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Systemic Legal Scholarship for Systemic AI

Kevin Frazier

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Artificial intelligence (AI) is triggering societal transformation at an unprecedented pace, yet our legal system struggles to keep up, often relying on incremental tweaks to outdated rules. This Article argues that such conventional legal thinking is not just inadequate but also a source of inconsequential scholarship. By failing to anticipate AI's trajectory and address foundational issues, incrementalism allows "legal tech debt" to mount, increasing risks of policy failure, societal disruption, and erosion of the rule of law. We must leapfrog this dangerous inertia. This Article proposes and defines a necessary alternative: systemic legal scholarship. This forward-looking paradigm requires legal experts to: (1) engage in disciplined foresight, adapting methods from technology forecasting to identify legal domains needing fundamental change; (2) propose wholesale architectural reforms, questioning existing legal structures, and designing new ones fit for an AI-integrated future; and (3) embed dynamism and adaptability into these new frameworks, ensuring they can coevolve with technology and society. Illustrating this approach through critical challenges like data governance for AI in public education, this Article provides principles and a template for rethinking law's role. It is an urgent call for legal scholars, policymakers, and concerned citizens to move beyond incrementalism and embrace the systemic vision required to ensure AI aligns with human flourishing and strengthens our democratic foundations.

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I. INTRODUCTION

Societal transformation driven by advancements in artificial intelligence (AI) is already underway.[1] The accelerating capabilities of AI systems—encompassing machine learning, natural language processing, computer vision, and robotics—have facilitated efficiency gains, scientific discovery, and increased human well-being.[2] Many more changes are to come. From optimizing complex logistical networks and personalizing medical treatments to augmenting creative expression and fundamentally reshaping economic structures, AI's potential appears to be boundless.[3] Yet, this technological ascent is characterized not merely by gradual improvement but by periods of rapid, potentially exponential

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1 *Cf.* James Pethokoukis, *Is Transformative Artificial Intelligence Just Around the Corner?*, AM. ENTER. INST. (Mar. 5, 2025), https://www.aei.org/op-eds/is-transformative-artificial-intelligence-just-around-the-corner/ [https://perma.cc/N8K4-BWH8] (reviewing the concept of transformative AI); Darrell M. West & John R. Allen, *How Artificial Intelligence Is Transforming the World*, BROOKINGS INST. (Apr. 24, 2018), https://www.brookings.edu/articles/how-artificial-intelligence-is-transforming-the-world/ [https://perma.cc/44RY-CU9E] (forecasting in 2018 the transformative potential of AI). *See generally* Daniel A. Crane, *Antitrust After the Coming Wave*, 99 N.Y.U. L. REV. 1187 (2024) (analyzing the implications of AI progress on antitrust law); Daniel J. Solove, *Artificial Intelligence and Privacy*, 77 FLA. L. REV. 1 (2025) (pinpointing the areas in privacy law that fail to address the unique issues posed by AI progress and adoption).

2 *See* OECD, ARTIFICIAL INTELLIGENCE IN SOCIETY 21, 50 (2019) (analyzing the various ways in which AI had reshaped society as of mid-2019). *See generally* NESTOR MASLEJ ET AL., STAN. INST. FOR HUM.-CENTERED A.I., ARTIFICIAL INTELLIGENCE INDEX REPORT 2025 (2025), https://hai.stanford.edu/ai-index/2025-ai-index-report [https://perma.cc/833D-W7CT] (outlining various trends in AI development and adoption); Peter W. Singer, *The AI Revolution Is Already Here*, DEF. ONE (Apr. 14, 2024), https://www.defenseone.com/ideas/2024/04/ai-revolution-already-here/395722/ [https://perma.cc/NNS6-Y7KX] ("Yet AI is different from every other new technology. Its systems grow ever more intelligent and autonomous, literally by the second.").

This technological progress may result in widespread and potentially irreversible societal harm as well. *See generally* Yoshua Bengio et al., *Managing Extreme AI Risks amid Rapid Progress*, SCIENCE, May 24, 2024, at 842 (discussing how the lack of governance measures may result in cuts to safety and human oversight); Heather Frase & Owen Daniels, *Understanding AI Harms: An Overview*, GEO. CTR. FOR SEC. & EMERGING TECH. (Aug. 11, 2023), https://cset.georgetown.edu/article/understanding-ai-harms-an-overview/ [https://perma.cc/H4RR-CKAS] (explaining the various ways AI systems may cause harm).

3 *See* Sam Altman, *Three Observations*, SAM ALTMAN: BLOG (Feb. 9, 2025, at 13:05 PT), https://blog.samaltman.com/three-observations [https://perma.cc/4HS6-M2SF]; Ryan Browne, *AI That Can Match Humans at Any Task Will Be Here in Five to 10 Years, Google DeepMind CEO Says*, CNBC (Mar. 17, 2025, at 10:05 ET), https://www.cnbc.com/2025/03/17/human-level-ai-will-be-here-in-5-to-10-years-deepmind-ceo-says.html [https://perma.cc/Z75N-7U76] (sharing the remarks on transformative AI by DeepMind's CEO, Dennis Hassabis).

progress[4] and the emergence of capabilities that challenge existing legal and technical paradigms.[5] The diffusion of powerful generative AI models into the public sphere within the last few years serves as a stark reminder of how quickly the technological frontier can shift, forcing widespread adaptation across industries and social practices and prompting urgent calls for governance frameworks capable of navigating both promise and peril.[6] This dynamism, while offering profound opportunity, simultaneously presents a formidable challenge to the institutions designed to order society and safeguard collective values—particularly the law.[7]

The conventional mechanisms of legal evolution—characterized by common law development responding to discrete disputes,[8] legislative action reacting to perceived crises or established consensus,[9] and administrative rulemaking proceeding through often lengthy notice-and-comment periods[10]—operate on timescales

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4 *See AI Benchmarking Hub*, EPOCH AI (Sep. 29, 2025), https://epoch.ai/data/ai-benchmarking-dashboard [https://perma.cc/5U2J-BQHR] (mapping how AI models have fared on various benchmarks over time).

