in statutory language. Developments in biotechnology and genetically modified crops accelerated in the 1980s and 90s, with nanotechnology appearing in workplaces and consumer products in the 1990s and 2000s, again

¹⁴⁷ See Deacon & Litman, *supra* note 13, at 46, 59.

¹⁴⁸ While many compelling arguments have been made about how the major questions doctrine aggrandizes the judiciary, we do not directly address these concerns here. *E.g.*, David M. Driesen, *Major Questions and Juristocracy*, REGUL. REV. (Jan. 31, 2022); Blake Emerson, *The Real Target of the Supreme Court's EPA Decision*, SLATE (June 30, 2022); Jonathan S. Gould, *Puzzles of Progressive Constitutionalism*, 135 HARV. L. REV. 2053 (2022); Richardson, *supra* note 32, at 200–01.

¹⁴⁹ Freeman & Spence, *supra* note 12, at 2–5.

¹⁵⁰ See *West Virginia*, 142 S. Ct. at 2642–43 (Kagan, J., dissenting); Paul Cairney & Michael D. Jones, *Kingdon's Multiple Streams Approach: What Is the Empirical Impact of this Universal Theory?*, 44 POL'Y STUD. J. 37, 39–40 (2016).

¹⁵¹ See Marchant et al., *supra* note 6, at 19–22.

¹⁵² See generally COHEN, *supra* note 4.

occurring largely without federal legislation.¹⁵³ Instead, administrative agencies are frequently the primary decision-makers in establishing relevant oversight programs to manage these emerging technologies.

Notably, members of Congress are often involved in the development of these regulatory frameworks through both formal and informal channels, choosing to influence the adoption of novel and inherited regulation rather than enact new legislation.¹⁵⁴ Short of enacting new legislation, Congress may influence the development of these frameworks through holding hearings via its (sub)committees, sending letters to agency directors, calling on legislative branch agencies such as the Government Accountability Office (GAO) to review agency action, or formal and informal conversations with agency staff and relevant stakeholders.¹⁵⁵ This reality suggests both a tacit (or occasionally explicit) Congressional endorsement of administrative agencies extending pre-existing regulation and embeds the democratic legitimacy of elected representatives into the process of interpreting and implementing inherited regulatory strategies. While we do not review them in depth here, many potential justifications exist for positioning administrative agencies as the primary decision makers for managing emerging technologies, including their depth of expertise in technical and regulatory matters, their close engagement with stakeholders and regulated communities, and their ability to move past legislative gridlock.¹⁵⁶

Whether and how courts should approach judicial review for agencies extending their existing authority to meet new policy issues

¹⁵³ See generally Diana M. Bowman & Graeme A. Hodge, *A Small Matter of Regulation: An International Review of Nanotechnology Regulation*, 8 COLUM. SCI. & TECH. L. REV. 1 (2007).

¹⁵⁴ E.g., Alberto Asquer & Inna Krachkovskaya, *Uncertainty, Institutions and Regulatory Responses to Emerging Technologies: CRISPR Gene Editing in the US and the EU (2012–2019)*, 15 REGUL. & GOVERNANCE 1111, 1117–18 (2021) (describing Congressional involvement in the development of regulation for gene editing technologies for several decades).

¹⁵⁵ See generally CONG. RSCH. SERV., CONGRESSIONAL OVERSIGHT MANUAL, *supra* note 139. In particular, the GAO provides a technology assessment function for Congress, aiming to inform lawmakers of the issues and policy options around various technologies. See U.S. GOV'T ACCOUNTABILITY OFF., GAO-21-347G, TECHNOLOGY ASSESSMENT DESIGN HANDBOOK 1–2, 8–9 (2021), <https://www.gao.gov/assets/gao-21-347g.pdf>.

¹⁵⁶ See, e.g., *Mistretta*, 488 U.S. at 372; Emerson, *supra* note 15, at 2081–86; Freeman & Spence, *supra* note 12, at 8–17; see generally Kagan, *supra* note 142.

has long posed thorny legal and normative questions.¹⁵⁷ However, the Supreme Court's recent moves towards more aggressive nondelegation canons aims to settle such debates, placing new salience on the concerns of this approach and the negative policy ramifications it could yield, especially in governing emerging technologies.¹⁵⁸ The now-codified major questions doctrine opens the door to the judiciary extensively questioning regulatory bodies' decisions to extend regulatory frameworks to a new technology which it previously did not regulate¹⁵⁹—even a technology which only recently emerged. These jurisprudential shifts could, in turn, force a reorientation of policy apparatuses and push regulatory systems towards less legally binding and more institutionally complex forms, with potential effectiveness, transparency, and accountability ramifications.

A. *Major Questions Jurisprudence and Regulating Technology*

Given the recent salience of the major questions doctrine, this section focuses on how the Court's newer moves towards empowering this doctrine could clash with both new rulemaking and inherited regulatory strategies for managing emerging technologies. While the major questions doctrine certainly applies to rulemaking, there is no reason to believe that motivated actors would not aim to wield the canon's vast suspicion of novel or broad policy initiatives against agency guidance as well¹⁶⁰—where inherited regulation often thrives.

¹⁵⁷ See Freeman & Spence, *supra* note 12, at 69–70.

¹⁵⁸ We would note before proceeding that our concern with substantive policy outcomes renders formalist frames of administrative law less pertinent here. See Metzger, *supra* note 24, at 87 (“The modern national administrative state is now constitutionally obligatory, rendered necessary by the reality of delegation.”); see generally Peter L. Strauss, *Formal and Formal and Functional Approaches to Separation-of-Powers Questions—A Foolish Inconsistency?*, 72 CORNELL L. REV. 488 (1987).

¹⁵⁹ See Heinzerling, *supra* note 37, at 2003–04; Sunstein, *supra* note 53, at 477–80.

¹⁶⁰ See *West Virginia*, 142 S. Ct. at 2608–10 (motivated actors have already sought, and arguably succeeded, to expand the scope and application of the major questions doctrine); Natasha Brunstein & Richard L. Revesz, *Mangling the Major Questions Doctrine*, 74 ADMIN. L. REV. 217, 219 (2022) (“[T]he Trump Administration construed the major questions doctrine enormously expansively and inconsistently, in ways untethered to the Court’s jurisprudence, turning it into little more than an invitation for courts to strike down regulations the Administration did not favor for policy-based reasons. While the Trump Administration manipulated the doctrine to attack important

Here, we discuss how two dimensions of the evolving major questions doctrine – anti-novelty and economic or political significance – may stymie efforts to regulate emerging technologies. These issues likely cut across areas and sectors of emerging technology regulation, including digital, physical, and biotechnologies. Notably, lower federal courts will likely be significant actors here, as the Supreme Court’s agenda is limited. This will create potential for fragmentation, forum shopping, or overzealous adoption of the major questions doctrine for technology regulation in lower profile settings without the same public attention as Supreme Court litigation.¹⁶¹ While the analysis is somewhat broad, the breadth and remaining uncertainty in how different federal courts will apply the major questions doctrine and nondelegation principles in general makes more precise analysis difficult and further research will be needed over time.

First, the anti-novelty dimension of the major questions doctrine could pose significant issues for the regulation of emerging technologies.¹⁶² If aggressive nondelegation canons scrutinize agencies moving to create novel programs or regulate new products and behaviors, this could strike at the heart of public governance for emerging technologies. Both inherited regulation and novel rulemaking rely on the legal and political capacity to reinterpret existing law or rules to accommodate new technologies and enable agencies to apply existing tools and authority.¹⁶³ The new major questions doctrine strikes a double blow here. By seemingly

Obama era regulations, it took a far narrower and more conventional approach towards the doctrine when its own regulations were attacked on major questions grounds.”).

¹⁶¹ See Monast, *supra* note 54, at 476–78; see also Michael Coenen & Seth Davis, *Minor Courts, Major Questions*, 70 VAND. L. REV. 777, 816 (2017) (“given the inherently certworthy nature of genuinely ‘major’ questions, we can further expect enforcement errors to skew in the direction of over-, rather than under-enforcement. If, in other words, lower courts involve themselves in the application of the [major questions exception], we believe they will inflate the scope of the exception beyond whatever boundaries that the Supreme Court has intended”). For an early analysis of lower courts, see Emerson, *supra* note 15, at 2039–41.

¹⁶² See Deacon & Litman, *supra* note 13, at 48–51; see generally Leah M. Litman, *Debunking Antinovelty*, 66 DUKE L.J. 1407 (2017).

¹⁶³ See Stokes, *supra* note 12, at 94–95; Stokes & Bowman, *supra* note 115, at 241.

sidestepping the *Chevron* doctrine and its progeny entirely,¹⁶⁴ this nondelegation canon could deny *Chevron* protections recognizing that administrative agencies should receive judicial deference on determinations of their own jurisdiction.¹⁶⁵ The Supreme Court denying the FDA's efforts to extend its authority on medical products to tobacco products illustrates how the major questions doctrine could serve to invalidate future agency attempts to apply existing authority to new sectors or spaces created by emerging technologies.¹⁶⁶ The major questions doctrine then invites judicial scrutiny on regulatory actions that look novel or unusual for the agency, which will almost certainly implicate regulatory bodies tackling emerging technologies.¹⁶⁷ The emergent nature of proposed innovations could be perceived as precluding the possibility of any relevant prior action from the regulator,¹⁶⁸ especially by motivated actors seeking to inhibit regulatory action.