5 *See* Crane, *supra* note 1, *passim*; Solove, *supra* note 1, *passim*; *Is the Law Playing Catch-Up with AI?*, HARV. L. TODAY (Jan. 16, 2025), https://hls.harvard.edu/today/is-the-law-playing-catch-up-with-ai/ [https://perma.cc/H8LQ-KB2C].

6 *See, e.g.*, Paulo Carvão, Yam Atir & Salvina Ancheva, *A Dynamic Governance Model for AI*, LAWFARE (Mar. 13, 2025, at 09:26 PT), https://www.lawfaremedia.org/article/a-dynamic-governance-model-for-ai [https://perma.cc/6MJP-TQEV]; Chinmayi Sharma & Alan Z. Rozenshtein, *Regulatory Approaches to AI Liability*, LAWFARE (Sep. 24, 2024, at 08:00 PT), https://www.lawfaremedia.org/article/regulatory-approaches-to-ai-liability [https://perma.cc/9XLC-LA5H]; Dean W. Ball, *Putting Private AI Governance into Action*, HYPERDIMENSIONAL (Mar. 20, 2025), https://www.hyperdimensional.co/p/putting-private-governance-into-action [https://perma.cc/CQL9-CJXE].

7 Adam Thierer, *The Pacing Problem and the Future of Technology Regulation*, MERCATUS CTR. (Aug. 8, 2018), https://www.mercatus.org/economic-insights/expert-commentary/pacing-problem-and-future-technology-regulation [https://perma.cc/U2GC-5A3W] (exploring the implications of when technological progress outpaces regulation); *cf.* Gary Marchant, *Why Soft Law Is the Best Way to Approach the Pacing Problem in AI*, CARNEGIE COUNCIL FOR ETHICS IN INT'L AFFS. (Sep. 29, 2021), https://www.carnegiecouncil.org/media/article/why-soft-law-is-the-best-way-to-approach-the-pacing-problem-in-ai [https://perma.cc/PDL2-5QUL] (distinguishing between "hard law" and "soft law" approaches to developing timely regulations around emerging technologies).

8 *See* Mariano-Florentino Cuéllar, *A Common Law for the Age of Artificial Intelligence: Incremental Adjudication, Institutions, and Relational Non-Arbitrariness*, 119 COLUM. L. REV. 1773, 1775–76 (2019) (describing how the American legal system relies on the common law).

9 Lloyd Smucker, *Congress Must End Governing by Crisis*, THE HILL (May 5, 2017, at 07:30 ET), https://thehill.com/blogs/congress-blog/economy-budget/331935-congress-must-end-governing-by-crisis/ [https://perma.cc/X5YM-K72C].

10 *See* Gregory N. Mandel, *Emerging Technology Governance*, *in* INNOVATIVE GOVERNANCE MODELS FOR EMERGING TECHNOLOGIES 44 (Gary E. Marchant, Kenneth W.

increasingly ill-suited to the velocity of AI development.[11] While legal systems have always adapted to technological change, from the printing press to the internet, the potential speed, scale, and systemic impact of AI present a challenge of a different order. New generations of foundational AI models can be developed and deployed globally in a matter of months,[12] while their capabilities evolve rapidly through software updates and further training, often outpacing the ability of regulators and courts to understand, let alone address, their implications.[13] This temporal disjunction risks rendering legal responses perpetually reactive, obsolete upon arrival, and fundamentally incapable of shaping the trajectory of AI development in the public interest.

In this context of technological flux and profound societal implication, the dominant mode of legal scholarship addressing AI often proves inadequate. Much contemporary analysis, while valuable in illuminating specific doctrinal puzzles or proposing targeted regulatory interventions, remains mired in incrementalism. This scholarship typically accepts the existing legal architecture as largely fixed, focusing on how discrete rules—a specific provision of copyright law,[14] a particular tort standard,[15] or an

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Abbott & Braden Allenby eds., 2013); Gary E. Marchant & Wendell Wallach, *Governing the Governance of Emerging Technologies*, *in* INNOVATIVE GOVERNANCE MODELS FOR EMERGING TECHNOLOGIES 136 (Gary E. Marchant, Kenneth W. Abbott & Braden Allenby eds., 2013) ("[N]o single regulatory agency, or even group of agencies, can regulate any of these emerging technologies effectively and comprehensively."); *cf.* Reeve T. Bull, *Democratizing and Technocratizing the Notice-and-Comment Process*, BROOKINGS INST. (Oct. 12, 2021), https://www.brookings.edu/articles/democratizing-and-technocratizing-the-notice-and-comment-process/ [https://perma.cc/XHN4-EBPB] (identifying flaws with the current approach to notice-and-comment rulemaking).

11 *See* Tom Wheeler, *The Three Challenges of AI Regulation*, BROOKINGS INST. (June 15, 2023), https://www.brookings.edu/articles/the-three-challenges-of-ai-regulation/ [https://perma.cc/ZCG6-F79L].

12 *See, e.g.*, Elena Talavera, *The Behavioral Science Behind DeepSeek's Rapid Adoption: What Can We Learn?*, CTR. FOR BEHAV. DECISIONS (Jan. 28, 2025), https://www.becisions.com/post/the-behavioral-science-behind-deepseek-s-rapid-adoption-what-can-we-learn [https://perma.cc/Q7XX-E62E] ("In just two weeks, [DeepSeek] racked up 2.6 million downloads and built a global user base of 5–6 million users.").