Definitional issues can become particularly problematic. A substantial challenge comes from the increasingly clear conclusion that the major questions doctrine functions as a clear statement rule—demanding laser-focused interpretations of statutory text to support agency claims to regulatory authority.¹⁶⁹ Inherited regulation and novel rulemaking both often rely on agencies (re)interpreting definitions in existing law or regulatory frameworks to capture an emerging technology.¹⁷⁰ However, clear statement rules could interfere with agency arguments that an innovative product or service still fits within the statutory definitions delineating the scope of that agency's authority, as clear statement principles place scrutiny on reinterpreting existing definitions more broadly than they have been previously or than Congress may have intended.¹⁷¹ Inherited regulation could particularly suffer here, as the strategy foregoes creating new

¹⁶⁴ See Sunstein, *supra* note 53, at 477–78, 480; *but see* Jonathan H. Adler, *Will Chevron Get the Lemon Treatment?*, REASON (July 10, 2022).

¹⁶⁵ See *City of Arlington*, 133 S. Ct. at 1872–75.

¹⁶⁶ *Brown & Williamson*, 529 U.S. at 125–26.

¹⁶⁷ See *West Virginia*, 142 S. Ct. at 2608–10.

¹⁶⁸ Although, crucially, regulators use inherited regulation to achieve their same overall statutory goals and intervene on the same types of harms they already have statutory authority to prevent. See Johnson & Bowman, *supra* note 114, at 8.

¹⁶⁹ Deacon & Litman, *supra* note 13, at 5–6, 23–26; Sunstein, *supra* note 53, at 477, 483–84.

¹⁷⁰ Johnson & Bowman, *supra* note 114, at 9, 27, 29–30.

¹⁷¹ See William N. Eskridge Jr. & Philip P. Frickey, *Quasi-Constitutional Law: Clear Statement Rules as Constitutional Lawmaking*, 45 VAND. L. REV. 593, 597, 636–40 (1992).

regulatory categories or definitions in favor of arguing current definitions can be interpreted in a broad enough manner to capture emerging technology.¹⁷² This need for clear statements of statutory authority on jurisdiction could not only undermine good policy, but produce absurd results—potentially allowing, for example, challenges to FDA regulation of human reproductive cloning flowing from drug and biological products rules and associated definitions.¹⁷³

Second, emerging technologies and their governance are inherently political and tied to current or future economic potential, raising concerns about whether and when the major questions doctrine’s “political and economic significance” standard could apply.¹⁷⁴ Particularly with the increasing financial valuation of data and digital technologies and ongoing but similar trends in physical and biotechnologies, these technologies and the private actors developing them have significant economic potential.¹⁷⁵ Of course, the valuation of many emerging technologies and technology firms is speculative and depends on both the level of hype about the technology’s potential impact and its actual market and social impact over time.¹⁷⁶ However, application of the major questions doctrine allows mere speculation about potential economic impacts. Supreme Court decisions this term eliminated OSHA and EPA regulations prior to their full implementation – and thus prior to an opportunity to empirically determine the breadth of their impact – carrying on trends seen in earlier cases.¹⁷⁷ The application of the canon by the judiciary to perceived rather than actual economic impacts could permit bias towards hype about emerging technologies, which often promises sweeping economic transformations from the technology long before

¹⁷² See Stokes, *supra* note 12, at 94–95; Stokes & Bowman, *supra* note 119, at 241.

¹⁷³ See also *supra*, Part III.A.

¹⁷⁴ See generally Charlotte Ducing, *A Legal Principle of Innovation? Need for an Assessment Against the Principle of Democracy*, 14 L., INNOVATION & TECH. 237, 263 (2022).

¹⁷⁵ See generally COHEN, *supra* note 4; KAUSHIK SUNDER RAJAN, *BIOCAPITAL: THE CONSTITUTION OF POSTGENOMIC LIFE* (2006).

¹⁷⁶ E.g., RAJAN, *supra* note 175, at 111–18; see generally Susan K. Sell, *Twenty-First-Century Capitalism: A Research Agenda*, 3 GLOB. PERSPS. (2022).

¹⁷⁷ *Nat’l Fed’n Indep. Bus.*, 142 S. Ct. at 664; *West Virginia*, 142 S. Ct. at 2604, 2616; see also Heinzerling, *supra* note 31, at 2257.

they play out and can be empirically measured.¹⁷⁸ The failure of IBM Watson to deliver on substantial disruption to medicine and health care offers just one example of how emerging technologies may not follow through on promised, widespread economic impact.¹⁷⁹

Policy issues around emerging technologies are inherently political, but also can often attract partisan or general public attention in ways that may place regulation in danger of the new major question doctrine's apparent targeting of controversial issues.¹⁸⁰ A few notable examples of technology and its regulation garnering significant political attention may include human reproductive cloning, genetically modified crops, nuclear and renewable energy production, and – more recently – digital platforms.¹⁸¹ Controversy has certainly extended to the regulation of these technologies itself, and proposed changes to that regulation, with charged debate and an Executive Order over liability for digital platforms under “Section 230” occurring throughout the 2020 U.S. presidential election cycle as just one recent example.¹⁸² The political nature of emerging technologies and their governance appears to make regulatory action here subject to major questions doctrine scrutiny—particularly when combined with the anti-novelty component of the evolving doctrine and potential economic impacts.

¹⁷⁸ See, e.g., Ezekiel J. Emanuel & Robert M. Wachter, *Artificial Intelligence in Health Care: Will the Value Match the Hype?*, 321 J. AM. MED. ASS'N 2281, 2281–82 (2019).

¹⁷⁹ Eliza Strickland, *IBM Watson, Heal Thyself: How IBM Overpromised and Underdelivered on AI Health Care*, IEEE SPECTRUM (Apr. 2019), spectrum.ieee.org/how-ibm-watson-overpromised-and-underdelivered-on-ai-health-care.

¹⁸⁰ See Deacon & Litman, *supra* note 13, at 32–44.

¹⁸¹ See e.g., Amy Goldstein, *President Presses Senate to Ban All Human Cloning*, WASH. POST (Apr. 11, 2002); Matthew Kearnes, Robin Grove-White, Phil Macnaghten, James Wilsdon & Brian Wynne, *From Bio to Nano: Learning Lessons from the UK Agricultural Biotechnology Controversy*, 15 SCI. AS CULTURE 291 (2006); Rebecca Leppert, *Americans Continue to Express Mixed Views About Nuclear Power*, PEW RSCH. CTR. (Mar. 23, 2022); Timo Seidl, *The Politics of Platform Capitalism: A Case Study on the Regulation of Uber in New York*, 16 REGUL. & GOVERNANCE 357 (2022).

¹⁸² Exec. Order No. 13925, 85 Fed. Reg. 34079 (2020); see Casey Newton, *Everything You Need to Know About Section 230*, VERGE (Dec. 29, 2020). Other recent example may include arguments over how to use labeling rules for new or alternative food products, such as almond milk or cell-based meat, where the economic interests of parties involved become rapidly apparent. See Rose Eveleth, *Is Lab-Grown Meat Really Meat? A Labeling War Is Brewing*, SLATE (July 11, 2018).

Ultimately, the perceived novelty of regulatory action on emerging technologies, common narratives of future potential economic benefits of the innovations, and frequent political nature of discussion around new technologies all raise the specter of major questions doctrine scrutiny (or applications of other nondelegation canons). Yet, substantial uncertainty remains over which type of challenges to regulatory actions might be successful at invoking nondelegation canons.¹⁸³ Presently unanswered questions include what level of prospective economic loss or political significance (and in whose eyes) and how novel of a scope inherited regulatory strategies or new rulemaking may adopt for emerging technologies before the major questions doctrine engages. The state of the major questions doctrine following *West Virginia v. EPA* leaves these quandaries over applying the canon quite unclear; with the case law suggesting the doctrine enables wide, ad hoc judicial discretion in determining when and how scrutiny applies.¹⁸⁴ At least at first, these questions involving regulation of emerging technologies are likely to defer in many federal trial and circuit courts.¹⁸⁵

B. *Policy Issues with Forcing the Pacing Problem*

While the total collapse of rulemaking and inherited regulatory strategies is highly unlikely even under the more aggressive nondelegation canons, these doctrinal shifts will complicate the ability and will of administrative bodies to oversee emerging technologies. Even without direct judicial involvement, strengthened nondelegation canons could chill the interest and will of regulators to extend their existing authorities to novel technology spaces.¹⁸⁶ We suspect this chilling effect could occur in at least two different ways, although empirical study of these processes would be required. First, administrative agencies may decide that pursuing novel and inherited

¹⁸³ See also Heinzerling, *supra* note 37, at 1982–90.

¹⁸⁴ *West Virginia*, 142 S. Ct. at 2609 (appealing to judicial decision-maker’s notions of “common sense” as a touchstone for applying major questions scrutiny); see also Emerson, *supra* note 15, at 19.

¹⁸⁵ This outcome would be unsurprising, given the variability in how lower courts have treated the *Chevron* doctrine over time. See generally Barnett & Walker, *supra* note 39.

¹⁸⁶ See Monast, *supra* note 54, at 478–80; see also Richardson, *supra* note 32, at 195–98 (arguing the major questions doctrine “creates perverse incentives for agencies, encouraging them to choose regulations with lower cost even if their preferred option has higher net benefits, or to fragment regulatory actions to avoid their being characterized as ‘major’”).

regulatory approaches will not be worth the political, legal, and budgetary costs, and thus not initiate these strategies. Even agencies motivated and willing to comply with evolving nondelegation canons will likely struggle in the contemporary judicial environment, given the uncertainty around how courts may apply the major questions doctrine.¹⁸⁷ Second, agencies may begin the process of extending pre-existing statutory authority to new technologies – through notice-and-comment rulemaking, guidance, or other channels – but then receive political blowback from stakeholders (including lawmakers) and threats of legal action from regulated entities invoking the major questions doctrine or other nondelegation canons.¹⁸⁸ In either case, the net result is likely to be greater disincentives on administrative agencies to use binding regulation, grounded in available legislation, to manage the policy issues of novel technologies. In essence, the outcome could be to solidify the pacing problem by whittling the capacity of regulatory bodies to use their existing authority to strive to keep pace with technological developments.

These increased disincentives on agencies to expand their programs could create regulatory vacuums unless there is Congressional action providing agencies with new, highly specific statutory authorizations for each new technology. Notably, technology policy issues rarely appear on legislative agendas for several reasons, including the technical complexity of innovation and the perception that technology issues are less important or understandable than other

¹⁸⁷ See Richardson, *supra* note 54, at 406 (“Perhaps the most fundamental problem with the major questions doctrine . . . is the simple fact that it is hard to determine what divides major questions from minor or interstitial ones.”). On the need for administrative law to be clear and consistent for administrative agencies to comply with its requirements, see generally SIMON HALLIDAY, JUDICIAL REVIEW AND COMPLIANCE WITH ADMINISTRATIVE LAW, 161–74 (2004).

¹⁸⁸ For example, less than three months after the *West Virginia v. EPA* decision was issued, the Attorneys General from West Virginia and 20 other states vehemently objected to a proposed SEC rule on disclosure in investment practices by explicitly invoking the major questions doctrine and citing to *West Virginia v. EPA*. See Patrick Morrissey, W. Va. Att’y Gen., Comment Letter on Proposed Rule to Enhance Disclosures by Certain Investment Advisers and Investment Companies About Environmental, Social, and Governance Investment Practices (August 16, 2022),

<https://ago.wv.gov/Documents/2022.08.16%20ESG%20Funds%20Comment.pdf>; see also U.S. Sec. & Exch. Comm’n, Press Release on SEC Proposes to Enhance Disclosures by Certain Investment Advisers and Investment Companies About ESG Investment Practices (May 25, 2022), <https://www.sec.gov/news/press-release/2022-92>.

policy issues.¹⁸⁹ Rare exceptions do exist, as with Congress mobilizing in just three weeks to enact legislation delegating authority to USDA to craft labeling rules for genetically modified foods—against the backdrop of a pending Vermont law, which would have created multiple sets of labeling rules for the food industry to comply with in different states.¹⁹⁰ Unfortunately, these exceptions of rapid action are almost certainly exceptions: cases of high perceived urgency where the political and economic dimensions of technology policy suddenly align behind an available policy option.

Further, limited evidence exists to suggest that strengthened nondelegation canons such as the major questions doctrine will prompt legislatures to take more action on technology issues. One common argument for strong nondelegation canons is the idea that judicially circumscribing agencies' statutory authorities will pressure democratically elected lawmakers in Congress to become more active in crafting and clarifying rules and frameworks for regulators to simply implement and enforce.¹⁹¹ The argument is that legislators have incentives to pass politically and technically complex decisions to agencies, activating concerns about democratic accountability in government decision-making and that individual experts will not reflect the views of democratic politics. While these concerns are troubling, these arguments rest on the opinion that Congress delegates out of negligence or political gain – and not a definite empirical

¹⁸⁹ Arguably, Congress once had more capacity to engage with issues of technology policy while the Office of Technology Assessment (OTA) existed as a congressional (not executive) agency to provide neutral analysis to lawmakers; however, the agency perished in 1995. See Darrell M. West, *It Is Time to Restore the US Office of Technology Assessment*, BROOKINGS INST. (Feb. 10, 2021). Moreover, technology, and uncertainty around it, often has complex interactions with (and often complicates) the agenda setting system involving problem perceptions, policy options, and political advocacy. See Nihit Goyal et al., *Why and How Does the Regulation of Emerging Technologies Occur? Explaining the Adoption of the EU General Data Protection Regulation Using the Multiple Streams Framework*, 15 REGUL. & GOVERNANCE 1020, 1022–24 (2021).

¹⁹⁰ Dan Charles, *Congress Just Passed A GMO Labeling Bill. Nobody's Super Happy About It*, NPR (July 14, 2016, 5:34 PM).

¹⁹¹ See, e.g., C. Boyden Gray, *Congressional Abdication: Delegation Without Detail and Without Waiver*, 36 HARV. J.L. & PUB. POL'Y 41, 41–42 (2013); DAVID SCHOENBROD, *POWER WITHOUT RESPONSIBILITY: HOW CONGRESS ABUSES THE PEOPLE THROUGH DELEGATION* 9–12 (1993).

reality.¹⁹² Early available empirical evidence suggests flaws in the argument that Congress will activate in response to stronger nondelegation canons that pull authority from regulators. These studies suggest that judicially expanded nondelegation canons at the state level in the U.S. have either had no discernible effect on state legislative practices or weak effects that only account for part of the variability in state legislative practices.¹⁹³ Further, some evidence suggests that strengthened nondelegation enforcement at the state level may actually *increase* delegations to administrative bodies by Congress, perhaps in part due to the uncertainty that major judicial disruptions on statutory interpretation or delegation norms can create in the legislative process.¹⁹⁴ Other studies have found that Congressional staff in at least some cases do not know about, understand, or account for judicial canons when drafting legislation.¹⁹⁵

¹⁹² Baumann, *supra* note 13, at 6.

¹⁹³ See Edward H. Stiglitz, *The Limits of Judicial Control and the Nondelegation Doctrine*, 34 J.L. ECON. & ORG. 27, 50 (2018) (“For all the debate over the nondelegation doctrine, it is surprising to find that the doctrine appears not much to influence lawmaking behavior. In this sense, these results point to a foundational misconception in the debates over the nondelegation doctrine.”); Daniel E. Walters, *Decoding Nondelegation After Gundy: What the Experience in State Courts Tells Us About What to Expect When We’re Expecting*, 71 EMORY L.J. 417, 421–22 (2022) (“At the state level, unlike in the federal courts, there is substantial variation in outcomes within and across states, making them a living laboratory for studying the likely impacts of an invigoration of the nondelegation doctrine at the federal level. . . . No matter what approach state courts take to the nondelegation problem, though, they converge on a fairly stable and meager invalidation rate, particularly in recent years.”); Daniel E. Walters & Elliott Ash, *If We Build It, Will They Legislate? Empirically Testing the Potential of the Nondelegation Doctrine to Curb Congressional “Abdication”*, CORNELL L. REV. (forthcoming 2023) (manuscript at 11),

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4045079 (“[T]he effects we observe, while statistically significant in some cases, are not of the magnitude needed to meaningfully change the character of modern government. Our best estimate is that, at a maximum, enforcement of the nondelegation doctrine could be expected to reduce the propensity to delegate by about 1.5 percent.”).

¹⁹⁴ Walters & Ash, *supra* note 193, at 1 (“Moreover, we also find some evidence that is directly contrary to the Field of Dreams Theory—that is, we find evidence that enforcement of the nondelegation doctrine actually leads to more implied delegation in the form of vague and precatory statutory language.”).

¹⁹⁵ See generally Abbe R. Gluck & Lisa Schultz Bressman, *Statutory Interpretation from the Inside—an Empirical Study of Congressional*

In the likely absence of Congressional leadership, and the strengthening nondelegation canons that strip administrative agencies of authority for new technologies, a pressing question emerges: what systems of regulation will remain to protect individuals and communities from the health, safety, and wellbeing (including liberty) harms of emerging technologies? The answer may well be various forms of legally voluntary regulation conducted by either government or nonstate actors, sometimes called “soft law.”¹⁹⁶ In at least some instances, government institutions or private litigants can indirectly become involved in enforcing these voluntary or nonstate standards, such as through establishing civil liability by referencing nonstate standards or through consumer protection regulation based on private actors’ statements committing to adhere to voluntary rules.¹⁹⁷ In contrast to binding regulation, softer approaches offer more agility and adaptability, as they generally do not involve detailed procedural requirements and may benefit from a higher degree of private expertise.¹⁹⁸ However, nonstate regulation may also suffer from perceived deficits in transparency or democratic accountability and or fail to achieve public policy goals because they lack sufficient social or market incentives and disincentives—all posing effectiveness and legitimacy issues.¹⁹⁹

An illustrative example of soft law for emerging technologies comes from the Department of Transportation’s (DOT) voluntary

Drafting, Delegation, and the Canons: Part II, 66 STAN. L. REV. 901 (2013); Abbe R. Gluck & Lisa Schultz Bressman, *Statutory Interpretation from the Inside—an Empirical Study of Congressional Drafting, Delegation, and the Canons: Part I*, 66 STAN. L. REV. 1 (2014).