13 Isabelle Bousquette, *AI Is Moving Faster than Attempts to Regulate It. Here's How Companies Are Coping.*, WALL ST. J. (Mar. 27, 2024, at 15:37 ET), https://www.wsj.com/articles/ai-is-moving-faster-than-attempts-to-regulate-it-heres-how-companies-are-coping-7cfd7104 [https://perma.cc/W6EA-P4NQ].

14 Celeste Shen, *Fair Use, Licensing, and Authors' Rights in the Age of Generative AI*, 22 NW. J. TECH. & INTELL. PROP. 157, 157 (2024); *see* Matthew Sag, *Copyright Safety for Generative AI*, 61 HOU. L. REV. 295, 295–96 (2023); Peter Henderson et al., *Foundation Models and Fair Use* (Stan. L. & Econ. Olin, Working Paper No. 584, 2023).

15 Renee Henson, *"I Am Become Death, the Destroyer of Worlds": Applying Strict Liability to Artificial Intelligence as an Abnormally Dangerous Activity*, 96 TEMP. L. REV. 349,

existing procedural rule[16]—might be marginally adjusted or reinterpreted to accommodate novel AI applications. It asks, for instance, how existing liability frameworks might apportion fault when an autonomous vehicle causes harm, or whether current intellectual property regimes can encompass AI-generated works, or how data protection laws might apply to the novel ways AI systems process information. While such inquiries are necessary, they are far from sufficient. By focusing narrowly on adapting existing rules to current or near-term AI capabilities, incrementalist scholarship implicitly assumes the stability of the underlying legal and technological landscape. It risks giving the false impression that minor adjustments are adequate, thereby neglecting the more fundamental question: Are the existing legal *systems* themselves fit for purpose in an era defined by the prospect of transformative AI?

This Article argues that such incremental thinking, when confronting a technology characterized by exponential potential and systemic reach, amounts to deficient scholarship. It is deficient, first, because it ignores the widely acknowledged trajectory of AI development. While precise timelines are debated, a strong consensus exists among technologists that AI capabilities will continue to advance significantly, potentially leading to systems with general capabilities exceeding those of humans within the coming decades.[17] Even setting aside speculative timelines for artificial general intelligence (AGI), the continued diffusion and integration of *current* AI technologies harbor transformative potential that existing legal frameworks have yet to fully grapple with. As Ethan Mollick observes, society has barely begun to integrate the productivity gains and disruptive effects of AI systems that

353–54 (2024); Christiane Wendehorst, *Strict Liability for AI and Other Emerging Technologies*, 11 J. EUR. TORT L. 150, 179 (2020).

16 Jessica R. Gunder, *Rule 11 Is No Match for Generative AI*, 27 STAN. TECH. L. REV. 308, 308 (2024).

17 Benjamin Todd, *The Case for AGI by 2030*, 80,000 HOURS LTD. (Mar. 2025), https://80000hours.org/agi/guide/when-will-agi-arrive/ [https://perma.cc/9J99-KQZM]; Kevin Roose, *Powerful A.I. Is Coming. We're Not Ready.*, N.Y. TIMES (Mar. 14, 2025), https://www.nytimes.com/2025/03/14/technology/why-im-feeling-the-agi.html [https://perma.cc/XG5W-4J9P]; Ezra Klein, *The Government Knows A.G.I. Is Coming*, N.Y. TIMES (Mar. 4, 2025), https://www.nytimes.com/2025/03/04/opinion/ezra-klein-podcast-ben-buchanan.html [https://perma.cc/NU24-2YJV]. *Contra* Gary Marcus, *Ezra Klein's New Take on AGI — and Why I Think It's Probably Wrong*, MARCUS ON AI (Mar. 5, 2025), https://garymarcus.substack.com/p/ezra-kleins-new-take-on-agi-and-why [https://perma.cc/RC2T-Y4JL] ("I think there is almost *zero* chance that artificial general intelligence . . . will arrive in the next two to three years, especially given how disappointing GPT 4.5 turned out to be.").

have already been deployed;[18] persisting with outdated legal rules and processes actively hinders the realization of AI's benefits and exacerbates its risks.[19] By failing to anticipate and plan for widely expected technological advancements, incremental legal scholarship effectively perpetuates this costly lag.

Second, this incrementalism results in deficient scholarship because legal scholars possess a unique capacity—and arguably a professional obligation—to engage in the forward-looking analysis necessary to bridge the gap between technology and law.[20] Unlike technologists focused primarily on capability development or policymakers often constrained by immediate political pressures, legal academics have the relative independence and analytical tools to examine the deeper structural implications of AI and explore alternative legal futures. The repeated calls from legislative bodies, such as those heard during the U.S. Senate's AI Insight Forums, for expert guidance and regulatory clarity underscore the societal demand for precisely this kind of anticipatory legal thinking.[21] Indeed, the frequent invitations for law professors to testify before congressional committees on AI-related matters illustrate the recognized potential for legal scholarship

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18 Ethan Mollick, LINKEDIN, https://www.linkedin.com/posts/emollick_if-ai-development-stopped-this-week-we-would-activity-7272747981752176640-nTKX/ [https://perma.cc/5YFE-UTJX] (last visited May 4, 2025).

19 Kevin Frazier, *Clear Rules, Bold Innovation: Finding the Regulatory Sweet Spot for AI*, YALE J. ON REGUL.: NOTICE & COMMENT (Apr. 6, 2025), https://www.yalejreg.com/nc/clear-rules-bold-innovation-finding-the-regulatory-sweet-spot-for-ai-by-kevin-frazier/ [https://perma.cc/PPU5-J79Y].

20 Joshua B. Fischman, *Reuniting 'Is' and 'Ought' in Empirical Legal Scholarship*, 162 U. PA. L. REV. 117, 118 (2013) (distilling the purposes of legal scholarship as espoused by Roscoe Pound and Karl Llewellyn and noting that both saw a need for scholarship to "*improve* the law"); Marin Roger Scordato, *Legal Theory and Linguistic Reality: A Critical Examination of Modern Legal Scholarship*, 2 J. CONTEMP. LEGAL ISSUES 257, 258 (1989) (asserting that legal scholarship reflects a cultural disposition among the profession that "legal rules should be designed and applied to the myriad activities encountered in society"); Robin West, *The Contested Value of Normative Legal Scholarship*, 66 J. LEGAL EDUC. 6, 11 (2016) (contending that a refusal to author normative scholarship would amount to legal scholars "forgo[ing] . . . the aims of the profession—we would not be aiming to either improve or preserve the law").

The purpose and defining characteristics of legal scholarship remain contested by some and, perhaps more generally, neglected. *Compare id.* at 6–8 (setting forth the various perspectives on what legal scholars should write), *with* Arthur A. Leff, *Afterword*, 90 YALE L.J. 1296, 1296 (1981) ("Legal scholarship is what legal scholars do."), *and* Scordato, *supra* note 20, at 257 ("Until quite recently, few legal scholars have attempted to systematically describe just what legal scholarship is, or what it should attempt to do.").

21 *Majority Leader Schumer Opening Remarks for the Senate's Inaugural AI Insight Forum*, SENATE DEMOCRATS (Sep. 13, 2023), https://www.democrats.senate.gov/newsroom/press-releases/majority-leader-schumer-opening-remarks-for-the-senates-inaugural-ai-insight-forum [https://perma.cc/6G8F-MTTC].

to inform policy development.[22] To confine this potential to mere doctrinal tinkering is to abdicate a crucial role in navigating one of the most significant transitions in human history.

Third, scholarly incrementalism produces deficient works because it allows "legal tech debt"—the accumulated burden of outdated laws, regulations, and legal processes ill-suited to the current technological reality—to worsen, thereby increasing the likelihood of eventual policy overcorrection and eroding public trust in legal institutions. Technological debt in software engineering refers to "the off-balance-sheet accumulation of all the technology work a company needs to do in the future";[23] legal tech debt functions analogously, where failing to undertake necessary systemic reforms today imposes mounting costs in the form of legal uncertainty, inefficiency, stifled innovation, and social harm. Consider the decades-long failure to modernize privacy laws in response to the rise of the internet and data-driven business models. This inaction created a regulatory patchwork made up of a growing number of state laws that may unintentionally entrench incumbents that can afford high compliance costs,[24] culminating in widespread public distrust and increasingly drastic, often constitutionally questionable, legislative proposals at the state level aimed at curbing social media's perceived harms.[25] Each year of delay in addressing the fundamental mismatch be-

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22 *See, e.g.*, *Professor Ryan Calo Speaks Before U.S. Senate*, UNIV. OF WASH. SCH. OF L. (July 12, 2024), https://www.law.uw.edu/news-events/news/2024/calo-senate-committee-testimony [https://perma.cc/7K6U-LH5M]; Sophia Fox-Sowell, *AI Could Change Public Records Requests, Professor Tells Congress*, STATESCOOP (Apr. 11, 2025), https://statescoop.com/ai-foia-public-records-government/ [https://perma.cc/TJP9-5L2Y].

23 Sven Blumberg et al., *Demystifying Digital Dark Matter: A New Standard to Tame Technical Debt*, MCKINSEY & CO. (June 23, 2022), https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/demystifying-digital-dark-matter-a-new-standard-to-tame-technical-debt [https://perma.cc/ZL5N-Q6UL]. Scholars have long examined the implications of outdated and antiquated laws. *See, e.g.*, Robert C. Berry, *Spirits of the Past — Coping with Old Laws*, 19 U. FLA. L. REV. 24, 24–26 (1966). This inquiry differs from that line of scholarship given its explicit focus on the extent to which current legal systems reflect the current state of technology.

24 Jennifer Huddleston, *AI and Privacy Rules Meant for Big Tech Could Hurt Small Businesses Most*, CATO INST. (May 20, 2024), https://www.cato.org/commentary/ai-privacy-rules-meant-big-tech-could-hurt-small-businesses-most [https://perma.cc/7PRK-FPLN]; *see* Francesco Trebbi & Miao Ben Zhang, *The Cost of Regulatory Compliance in the United States* 27–28 (Nat'l Bureau of Econ. Rsch., Working Paper No. 30691, 2022) (concluding that middle-sized firms may face higher regulatory compliance costs than larger firms).

25 David Greene, *In These Five Social Media Speech Cases, Supreme Court Set Foundational Rules for the Future*, ELEC. FRONTIER FOUND. (Aug. 14, 2024), https://www.eff.org/deeplinks/2024/08/through-line-suprme-courts-social-media-cases-same-first-amendment-rules-apply [https://perma.cc/U6GV-BUW4].

tween nineteenth-century privacy torts or twentieth-century sectoral statutes and twenty-first-century AI systems has compounded the problem, making effective, balanced reform more difficult and fueling calls for blunt, potentially innovation-stifling interventions. Allowing similar legal tech debt to accumulate around AI risks repeating this pattern on an even grander scale, potentially leading to panicked, ill-considered regulations in response to future AI-driven disruptions.