¹⁹⁶ See Kenneth W. Abbott & Duncan Snidal, *Hard and Soft Law in International Governance*, 54 INT’L ORG. 421, 422 (2000); Kenneth W. Abbott et al., *Soft Law Oversight Mechanisms for Nanotechnology*, 52 JURIMETRICS J. 279, 285–86 (2012); David Vogel, *The Private Regulation of Global Corporate Conduct*, 49 BUS. & SOC’Y 1, 5 (2010).

¹⁹⁷ Wendell Wallach & Gary E. Marchant, *Toward the Agile and Comprehensive International Governance of AI and Robotics*, 107 PROC. IEEE 505, 506 (2019).

¹⁹⁸ Abbott et al., *supra* note 196, at 301–02; see Diana M. Bowman & Graeme A. Hodge, *Counting on Codes: An Examination of Transnational Codes as a Regulatory Governance Mechanism for Nanotechnologies*, 3 REGUL. & GOVERNANCE 145, 147 (2008).

¹⁹⁹ Abbott et al., *supra* note 196, at 307; Bowman & Hodge, *supra* note 198, at 147–48.

program around autonomous vehicles (AVs).²⁰⁰ One notable focus of the DOT approach has been through using guidance to identify relevant technical standards, set by prominent transnational standard-setting organizations, and recommending that industry actors voluntarily comply with the nonstate standards.²⁰¹ The National Highway Traffic Safety Administration (NHTSA), an agency within DOT, has run a voluntary reporting program, where AV developers can submit information via a “Voluntary Safety Self-Assessment” to communicate their approaches to regulators and the public.²⁰² However, compliance with these nominally voluntary standards and reporting requirements is likely fostered, at least in part, by the real possibility that regulators could step up enforcement measures should real harm result from irresponsible AV development. The Department has continued to consider binding rules for at least some aspects of AVs, including through NHTSA initiating consideration on a framework for safety regulation.²⁰³

While these “softer” strategies have the potential to promote positive policy outcomes, removing or chilling binding state regulation could significantly weaken even these voluntary or nonstate governance approaches for emerging technologies for at least two reasons.²⁰⁴

First, policymakers can deploy binding regulation by administrative agencies alongside soft law options to create various policy mixes, some of which can have high effectiveness and legitimacy.²⁰⁵ Removing or chilling binding regulation also reduces the potential options policymakers have to create multilayered, adaptive oversight systems to manage the benefits and risks of emerging technologies given their unique circumstances and groups of

²⁰⁰ See generally U.S. DEP’T OF TRANSP., AUTOMATED VEHICLES: COMPREHENSIVE PLAN (Jan. 2021), www.transportation.gov/sites/dot.gov/files/2021-01/USDOT_AVCP.pdf.

²⁰¹ See generally U.S. DEP’T OF TRANSP., PREPARING FOR THE FUTURE OF TRANSPORTATION: AUTOMATED VEHICLES 3.0 (Oct. 2018), <https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf>.

²⁰² See U.S. NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., OMB No. 2127-0723, VOLUNTARY SAFETY SELF-ASSESSMENT, www.nhtsa.gov/automated-driving-systems/voluntary-safety-self-assessment (last visited Sept. 14, 2022).

²⁰³ Framework for Automated Driving System Safety, 85 Fed. Reg. 78058 (2020).

²⁰⁴ See generally Vogel, *supra* note 196.

²⁰⁵ See generally NEIL GUNNINGHAM & PETER GRABOSKY, SMART REGULATION: DESIGNING ENVIRONMENTAL POLICY (1998).

stakeholders. The consequence would likely be less effective and uncoordinated policies regarding emerging technologies.

Second, a good deal of nonstate regulation and compliance with voluntary regulatory programs initiated by government agencies occurs “in the shadow of the state;” that is, the potential of government eventually establishing formal, binding rules in the future.²⁰⁶ When private actors and industries are not presently subject to binding law, they have various types of incentives to craft, interpret, or comply with voluntary norms and even to enforce those norms on other industry actors.²⁰⁷ Even if private actors are motivated in part by the desire to avoid binding regulation, a voluntary or nonstate regulatory regime can still lead to potentially beneficial policy outcomes.²⁰⁸ However, placing a chilling effect on novel and inherited regulatory strategies, or outright use of judicial canons to block them in specific cases, could remove or lessen this shadow and its motivating and deterrent effects on (potentially) regulated actors.²⁰⁹ Ultimately, this second effect could lead to fewer nonstate regulatory initiatives, especially those proposed and meaningfully implemented by private industry actors, and less compliance with voluntary regulatory programs initiated by government actors.

In the case of AV regulation, removing or chilling the DOT’s capacity to manage AVs could have potentially negative consequences even for the voluntary program it administers. Absent the “shadow of the state,” AV developers would have fewer incentives to participate in and comply with the DOT’s voluntary reporting and standards program for AVs (though reputational, market, and internal sources of motivation could remain).²¹⁰ Further, strengthened nondelegation canons including the new major questions doctrine could prevent or disincentivize DOT from leveraging potential policy mixes by setting binding standards around safety for AVs while still leaving other

²⁰⁶ See THE POLITICS OF GLOBAL REGULATION 83–87 (Walter Mattli & Ngaire Woods eds., 2009). Notably, international dynamics exist here as well, and private actors seeking to do business across jurisdictional borders may operate in the shadow or multiple states, perhaps especially that of the European Union. See ANU BRADFORD, THE BRUSSELS EFFECT: HOW THE EUROPEAN UNION RULES THE WORLD, at xiii–xvi (2020).

²⁰⁷ THE POLITICS OF GLOBAL REGULATION, *supra* note 206, at 83–87.

²⁰⁸ See Vogel, *supra* note 196, at 21–22.

²⁰⁹ See, e.g., Lucille Tournas & Gary E. Marchant, *The Fountain of Youth Revisited: Regulatory Challenges and Pathways for Healthspan Promoting Interventions*, 74 FOOD & DRUG L.J. 18, 20–21, 45 (2019).

²¹⁰ See generally Abbott & Snidal, *supra* note 196.

domains such as data protection and interoperability open to more agile voluntary standards.

C. *Issues of Narratives Around Nondelegation and Technology*

Moving from law and policy to politics and discursive matters, the major questions doctrine may have particular efficacy in deconstructing or chilling administrative agency efforts to use novel and inherited regulatory approaches. Common narratives around technology governance insist not only that the pacing problem exists in the empirical sense, but also that it is normatively desirable for the public sector to avoid interfering with the development of new technologies.²¹¹ These accounts often depict government regulation (inherited or novel) as clumsy, rigid, or untargeted and raise fears that any public sector regulation may derail innovation towards more socially beneficial technologies, competition to support further innovation, and potential economic gains associated with technology development.²¹² This sort of “innovation imperative” recasts the primary role of public policy as to support innovation, and sidelines other vital public interests in search of ever more innovation.²¹³

These politics of innovation imperatives may offer high potential to intertwine with the anti-administrative sentiments undergirding newer and more aggressive nondelegation canons.²¹⁴ The major question doctrine in Supreme Court jurisprudence, for example, appears motivated by a vision that unelected administrative officials should not make important policy decisions.²¹⁵ Innovation imperatives may only reinforce or blend with these convictions. For instance, suspicion that government regulation can only have negative consequences for innovation and technology development may be

²¹¹ See, e.g., ADAM THIERER, PERMISSIONLESS INNOVATION: THE CONTINUING CASE FOR COMPREHENSIVE TECHNOLOGICAL FREEDOM 1, 110 (2016).

²¹² *Id.* at 120. (Government funding and support of technological innovation is rarely considered interference, which instead goes largely unnoticed); see generally MAZZUCATO, *supra* note 2.

²¹³ Sebastian M. Pfotenhauer, Joakim Juhl & Erik Aarden, *Challenging the “Deficit Model” of Innovation: Framing Policy Issues Under the Innovation Imperative*, 48 RSCH. POL’Y 895, 895–96, 903 (2019).

²¹⁴ See generally Baumann, *supra* note 13; Brunstein & Revesz, *supra* note 160; Metzger, *supra* note 24; Richardson, *supra* note 32.