The consequences of such a failure extend beyond policy instability; they strike at the foundations of the rule of law itself. When legal frameworks appear noticeably inadequate or irrelevant to governing the technologies shaping people's lives and livelihoods, public confidence in those frameworks inevitably wanes.[26] This can manifest as a resort to private ordering, where wealthier individuals or corporations bypass dysfunctional public systems and instead opt for bespoke contractual arrangements or alternative dispute resolution mechanisms tailored to the new technological landscape.[27] While potentially efficient for participants, such fragmentation exacerbates inequality and undermines social cohesion by creating tiered and separate systems of governance. Furthermore, the perception of legal inadequacy can fuel political polarization and instability,[28] creating fertile ground

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26 *See* BROOKE AUXIER ET AL., PEW RSCH. CTR., AMERICANS AND PRIVACY: CONCERNED, CONFUSED AND FEELING LACK OF CONTROL OVER THEIR PERSONAL INFORMATION 37–39 (2019), https://www.pewresearch.org/internet/2019/11/15/americans-attitudes-and-experiences-with-privacy-policies-and-laws/ [https://perma.cc/VK5L-F88S] (detailing survey results showing broad public concern about their lack of control over data and the inadequacy of existing laws); *see also* Noemi Dreksler et al., *What the Public Thinks About AI and the Implications for Governance*, BROOKINGS INST. (Apr. 9, 2025), https://www.brookings.edu/articles/what-the-public-thinks-about-ai-and-the-implications-for-governance/ [https://perma.cc/8WVN-G83R] (reporting a lack of public faith in the capacity of the government to regulate AI); *cf.* Berry, *supra* note 23, at 28 (noting the importance of laws being "consistent and orderly").

27 Stacy-Ann Elvy, *Paying for Privacy and the Personal Data Economy*, 117 COLUM. L. REV. 1369, 1369, 1373–74 (2017); *see* Jeff Elder, *Cybercriminals Are Increasingly Trying to Attack the Ultra-Rich at Home — Here's How Concierge Security Firms are Protecting Them*, BUS. INSIDER (Nov. 22, 2020, at 6:35 PT), https://www.businessinsider.com/criminals-mansions-cybersecurity-covid-wealthy-blackcloak-aon-aristo-norton-2020-11 [https://perma.cc/VZQ7-A58C]; *see, e.g.*, David Migoya, *Colorado's Private, Often Secret Justice System Exclusively for the Wealthy*, DENV. GAZETTE: COLO. WATCH (Mar. 30, 2025), https://denvergazette.com/colorado-watch/colorado-private-judges-divorce-domestic-cases/article_49a53f8a-0dd0-42d1-856b-624e11074cae.html [https://perma.cc/VTM9-VR33].

28 *See generally* Stefanie A. Lindquist & Frank C. Cross, Stability, Predictability and the Rule of Law: Stare Decisis as Reciprocity Norm 1 (Mar. 26, 2010) (unpublished manuscript) (available at https://law.utexas.edu/conferences/measuring/The%20Papers/Rule%20of%20Law%20Conference.crosslindquist.pdf) [https://perma.cc/CV42-VT7U] (detailing the connection between the rule of law and political stability).

for extreme reactions against both technology and the legal institutions seen as failing to manage it.[29] The resulting pendulum swings between regulatory neglect and heavy-handed intervention, creating profound uncertainty, hindering long-term investment, and undermining the predictability that is essential for both technological progress and societal flourishing.[30]

The antidote to this scholarly deficiency and its attendant risks is not simply *more* scholarship, but a *different kind* of scholarship: one that embraces systemic thinking and engages in disciplined forecasting of legal futures. Systemic legal scholarship, as conceived here, moves beyond adjusting discrete rules within existing frameworks. Instead, it questions the suitability of those frameworks themselves in light of anticipated technological and societal shifts. It asks not only how AI fits into current law, but also how the law *itself* might need to be fundamentally redesigned to align with a future where AI is deeply integrated into the fabric of society. As Ajay Agrawal, Joshua Gans, and Avi Goldfarb illustrate in their book, *Power and Prediction*, the most profound impacts of AI, in the context of business strategy, arise not from its use as a "point solution" to optimize existing processes, but from redesigning entire systems around AI's predictive capabilities.[31] An incremental change in education might involve using AI for personalized tutoring while maintaining the outdated approach of forcing students of the same age to progress as one cohort, grade by grade; a systemic change, enabled by AI, might eliminate age-based cohorts entirely in favor of continuous, competency-based progression.[32] Systemic legal scholarship applies analogous thinking to legal structures, contemplating wholesale reforms to foundational legal units or values rather than marginal rule changes.

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29 *See, e.g.*, Robert D. Atkinson et al., *A Policymaker's Guide to the "Techlash" — What It Is and Why It's a Threat to Growth and Progress*, INFO. TECH. & INNOVATION FOUND. (Oct. 28, 2019), https://itif.org/publications/2019/10/28/policymakers-guide-techlash/ [https://perma.cc/D3JY-KJRY]; Dreksler et al., *supra* note 26 (reporting high levels of skepticism of AI among the public as well as a general lack of trust in private and public actors to regulate the technology); *see also Survey Highlights an Emerging Divide Over Artificial Intelligence in the U.S.*, RUTGERS NEW BRUNSWICK (Feb. 9, 2025), https://newbrunswick.rutgers.edu/news/survey-highlights-emerging-divide-over-artificial-intelligence-us [https://perma.cc/82A9-3379] (highlighting survey results that suggest that Americans with lower incomes distrust AI to a greater extent than their wealthier counterparts and also use it less frequently).

30 *See, e.g.*, Atkinson et al., *supra* note 29.

31 AJAY AGRAWAL, JOSHUA GANS & AVI GOLDFARB, POWER AND PREDICTION: THE DISRUPTIVE ECONOMICS OF ARTIFICIAL INTELLIGENCE 17, 23–24 (2022).

32 *Id.* at 70–71.