²¹⁵ Emerson, *supra* note 15, at 2045–48. Of course, it is also unclear at times to determine where political support for nondelegation canons ends and support for complete destruction of public regulation begins. See generally PHILIP HAMBURGER, IS ADMINISTRATIVE LAW UNLAWFUL? (2014).

enhanced by injecting the belief that regulators are undemocratic, illegitimate decision makers. Similarly, the stakes that innovation imperatives raise for technological development – more beneficial products, competition, and economic productivity – may contribute to judicial perceptions that policy questions around technology are “major” and deserve of greater scrutiny under the major questions doctrine or another doctrine. How these narratives might blend in practice, and with what results on the regulatory process, merits future research.

Synthesizing innovation and anti-administration politics may produce a particularly unfavorable political environment for advancing novel or inherited regulatory policy to address the risks and uncertainties that emerging technologies pose to the public. This intertwined political narrative may predispose courts to place particular scrutiny on regulatory decisions affecting new technologies. Alternatively, this redoubled political narrative could add to the chilling effects of the major questions doctrine by increasing regulator concerns that their actions will simply be overturned in court or by convincing regulators themselves that their nonaction on technology issues is normatively desirable. Either path illustrates how nondelegation canons and innovation imperatives may undercut meaningful regulation for emerging technologies through not only direct legal decision making, but also through broader political and discursive shifts.

V. REGULATING TECHNOLOGY UNDER EVOLVING NONDELEGATION CANONS

This article has argued that novel and inherited regulation that offers a foundational tool in the governance of emerging technologies and that aggressive nondelegation canons, such as the major questions doctrine, pose direct and indirect threats to governance for the public interest by state and nonstate regulators. Public regulation of technology remains one of several vital levers for distributing benefits, mitigating risks, and developing systems that can withstand uncertainty—and this often happens primarily, at least at first, through inherited regulatory processes and not by legislative action given the political and agenda-setting issues considered above. Through the judiciary eroding the legal and political basis for novel and inherited regulation, the power of the state to achieve public policy goals could be diminished and absorbed by private actors in the technology realm, who face incentives and disincentives that may compete with or

frustrate the public interest. Just as outsized administrative power may pose threats to democratic systems and human wellbeing, so do judicial aggrandizement and unchecked private power in the development of technology.²¹⁶ When government regulation proceeds in an accountable and deliberative fashion including all relevant stakeholders,²¹⁷ novel and inherited regulation can provide needed tools for promoting the public interest as societies continue to make decisions about how best to use technology.

Yet, if evolving nondelegation canons threaten novel and inherited regulatory approaches through legal, policy, and political vectors, then what will become of regulation for emerging technologies in the US? Given the immense complexity of technological innovation and the uncertainty inherent in evolving nondelegation canons – most notably, the major questions doctrine – no simple answer exists, nor does any silver bullet solution to advancing normatively desirable regulatory systems for emerging technologies. Instead, a new status quo may be emerging, which will require time to evaluate empirically and may demand new tools or strategies, likely in combination, to adequately address.

Here, we begin to reflect on this approaching reality by reflecting on administrative law and politics moving forward in the technology space, alternative regulatory options and configurations, and the need for renewed narratives supporting the legitimacy of technology regulators under conditions of appropriate accountability. Importantly, these reflections should not discount the vital role that

²¹⁶ Following regulatory theorists such as John Braithwaite, we take inspiration from civic republican thought that strives to achieve systems of governance structured by the “thick” notion of “freedom as non-domination,” where various types of power are fragmented across public, private, and civil actors to discourage the arbitrary use of power and enable meaningful self-determination for individuals and communities. *See* BRAITHWAITE, *supra* note 21, at 85 (“Rather, for the complex world of regulatory capitalism, republican freedom requires many separations of private and public powers, not just three branches of state governance.”); JOHN BRAITHWAITE, *MACROCRIMINOLOGY AND FREEDOM* 35 (2022) (“Nondomination means the tempering of arbitrary power over others. Freedom from patriarchy, poverty and state and corporate tyrannies is central to nondomination.”).

²¹⁷ Deliberation and the inclusion of all stakeholders, not merely regulated entities, is vital since a regulator’s legitimacy flows from “those who are relying on the regulatory system to protect or support them, for example as producers, citizens or consumers, as well as those it is seeking to regulate.” Julia Black, *Constitutionalising Regulatory Governance Systems* 11 (LSE Legal Studies Working Paper No. 02/2021, 2021), <http://dx.doi.org/10.2139/ssrn.3813812>; *see generally* Bernstein & Rodriguez, *supra* note 121.

judicial review can and still does play in bringing regulatory practice in line with constitutional values,²¹⁸ though we view the evolving major question doctrine in particular as surpassing this desirable function in likely harmful or arbitrary ways. Further, these reflections should be considered in the context of meaningful accountability and deliberative measures to ensure regulators are responsive to the public, though considering such measures in depth goes beyond the scope of this article. Our comments here should not be viewed as comprehensive or exhaustive, but we hope they can spark further discussion and action towards promoting the benefits and mitigating the risks of emerging technologies in the US and transnationally.

A. *New Legal Realities*

In light of evolving nondelegation canons and trends towards anti-administrative sentiments in the judiciary, proposing comprehensive legal strategies for protecting novel and inherited regulatory oversight becomes difficult. Particularly with uncertainty in how different federal courts and appellate circuits will apply the dynamic major questions doctrine over time and uncertainty over how the Supreme Court may expand or adjust the doctrine, and the chilling effect this uncertainty may have on technology regulation, it may be too early to develop robust legal response strategies.²¹⁹ Further, while reforms to the major questions doctrine itself (or other aggressive nondelegation canons) may be normatively desirable, the structure and politics of the current Court make these solutions appear unlikely in the near term.²²⁰

While some legal strategies for promoting technology regulation in major questions doctrine cases can be considered, few appear satisfying at this time.²²¹ For example, to address the novelty component of the doctrine,²²² arguments shifting judicial focus away

²¹⁸ See Black, *supra* note 217, at 18–19; see generally CASS SUNSTEIN & ADRIAN VERMEULE, LAW AND LEVIATHAN: REDEEMING THE ADMINISTRATIVE STATE (2020).

²¹⁹ See *supra*, Part IV.

²²⁰ *E.g.*, Emerson, *supra* note 15, at 2087–93. Another bold strategy comes from the potential to support some administrative action under Article II powers, which we do not consider here. See Mark Nevitt, *Delegating Climate Authorities*, 39 YALE J. REGUL. 777, 782, 804 (2022); see generally Lemley, *supra* note 13.

²²¹ See Lemley, *supra* note 13, at 18–22.

²²² See Deacon & Litman, *supra* note 13, at 3, 48–51.

from the novel technology itself and towards the types of harms regulatory agencies are authorized to intervene on may provide some utility.²²³ In a prospective challenge to the FDA's ability to oversee human reproductive cloning, for instance, emphasizing the agency's ongoing authority to ensure medical products are safe and effective may offer greater value than meditating on how reproductive technologies are unlike other medical products the agency oversees. Of course, this does not offer a complete defense, as recent Supreme Court cases applied clear statement principles to cut down CDC and OSHA regulatory programs even though they were grounded in arguably clear statutory authority to promote public health and workplace safety respectively.²²⁴

Similarly, and when technology must be discussed directly, legal arguments emphasizing the emergent nature of new technologies may aid in limiting the perceived economic and political impact of a new or inherited regulatory scheme—as there may be genuine uncertainty about the extent of impact a new technology and its regulation may have on politics and various sectors of the economy.²²⁵ Responding to challenges on future efforts to oversee digital platforms could, perhaps, benefit from emphasizing the uncertainty over the breadth and depth of economic impacts that rules around data practices or digital technologies may precipitate.²²⁶ Yet, this offers an incomplete strategy as well, since Supreme Court decisions eliminated OSHA and EPA regulations prior to their full implementation and thus prior to an opportunity to empirically determine the breadth of regulatory impact.²²⁷

²²³ See Lyria Bennett Moses, *How to Think About Law, Regulation and Technology: Problems With 'Technology' As a Regulatory Target*, 5 L., INNOVATION & TECH. 1, 18 (2013) (“We need to think more broadly about how to regulate to protect values and minimise harm in light of an evolving socio-technical landscape rather than simply asking how technology ought to be regulated.”).

²²⁴ See *Alabama Ass'n of Realtors v. Dep't of Health & Human Serv.*, 141 S. Ct. 2485, 2486 (2021); *Nat'l Fed'n Indep. Bus.*, 142 S. Ct. at 664 (2022); see also Gostin et al., *supra* note 85, at 713–14; Mark A. Rothstein, *The OSHA COVID-19 Case and the Scope of the Occupational Safety and Health Act*, 50 J.L. MED. & ETHICS 368, 371–72 (2022).

²²⁵ On economic and political significance in general, see Heinzerling, *supra* note 37, at 1950–53.

²²⁶ See Trade Regulation Rule on Commercial Surveillance, 87 Fed. Reg. 51273 (proposed Aug. 21, 2022).

²²⁷ See *Nat'l Fed'n Indep. Bus.*, 142 S. Ct. at 664; *West Virginia*, 142 S. Ct. at 2604, 2616; see also *Brown & Williamson*, 529 U.S. at 125–26.

Ultimately, substantial uncertainty remains in how different federal courts may apply evolving nondelegation canons to the regulation of emerging technologies, contributing to a legal environment hostile to public oversight efforts. The major questions doctrine and other aggressive nondelegation rules have forged a deeply unpredictable, arbitrary, and undemocratic sword for the judiciary to wield against the regulatory state.²²⁸ This striking power shift is of exactly the type that Justice Scalia warned against in *City of Arlington*.²²⁹ This appears particularly true for expanding oversight into new arenas of emerging technologies, where efforts are highly likely to be perceived as novel, political, and economically troubling, and the major questions doctrine appears uninterested in how new efforts fit into broader policy goals and statutory mandates from Congress.²³⁰ Broad latitude in when and how to apply the major questions doctrine may indeed be an intentional feature of these evolving nondelegation canons, as it confers wide discretion on courts in dictating regulatory policy and may chill future oversight efforts.²³¹ The upshot is an environment where the federal judiciary may upset foundational rule of law norms in the regulation of emerging technologies by using unpredictable and arbitrary tools to chill or corrode not only policy but also active or potential deliberation occurring between regulators and various stakeholders – including expert scientists, ethicists, technology developers, and civil society organizations – which support crafting meaningful and robust regulation for emerging technologies.²³²

In this new setting, regulators and stakeholders should be aware of the legal vulnerability of efforts to manage nascent technologies; which may adjust which policy options or recommendations are perceived as possible or shift the Overton window on regulatory policy for emerging technologies.²³³ Moreover,

²²⁸ See Emerson, *supra* note 15, at 1; Heinzerling, *supra* note 31, at 2256–57; Heinzerling, *supra* note 37, at 1982–99; Richardson, *supra* note 32, at 195–98, 201–06.

²²⁹ *City of Arlington*, 133 S. Ct. at 1872–73.

²³⁰ See *supra*, Part IV; Deacon & Litman, *supra* note 13, at 57–58, 60–62; Monast, *supra* note 54, at 478–80.

²³¹ See Emerson, *supra* note 15, at 8.

²³² This could be exacerbated further by the trend seen this past Supreme Court term to hear major questions doctrine claims through emergency proceedings on the opaque “shadow docket.” *E.g.*, *id.*

²³³ See Maggie Astor, *How the Politically Unthinkable Can Become Mainstream*, N.Y. TIMES (Feb. 26, 2019).

some agencies with a longer history of political scrutiny may face greater pressures from aggressive nondelegation canons in their efforts to manage emerging technologies; perhaps including the EPA or financial regulators. Clearly, further research, legal experimentation, and advocacy will be required over time as the impact on the public interest and application of evolving nondelegation canons becomes more legible in different federal courts. We begin these efforts below by briefly considering some regulatory and political responses to this new environment.

B. Different Mixes of Regulatory Tools and Strategies

Even if strengthened nondelegation canons directly or indirectly interfere with administrative agencies' capacity to set binding rules or initiate programs, regulators still have options (albeit fewer) for crafting oversight systems for emerging technologies. Rulemaking, rule interpretation, and enforcement are not regulators' only roles or powers. Even in the setting of aggressive nondelegation canons, regulators will still maintain several immediate options. Regulatory agencies can continue to work to steer technology development in more positive directions with softer tools, which are always part of the regulatory toolbelt. These options may include (1) persuasion through formal or informal dialogue, (2) aiding private actors in building internal capacity to detect, understand, and respond to risks, (3) rewarding or celebrating private actors making good faith efforts or achieving desirable outcomes, or (4) monitoring the industry and releasing information to the public to name-and-shame underperforming or bad actors while empowering civil society groups to take legal or political action based on that information.²³⁴ Administrative agencies can also use their reputation and clout to convene and engage with stakeholders and regulators in other jurisdictions through formal and informal meetings or workshops, enabling discussions about norms and challenging issues around

²³⁴ See generally IAN AYRES & JOHN BRAITHWAITE, *RESPONSIVE REGULATION: TRANSCENDING THE DEREGULATION DEBATE* (1992); Julien Etienne, *Ambiguity and Relational Signals in Regulator-Regulatee Relationships*, 7 *REGUL. & GOVERNANCE* 30 (2012); GUNNINGHAM & GRABOSKY, *supra* note 205 (exploring how private and civil society actors can contribute to regulatory environments); NEIL GUNNINGHAM & DARREN SINCLAIR, *LEADERS AND LAGGARDS: NEXT-GENERATION ENVIRONMENTAL REGULATION* (2002); Nielsen & Parker, *supra* note 118 (illustrating various different types of motivations of regulated actors to comply with rules); Parker, *supra* note 144; CHRISTINE PARKER, *THE OPEN CORPORATION: EFFECTIVE SELF-REGULATION AND DEMOCRACY* (2002).

technology development and use, even if no binding standards arise from the conversations.²³⁵ By intentionally bringing third-party actors such as civil society organizations or professional associations into such meetings, regulators can promote paths to nonstate governance and enable diverse stakeholders to contribute to or challenge dominant narratives around a particular technology or end use.²³⁶ Agencies can also communicate with Congress through formal and informal processes to convey policy concerns or best practices, potentially triggering lawmaker action.²³⁷

Coordination between administrative agencies may also provide potential alternative pathways to establish governance systems for emerging technologies. Congress frequently makes overlapping delegations that may actually or potentially grant several agencies shared authority over a sector, and agencies can coordinate their shared power through tools such as formally or informally consulting with one another on policy, setting memoranda of understanding to divide jurisdiction and responsibility, or engaging in joint rulemaking.²³⁸ Especially as emerging technologies raise new policy challenges that blur the lines of sectors and regulatory spaces, regulators may either

²³⁵ See Emerson, *supra* note 15, at 2081–83; Mariano-Florentino Cuellar, *Rethinking Regulatory Democracy*, 57 ADMIN. L. REV. 411, 412–18, 497–99 (2005); see generally Etienne, *supra* note 234 (outlining the types of relationships that administrative agencies can have with regulated actors, and some associated dynamics).

²³⁶ See generally AYRES & BRAITHWAITE, *supra* note 234, at 6, 54, 57–60, 159–60 (conceptualizing “tripartisanism” as a way for civil society actors to become involved in the regulatory process to reduce the risk of capture and enhance policy outcomes); see generally Julia Black, *Constructing and Contesting Legitimacy and Accountability in Polycentric Regulatory Regimes*, 2 REGUL. & GOVERNANCE 137 (2008).

²³⁷ See, e.g., Jarrod Shobe, *Agencies as Legislators: An Empirical Study of the Role of Agencies in the Legislative Process*, 85 GEO. WASH. L. REV. 451, 453–59 (2017). Indeed, many administrative agencies have some type of legislative affairs subunit within their formal organization to liaise with congressional staff on legislative and regulatory matters. E.g., *Office of Congressional Relations*, U.S. FED. TRADE COMM’N, www.ftc.gov/about-ftc/bureaus-offices/office-congressional-relations (accessed Nov. 23, 2022); *Office of Legislation*, U.S. FOOD & DRUG ADMIN., www.fda.gov/about-fda/office-policy-legislation-and-international-affairs/office-legislation (accessed Nov. 23, 2022).

²³⁸ See Jody Freeman & Jim Rossi, *Agency Coordination in Shared Regulatory Space*, 125 HARV. L. REV. 1131, 1155–73 (2012).

benefit from sharing expertise and best practices or may need to coordinate to avoid conflicting claims over regulatory jurisdiction.²³⁹

Coordination may also provide potential routes to crafting meaningful regulatory systems for new technologies when faced with evolving nondelegation canons. For instance, should one agency's initiative suffer major questions doctrine setbacks in federal court or feel acute political pressure against establishing new programs, a different agency in the shared space may still be able to take binding or informal action to manage the benefits and risks of the technology.²⁴⁰ Further, agency coordination may enable regulators to collectively build an oversight scheme from their shared powers that would not be possible through working independently.²⁴¹ This has particular benefits when managing emerging technologies, as the technologies or their use may blur the lines between agency jurisdiction or even escape oversight when regulators with underlapping scopes act independently.²⁴² For instance, the Coordinated Framework for Regulation of Biotechnology provides an institutional setting for three agencies with similar authority to coordinate their actions on various emerging biotechnologies and potentially share insights or best practices even when an individual agency decides a technology falls outside the scope of its statutory mandates.²⁴³ While agencies using overlapping delegations to potentially go beyond congressional intent raises accountability concerns, Congress and the Executive Office of the President can and should oversee agency coordination to build more public accountability into the process.²⁴⁴

Even should administrative agencies become legally or politically confined to act on emerging technologies more through voluntary measures than binding norms, regulatory agencies can still

²³⁹ See generally Walter G. Johnson, *Conflict Over Cell-Based Meat: Who Should Coordinate Agencies in U.S. Biotechnology Regulation?*, 74 FOOD & DRUG L.J. 478 (2019); Albert C. Lin, *Mismatched Regulation: Genetically Modified Mosquitoes and the Coordinated Framework for Biotechnology*, 51 UC DAVIS L. REV. 205 (2017).