This approach necessitates incorporating insights from technical forecasting. While legal scholars cannot and should not attempt to predict specific technological breakthroughs with certainty, they can and should engage with the methods used by technologists and foresight practitioners to map plausible, probable, and possible futures. AI researchers, technology firms, and specialized forecasters dedicate significant resources to analyzing capability trends, resource requirements (like data and computation), potential bottlenecks, and deployment scenarios.[33] Legal scholars can leverage this body of work, not to make definitive technical predictions, but to understand the range of plausible technological trajectories and their potential legal implications. By adapting foresight methodologies—such as scenario planning, which allows for the structured exploration of multiple potential futures and their consequences[34]—legal scholarship can move beyond reactive analysis. It can begin to identify areas where legal tech debt is likely to accumulate most rapidly, anticipate the kinds of systemic pressures AI might place on existing legal institutions (like courts or regulatory agencies), and proactively design legal frameworks that are robust and adaptive across a range of potential AI futures. This involves not only proposing overhauls of entire regulatory frameworks but also identifying areas where deregulation or legal simplification might be needed to enable beneficial, system-level adoption of AI.

This Article aims to provide a template and an impetus for such systemic legal scholarship focused on AI. It proceeds in three parts. Part II delves deeper into the critique of incrementalism, elaborating on the concept of legal tech debt and the specific ways in which conventional legal analysis falls short in the face of AI's transformative potential. Part III articulates a framework and guiding principles for conducting systemic AI legal scholarship. It distinguishes this approach from incrementalism, explores the adaptation of forecasting methodologies such as scenario planning for legal analysis, and proposes specific guidelines

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33 *See, e.g.*, Mario Krenn et al., *Forecasting the Future of Artificial Intelligence with Machine Learning-Based Link Prediction in an Exponentially Growing Knowledge Network*, 5 NATURE MACH. INTEL. 1126, 1126–30 (Oct. 16, 2023), https://www.nature.com/articles/s42256-023-00735-0 [https://perma.cc/H3AB-XLJ4]; Daniel Kokotajlo et al., *AI 2027*, A.I. FUTURES PROJECT (Apr. 3, 2025), https://ai-2027.com [https://perma.cc/5M4Z-BQKR]; Long Phan et al., *Superhuman Automated Forecasting*, CTR. FOR AI SAFETY: BLOG (Sep. 9, 2024), https://safe.ai/blog/forecasting [https://perma.cc/P4BA-L86Y].

34 *See, e.g.*, Kokotajlo et al., *supra* note 33.

for scholars seeking to undertake this work. Part IV then applies this framework, offering concrete examples of systemic legal reform proposals across three critical domains: (1) Build, focusing on the legal infrastructure needed to develop beneficial AI (particularly data governance); (2) Understand, addressing the legal and educational changes required for broad societal adaptation and AI literacy; and (3) Use, examining reforms necessary for effective and responsible government adoption of AI, including in public services and national security. These proposals, while specific, are intended primarily as illustrations of the kind of thinking required, inviting further research and debate on alternative systemic solutions. The ultimate goal is not to prescribe definitive answers, but to catalyze a necessary shift in legal academia away from the comfortable confines of incremental adjustments and toward the challenging but essential task of designing legal frameworks—frameworks capable of navigating the complex, uncertain, and potentially transformative era of AI—thereby ensuring that technological progress aligns with human flourishing and the enduring principles of the rule of law.

II. FLAWS WITH AN INCREMENTALIST APPROACH IN THE AGE OF AI

The allure of incrementalism in legal scholarship is understandable. It mirrors the traditional, cautious evolution of legal doctrine through case-by-case adjudication and measured legislative refinement.[35] It comports with an association between the rule of law and stability generally made by lawyers.[36] It allows scholars to operate within established frameworks, employing familiar analytical tools to address discrete problems generated by new technologies like AI.[37] Yet, as argued in Part I, this conventional approach proves insufficient and actively detrimental when attempting to orient entire systems around AI with the aim of realizing its full potential to accelerate progress in important domains. In an era demanding foresight and structural adaptation, clinging to incremental adjustments represents a form of deficient scholarship—a failure to engage responsibly with foreseeable technological trajectories and their systemic legal

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35 *See* Cuéllar, *supra* note 8; Saul Levmore, *Interest Groups and the Problem with Incrementalism* 1–2 (Univ. of Chi. L. Sch., Working Paper, No. 501, 2009).

36 Brian J. Levy, *The Legal Instability Hypothesis*, 51 GONZ. L. REV. 573, 573 n.2 (2016).

37 *Cf.* Oliver Wendell Holmes, *The Path of the Law*, 10 HARV. L. REV. 457, 457–61 (1897) (sharing a narrow goal for the study of law that turns on simply investigating the existing legal system).

implications. This Part elaborates on the specific dimensions of this deficiency, demonstrating how incrementalism ignores impending change, abdicates the unique role of legal scholarship, exacerbates the dangerous accumulation of legal tech debt, and ultimately undermines the stability and legitimacy of the rule of law.[38]

The deficiency in scholarship brought on by incremental thinking manifests in several interconnected ways. First, incrementalism displays a willful blindness to the widely anticipated trajectory of AI development and diffusion, focusing on present-day applications while ignoring the strong likelihood of future capabilities that will render marginal adjustments obsolete.[39] Even accounting only for the delayed integration of *existing* AI, a process hindered by outdated legal frameworks,[40] incremental scholarship fails to address the systemic changes needed to realize AI's potential benefits or mitigate its foreseeable risks.[41] Second, incremental scholarship represents an abdication of the unique role legal scholars can play in anticipating and shaping legal futures by confining their contributions to doctrinal adjustments rather than leveraging their capacity for structural critique and foresight, a capacity society increasingly calls upon.[42] Third, by delaying necessary systemic reforms, incrementalism allows legal tech debt—the costly burden of outdated laws and processes—to accumulate, increasing the probability of eventual policy overcorrection and eroding public trust, as occurred with the regulation of earlier internet technologies.[43] Ultimately,

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38 *See infra* Part I.

39 *Cf. Is Colorado Getting Cold Feet About AI Regulation? New Bill Would Loosen Groundbreaking Law Set to Take Effect Next Year*, FISHER PHILLIPS (Apr. 30, 2025), https://www.fisherphillips.com/en/news-insights/is-colorado-getting-cold-feet-about-ai-regulation.html [https://perma.cc/C5SS-XFHT] (reporting on political efforts in Colorado to delay implementation of its comprehensive AI legislation given developments in the technology).

40 *Cf.* Kevin Frazier, *Using AI to Improve the Government—Without Violating the Privacy Act*, LAWFARE (Feb. 10, 2025, at 14:00 PT), https://www.lawfaremedia.org/article/using-ai-to-improve-the-government-without-violating-the-privacy-act [https://perma.cc/GX72-TBPV]) (analyzing how the Privacy Act of 1974 may prevent some attempts to integrate AI into government services and systems).

41 *See* Ran Xi, *On Emerging Technologies: The Old Regime and the Proactivity*, 8 CARDOZO INT'L & COMPAR. L. REV. 75, 77–78 (2025) (enumerating the negative outcomes resulting from outdated legal systems amid technological progress).

42 *See infra* Section II.B.

43 Irving Wladawsky-Berger, *Why the 'Techlash' Is a Threat to Growth and Progress*, WALL ST. J. (June 6, 2020, at 13:30 ET), https://www.wsj.com/articles/why-the-techlash-is-a-threat-to-growth-and-progress-01591464654 [https://perma.cc/7XDJ-XYC2] (discussing Atkinson et al., *supra* note 29).

these failures converge to undermine the rule of law itself, fostering legal uncertainty, encouraging private ordering that exacerbates inequality, and risking destabilizing pendulum swings between regulatory neglect and panicked intervention. The subsequent sections will explore each of these dimensions in greater detail.

A. Ignoring Inevitable, Impending Technological Progress

The most immediate manifestation of incrementalism's shortcomings is its failure to adequately account for the high probability of continued, significant AI advancement and diffusion—changes of which legal scholars, particularly those engaged with technology law, should be keenly aware of. The professional responsibility norms embraced by many state bars, which mandate technological competence for practicing attorneys,[44] implicitly extend a similar, if not heightened, expectation of awareness to the academics who study, teach, and shape the law governing those technologies;[45] this duty encompasses not just familiarity with current tools but a responsibility to understand the trajectory and potential impact of relevant technological trends.[46] While the precise pace and ultimate ceiling of AI capabilities remain subjects of debate,[47] the overwhelming momentum behind AI re-

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44 The Model Rules of Professional Conduct, upon which most state bar associations rely on for their respective rules, mandate technological competency. MODEL RULES OF PRO. CONDUCT r. 1.1 cmt. 8 (A.B.A. 2012); *see* Robert J. Ambrogi, *Tech Competence*, LAWSITES, https://www.lawnext.com/tech-competence [https://perma.cc/4638-G65G] (last visited Aug. 26, 2025) (reporting widespread adoption by state bars of a tech competence requirement).

45 *See* Jill Scoggins, *UofL Law Professor Developing Generative AI Toolkit to Aid Legal Writing Instruction*, UNIV. OF LOUISVILLE NEWS (Nov. 14, 2023), https://www.uoflnews.com/section/science-and-tech/uofl-law-professor-developing-generative-ai-toolkit-to-aid-legal-writing-instruction/ [https://perma.cc/U7VW-5G6B] (summarizing the work of Professor Susan Tanner to share a toolkit for incorporating generative AI into legal writing courses); Jennifer Tran, *LSU Law Professors Release 'The Law Prof's AI Sandbox' to Help Colleagues Explore, Enhance Artificial Intelligence in the Classroom*, LA. ST. U.L. (Feb. 21, 2025), https://law.lsu.edu/news/2025/02/21/lsu-law-professors-release-the-law-profs-ai-sandbox-to-help-colleagues-explore-enhance-artificial-intelligence-in-the-classroom/ [https://perma.cc/865F-WY24] (covering the efforts of Will Monroe and Tracy Norton to help professors learn the ins and outs of AI and, therefore, help comfortably integrate AI into the classroom). *But see* Noah C. Chauvin, *Against Gap-Filling*, 2024 CARDOZO L. REV. DE NOVO 1, 1 (cautioning against the generation of scholarship intended to fill gaps in the understanding of the law merely for the sake of comprehensive coverage of the law).

46 Hedda Litwin, *The Ethical Duty of Technology Competence: What Does it Mean for You?*, NAT'L ASS'N OF ATT'YS GEN. (Nov. 17, 2017), https://www.naag.org/attorney-general-journal/the-ethical-duty-of-technology-competence-what-does-it-mean-for-you/ [https://perma.cc/GL8H-QJAQ].

47 *See* Krenn et al., *supra* note 33 and accompanying text (addressing the range of forecasts around AI progress).

search, development, and investment points toward ongoing, substantial progress.[48] Major technology firms pour vast resources into building larger models,[49] global competition provides powerful incentives for innovation,[50] and the fundamental nature of AI as a general-purpose technology suggests broad future applicability.[51] To focus legal analysis primarily on the capabilities of *current* AI systems, or those expected only months ahead, is to ignore clear, persistent signals of dramatic future shifts—signals the legal academy has a professional imperative to heed. Such myopia risks rendering today's legal solutions structurally inadequate for tomorrow's realities.