²⁴⁰ See Jason Marisam, *Duplicative Delegations*, 63 ADMIN. L. REV. 181, 232 (2011).

²⁴¹ See Daphna Renan, *Pooling Powers*, 115 COLUM. L. REV. 211, 213, 218–31, 234–35 (2015).

²⁴² See *id.* at 239–40; see generally Walter G. Johnson, *Catching Up with Convergence: Strategies for Bringing Together the Fragmented Regulatory Governance of Brain-Machine Interfaces in the U.S.*, 30 ANN. HEALTH L. & LIFE SCI. 177 (2021).

²⁴³ See Lin, *supra* note 239, at 213–14.

²⁴⁴ See Johnson, *supra* note 239, at 489–92, 499–500; Marisam, *supra* note 240, at 231–36.

act strategically to boost the effectiveness of their programs by “enrolling” nonstate actors in the regulatory project.²⁴⁵ Through a number of strategies, administrative agencies can encourage and even orchestrate actors including professional or industry organizations, standard-setting bodies, and civil society organizations to conduct regulatory activities such as setting (legally voluntary) norms as well as monitoring for compliance with and enforcing those standards through nonstate channels.²⁴⁶ By enrolling nonstate actors in regulatory activities, administrative agencies can stimulate governance for emerging technologies even without formal statutory authority to set legally binding rules. For example, the DOT’s efforts on autonomous vehicles has seen DOT agencies promoting and participating in standard-setting organizations such as the International Organization for Standards (ISO),²⁴⁷ which may lend legitimacy to the legally voluntary standards produced by bodies such as ISO and may even support their use in civil or criminal liability or insurance underwriting.²⁴⁸ Private actors enforcing nonbinding norms on one another can still come with significant consequences under the right conditions, as illustrated by the recent case of Apple implementing stronger data privacy settings contributing to a 25 percent decrease in Meta’s financial valuation.²⁴⁹

However, enrolling third party actors into the regulatory environment also creates greater complexity for regulators to manage—perhaps especially if nondelegation canons interfere with the shadow of the state.²⁵⁰ Administrative agencies would need to dedicate significant resources to overseeing the regulatory activities of these private and civil actors to ensure their programs do indeed advance public policy goals, to promote transparency and accountability in their

²⁴⁵ See generally Abbott & Snidal, *supra* note 196; Julia Black, *Enrolling Actors in Regulatory Systems: Examples from UK Financial Services Regulation*, 2003 PUB. LAW 63 (2003); Chrisitan Downie, *Steering Global Energy Governance: Who Governs and What Do They Do?*, 16 REGUL. & GOVERNANCE 487 (2022).

²⁴⁶ E.g., Abbott & Snidal, *supra* note 196; Black, *supra* note 245; Downie, *supra* note 245.

²⁴⁷ See U.S. DEP’T OF TRANSP., *supra* note 200, at 49–63.

²⁴⁸ See Gary E. Marchant, ‘Soft Law’ Mechanisms for Nanotechnology: *Liability and Insurance Drivers*, 17 J. RISK RES. 709, 713–18 (2014); see generally GUNNINGHAM & GRABOSKY, *supra* note 205.

²⁴⁹ Meghan Bobrowsky, *Facebook Feels \$10 Billion Sting From Apple’s Privacy Push*, WALL STREET J. (Feb. 3, 2022).

²⁵⁰ See generally Abbott & Snidal, *supra* note 196.

nonstate regulation, and to reduce the potential for regulated firms to have undue influence on these nonstate regulators.²⁵¹ Despite these limitations and costs, enrolment may still offer a valuable path forward should aggressive nondelegation canons significantly restrict novel or inherited regulatory strategies.

C. *The Need for New Narratives*

Ultimately, facilitating the capacity of federal regulatory bodies to oversee emerging technologies and promote the public interest will also require political support, which may in turn require new justifications and narratives around regulating technology.²⁵² Studies in flexible regulation in general find that regulators require political support to retain flexibility and effectiveness in their programs,²⁵³ which inherited regulation will likely benefit from given the need to reinterpret and adapt existing rules to novel situations. Further, Deacon and Litman conclude that the new major question doctrine appears more likely to trigger if an issue becomes politically controversial,²⁵⁴ so preventing or resolving controversy before significant litigation begins could become vital. Should narratives of innovation and nondelegation interweave to create even more politically powerful narratives disfavoring technology regulation,²⁵⁵ new political narratives and political coalitions may be needed to reassert the potential value of accountable regulators taking action in the public interest.

At least a part of the challenge arises from the need to inform legislative and regulatory policymakers on the issues of technology policy, which can present challenges in providing neutral technology assessment to policymakers.²⁵⁶ Policymakers may also need information on novel tools for governing technologies along with the

²⁵¹ See Lesley K. McAllister, *Harnessing Private Regulation*, 3 MICH. J. ENV'T & ADMIN. L. 291, 399–409 (2014); Lesley K. McAllister, *Regulation by Third-Party Verification*, 53 B.C.L. REV. 1, 28–46 (2012); see generally Rory Van Loo, *Regulatory Monitors: Policing Firms in the Compliance Era*, 119 COLUM. L. REV. 369 (2019).

²⁵² See e.g., Calo, *supra* note 104, at 29.

²⁵³ See Sharon Gilad, *It Runs in the Family: Meta-Regulation and Its Siblings*, 4 REGUL. & GOVERNANCE 485, 502–03 (2010); Parker, *supra* note 144, at 613–16.

²⁵⁴ See Deacon & Litman, *supra* note 13, at 32–37.

²⁵⁵ Part IV.C, *supra*.

²⁵⁶ See, e.g., David H. Guston & Daniel Sarewitz, *Real-Time Technology Assessment*, 24 TECH. IN SOC'Y 93, 93–95 (2002); Grant Tudor & Justin Warner, *Congress Should Revive the Office of Technology Assessment. Here's How to Do It*, BROOKINGS (Dec. 18, 2019).

strengths and, crucially, weaknesses of those new policy options.²⁵⁷ Yet, broader narratives and coalitions designed to support the legitimacy of administrative agencies managing issues of emerging technology governance in general may also be required, particularly to push against intertwined “innovation imperatives” and anti-administrative narratives.²⁵⁸ While we cannot formulate a comprehensive response here, existing work may provide potentially valuable starting points to direct future research and advocacy.

For example, Professors Sunstein and Vermeule assert it is not only possible but normatively desirable to simultaneously recognize that government actors require limits and accountability mechanisms to facilitate rule of law values, while also arguing that public administrative bodies should and do have the power and duty to promote the public health, safety, and wellbeing through various approaches.²⁵⁹ Regulation is not an unalloyed good, and can be designed poorly or used for harmful ends by a variety of actors.²⁶⁰ Yet regulatory systems no doubt have the real potential to deliver on goals to promote the public interest and social justice—including in the face of rampant innovation.²⁶¹ While greater accountability mechanisms may be normatively desirable,²⁶² there is sufficient reason to believe that strong nondelegation canons will do little to solve this problem while only frustrating the ability of agencies to act in good faith to promote the public interest. Buttressing this argument is early empirical evidence suggesting that strong nondelegation canons are

²⁵⁷ E.g., Chris Brummer & Yesha Yadav, *Fintech and the Innovation Trilemma*, 107 GEO. L.J. 235 (2019); Ranchordás, *supra* note 105; Kristen Underhill & Ian Ayers, *Sunsets Are for Suckers: An Experimental Test of Sunset Clauses*, 59 HARV. J. LEGIS. 101 (2022).

²⁵⁸ See generally Baumann, *supra* note 13; Metzger, *supra* note 24; Pfotenhauer et al., *supra* note 213.

²⁵⁹ See generally SUNSTEIN & VERMEULE, *supra* note 218.

²⁶⁰ Intellectual property regulation at the national and international levels, for instance, have been promoted in their current form by private interests to their significant economic benefit. See SUSAN SELL, PRIVATE POWER, PUBLIC LAW: THE GLOBALIZATION OF INTELLECTUAL PROPERTY RIGHTS 172–79 (2003); see generally Cédric Durand & William Milberg, *Intellectual Monopoly in Global Value Chains*, 27 REV. INT’L POL. ECON. 404 (2020).

²⁶¹ See generally FORD, *supra* note 103.

²⁶² Indeed, the nondelegation doctrine and arguments supporting its increased use can be interpreted as unfocused or distorted (broader) concerns around regulatory accountability. See Cynthia R. Farina, *Deconstructing Nondelegation*, 33 HARV. J.L. & PUB. POL’Y 87, 89, 98–102 (2010).

unlikely to create meaningful, lasting incentives on lawmakers to craft novel legislation.²⁶³

Further, narratives assuming that government regulation will only suppress innovation can be challenged. Counternarratives about how well-crafted regulation may actually promote technological innovation and uptake have potential utility here, and could gain increased support with the European Union endorsing such rationales for proposing its scoping regulatory framework on AI.²⁶⁴ The European Commission argues that its proposed framework will actually support AI innovation in Europe, both by providing technology developers with regulatory predictability and by building trust with the public through managing various policy and social concerns with these digital technologies.²⁶⁵ The narrative that well-designed regulation can improve public acceptance and legal predictability while also providing for public safety, health, and wellbeing may offer a potential check to anti-administrative innovation imperatives. Of course, we do not intend on supporting one particular narrative here, only to note that others are possible and call for further deliberation.

Rather than turning to aggressive nondelegation canons as a blunt and likely ineffectual tool to address accountability and innovation concerns in the regulation of emerging technologies,²⁶⁶ a more nuanced concept of democratic deliberation and accountability in administration may offer a more useful starting point for further debate. Legal and political theorists have recently pointed to the deliberative dimension of regulatory practice – where stakeholders have space to

²⁶³ *E.g.*, Stiglitz, *supra* note 193, at 29–30, 50; Walters & Ash, *Decoding Nondelegation*, *supra* note 193, at 421–23; *see also* Freeman & Spence, *supra* note 12, at 7 (“agencies are better suited than courts to do that updating work [of old statutes] and that the case for deferring to agencies in that task is stronger than ever with Congress largely absent from the policymaking process”).

²⁶⁴ European Commission, Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts (COM/2021/206 final); *see generally* Stefan Ambec, Mark A. Cohen, Stewart Elgie & Paul Lanoie, *The Porter Hypothesis at 20: Can Environmental Regulation Enhance Innovation and Competitiveness?*, 7 *REV. ENV'T ECON. & POL'Y* 2 (2013).

²⁶⁵ *See* European Commission, *supra* note 264, at 10. Whether the regulatory framework can actually achieve these ends is a separate, empirical question, and we only aim to consider the narrative applied here.

²⁶⁶ Further, strong nondelegation canons, including the major questions doctrine, appear likely to generate or exacerbate issues of accountability in the judiciary. *E.g.*, Richardson, *supra* note 32, at 200–01; *see generally* Emerson, *supra* note 148.

discuss their interests and perspectives in ways that will inform regulatory action – as a way to support the democratic legitimacy of the regulatory process.²⁶⁷ Notice and comment processes are useful here, albeit slow, although there is certainly room for strengthening deliberation across levels of government and a corresponding need to prevent stakeholder exclusion from (or domination in) deliberative regulatory spaces.²⁶⁸ Stronger narratives of and strategies to enhance the quality and inclusiveness of deliberation in regulatory practice for emerging technologies may not only draw better information and insights on innovative technologies into the process – to craft better policy – but also assist with the larger project of promoting non-domination and embedding constitutional values into regulatory and administrative practice.²⁶⁹ Future work should engage more deeply with these questions of how to find appropriate and nuanced justifications for the regulation of emerging technologies in settings of suitable accountability.

VI. CONCLUSION

This article has reviewed shifts in the Supreme Court's nondelegation jurisprudence – particularly through the major questions doctrine – and argues these moves will threaten the novel and inherited regulatory strategies that administrative agencies commonly adopt to manage the benefits and risks of various emerging technologies. Extending pre-existing rules and regulatory frameworks offers key advantages by empowering regulators to act early to steer the development of novel technologies pursuant to their broader Congressional mandates and policy goals, without the need for further legislative authorization. While inherited regulation has both strengths and weaknesses, as any regulatory approach will, it represents a critical tool that aids administrative agencies in governing emerging

²⁶⁷ E.g., Emerson, *supra* note 15, at 2073–86; Glen Staszewski, *Political Reasons, Deliberative Democracy, and Administrative Law*, 97 IOWA L. REV. 849, 885–93 (2012).

²⁶⁸ See Evisa Kica & Diana M. Bowman, *Regulation by Means of Standardization: Key Legitimacy Issues of Health and Safety Nanotechnology Standards*, 53 JURIMETRICS J. 11, 53–55 (2012); see generally Andre Bächtiger, John S. Dryzek, Jane Mansbridge & Mark Warren, *Deliberative Democracy: An Introduction*, in THE OXFORD HANDBOOK OF DELIBERATIVE DEMOCRACY (2018).

²⁶⁹ See Black, *supra* note 217, at 11–12; BRAITHWAITE, MACROCRIMINOLOGY AND FREEDOM, *supra* note 216, at 35; Staszewski, *supra* note 267, at 887–88.

technologies and their complex set of benefits, risks, and uncertainties in a relatively agile manner.²⁷⁰ Extending pre-existing regulatory frameworks to new innovations further provides administrative agencies with realistic and actionable tools, without submitting to the pacing problem or private-led governance as inevitable or desirable outcomes in the technology sectors. While this remains true in general, inherited regulation presents a particularly useful policy strategy in times of major legislative gridlock,²⁷¹ when lawmakers are unable or unwilling to consider legislation on issues of technology—particularly with how infrequently technology policy has made it to the top of the legislative agenda in the US.

We have aimed here to illustrate how evolving nondelegation canons and their chilling effects may threaten inherited as well as novel regulatory strategies through legal and political channels, as well as through shaping what types of regulatory policy are possible and preferred by courts and policymakers.²⁷² Particularly through the various forms of the major questions doctrine, though not exclusively, the US Supreme Court appears poised to empower federal courts to strip regulatory agencies of notable authority to apply existing statutes and rules to new technological situations or form new programs without extremely specific textual support in current legislation (among other potential factors). Even without direct litigation, we join other scholars in exploring how such jurisprudential shifts could create chilling effects on administrative agencies seeking to reinterpret rules or initiate new regulatory programs.²⁷³ The article has argued how such chilling effects could have particular ramifications on regulation for emerging technologies, through both disincentivizing novel and inherited regulatory strategies and blending with narratives around innovation imperatives to undercut political support for any such action. Instead, the cumulative effect of the major questions doctrine and Supreme Court nondelegation jurisprudence may leave administrative agencies in the US with fewer direct, legally binding tools to govern emerging technologies and promote the public interest in these spaces.²⁷⁴ While greater accountability mechanisms for administrative agencies may be desirable on a number of normative grounds, aggressive nondelegation canons do not appear capable of instilling greater regulatory accountability without a constellation of other institutional measures which could be implemented in the

²⁷⁰ Part III, *supra*.

²⁷¹ See Freeman & Spence, *supra* note 12, at 11–17, 79–81.

²⁷² Part IV, *supra*.

²⁷³ E.g., Monast, *supra* note 54, at 478–80.

²⁷⁴ Part IV.A, *supra*.

absence of such canons.

These consequences of evolving major questions doctrine jurisprudence (to say nothing of how lower federal courts are and may yet transform nondelegation canons) appear alarming and could undermine established, nascent, and future regulatory structures that govern emerging technologies. Undercutting, shutting down, or chilling the development of these regulatory programs under the logics provided by the major questions doctrine could weaken the government's capacity to protect human and environmental health, equity and human dignity, or even national security interests vis-à-vis novel technological products and services.²⁷⁵ Regulation by private and civil society actors would remain possible in this setting, but judicially and politically sabotaging the “shadow of the state” and potential for future, binding rules may have significant implications for how willing technology developers are to build and comply with nonstate regulatory norms and programs.²⁷⁶ Clearly, new strategies are needed to combat these jurisprudential shifts on aggressive nondelegation canons, at least with respect to the governance emerging technologies. Here, we have aimed to open this discussion by considering emerging legal and political realities, regulatory possibilities, and the need for new narratives.²⁷⁷

Emerging technologies hold great promise and potential to improve health, safety, and wellbeing, but this positive potential cannot mask their notable risks and uncertainties to individuals, communities, and society as a whole. Nor should this positive potential obscure the role and responsibility of public law and the state in pushing innovation in more responsible and equitable directions.²⁷⁸ While government regulation of emerging technologies is only one, imperfect piece of the governance puzzle for advancing technological innovation that serves society, it remains a crucial piece. All too often, too few incentives and disincentives exist in market and social systems alone to steer technology development towards responsibility, human dignity, and equitable outcomes. Many stakeholders contesting and debating government regulation of emerging technologies is inevitable, and

²⁷⁵ See generally INNOVATION, DUAL USE, AND SECURITY (Jonathan B. Tucker ed., 2012).

²⁷⁶ Part IV.B, *supra*

²⁷⁷ Part V, *supra*.

²⁷⁸ See generally Jack Stilgoe, Richard Owen & Phil Macnaghten, *Developing a Framework for Responsible Innovation*, 42 RSCH. POL'Y 1568 (2013).

likely a positive force for deliberative democratic accountability;²⁷⁹ but shattering government regulation or removing its shadow through the major questions doctrine or other aggressive nondelegation canons is decidedly not. To preserve levers of power available to push technology development towards better outcomes and away from harmful ones, evolving nondelegation canons either need to be reasonably contained or robust legal, regulatory, and political response strategies must be crafted and deployed. This work has only just begun.

²⁷⁹ See Emerson, *supra* note 15, at 2073–86; Staszewski, *supra* note 267, at 885–93.