Some might counter that the inherent uncertainty surrounding AI's long-term development justifies a cautious, incremental approach; predicting the precise contours of AGI or pinpointing the exact year of specific breakthroughs is, after all, fraught with difficulty.[52] But this defense misconstrues the task. Effective legal foresight does not require perfect prediction of distant futures. Rather, it demands a reasoned engagement with plausible medium-term trajectories based on current trends, expert forecasts (even acknowledging their limitations), resource commitments, and potential bottlenecks. Legal scholars need not become technologists, but they can—and should—look beyond the immediate doctrinal puzzle by consulting with technically inclined colleagues, collaborating with computer scientists, economists, and ethicists, and leveraging structured foresight methodologies, like scenario planning.[53] This interdisciplinary, medium-term per-

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48 *See* Josh Taylor, *Rise of Artificial Intelligence Is Inevitable but Should Not Be Feared, 'Father of AI' Says*, THE GUARDIAN (May 6, 2023, at 20:00 ET), https://www.theguardian.com/technology/2023/may/07/rise-of-artificial-intelligence-is-inevitable-but-should-not-be-feared-father-of-ai-says [https://perma.cc/7TDV-9Y73]; Ryan Greenblatt, *What's Going on with AI Progress and Trends? (As of 5/2025)*, REDWOOD RSCH. (May 3, 2025), https://blog.redwoodresearch.org/p/whats-going-on-with-ai-progress-and [https://perma.cc/K8A4-45L6].

49 *See, e.g.*, Mike Isaac, *Meta to Increase Spending to $65 Billion This Year in A.I. Push*, N.Y. TIMES (Jan. 27, 2025), https://www.nytimes.com/2025/01/24/technology/meta-data-center.html [https://perma.cc/44X3-VXN9].

50 *Cf.* Sam Meacham, *A Race to Extinction: How Great Power Competition Is Making Artificial Intelligence Existentially Dangerous*, HARV. INT'L REV. (Sep. 8, 2023), https://hir.harvard.edu/a-race-to-extinction-how-great-power-competition-is-making-artificial-intelligence-existentially-dangerous/ [https://perma.cc/K43J-6LPB] (noting the connection between racing dynamics and a push for AI innovation).

51 Beth Stackpole, *The Impact of Generative AI as a General-Purpose Technology*, MIT SLOAN SCH. OF MGMT. (Aug. 6, 2024), https://mitsloan.mit.edu/ideas-made-to-matter/impact-generative-ai-a-general-purpose-technology [https://perma.cc/2EY6-H3RQ].

52 *See* Greenblatt, *supra* note 48.

53 *See, e.g.*, Kokotajlo et al., *supra* note 33.

spective, focused on understanding the *range* of plausible developments and their systemic implications over the next five, ten, or fifteen years, is vastly superior to reactive incrementalism, even amidst uncertainty surrounding the pace and nature of technological progress and adoption. It allows for the proactive identification of emerging legal pressures and the development of more robust, adaptive legal frameworks, rather than perpetually adjusting deck chairs on a technological ship rapidly charting a new course.

Furthermore, even if AI progress was to unexpectedly stagnate, society has yet to fully absorb or adapt to the capabilities *already* available. As Ethan Mollick highlights, we are living in an era of underutilized "co-intelligence," where existing AI tools could drive substantial gains in productivity, creativity, and problem-solving,[54] but their integration is hampered by inertia, lack of understanding, and inadequate supporting structures.[55] This delayed integration represents progress unrealized—opportunities missed and efficiencies foregone. A significant portion of this blame lies with outdated rules and legal systems that create friction and uncertainty.[56] Ambiguous liability standards can chill the deployment of AI in critical sectors like healthcare or transportation; restrictive data governance regimes can starve AI models of the information needed for effective training and public benefit applications; and inflexible intellectual property laws struggle to accommodate AI-driven innovation and creation. Incrementalist legal scholarship, by its nature, focuses on patching these existing, often inadequate, systems rather than questioning their foundational suitability. It seeks to tweak liability rules at the margins, propose narrow exceptions to data privacy laws, or reinterpret existing copyright doctrines for AI outputs. While potentially offering temporary fixes, this approach fails to

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54 *See* Peter High, *Ethan Mollick on the Four Rules of Co-Intelligence with AI*, FORBES (May 7, 2024, at 09:35 ET), https://www.forbes.com/sites/peterhigh/2024/05/07/ethan-mollick-on-the-four-rules-of-co-intelligence-with-ai/ [https://perma.cc/M9D9-QGLV] (interviewing Ethan Mollick).

55 *See, e.g.*, AGRAWAL, GANS & GOLDFARB, *supra* note 31, at 3–4, 8–9, 10, 17.

56 *See, e.g.*, Tori Noble, *AI and Copyright: Expanding Copyright Hurts Everyone—Here's What to Do Instead*, ELEC. FRONTIER FOUND. (Feb. 19, 2025), https://www.eff.org/deeplinks/2025/02/ai-and-copyright-expanding-copyright-hurts-everyone-heres-what-do-instead [https://perma.cc/9W4Q-GJ8L]; Todd Mayover, *When AI Technology and HIPAA Collide*, HIPAA J. (May 2, 2025), https://www.hipaajournal.com/when-ai-technology-and-hipaa-collide/ [https://perma.cc/NJ3W-4LTK]; Maya Weinstein, *School of Surveillance: The Students' Rights Implications of Artificial Intelligence as K-12 School Security*, 98 N.C. L. REV. 438, 442 (2020).

address the underlying structural impediments hindering the deeper, more beneficial integration of AI. By perpetuating these outdated aspects of the legal ecosystem, incrementalism ensures that the law remains a lagging indicator, perpetually catching up to technological reality rather than proactively shaping it, thereby compounding the costs of delayed adaptation and unrealized potential.

B. Abdicating the Scholarly Role

Beyond ignoring foreseeable technological shifts, scholarly incrementalism represents an abdication of the unique institutional role and capacity of the legal academy to engage in the kind of systemic, forward-looking analysis that the age of AI demands. Other key actors within the legal ecosystem are structurally constrained from undertaking this necessary work. Judges, bound by the case-or-controversy requirement and retrospective focus of adjudication, lack the mandate—and often the resources—to engage in broad, prospective analysis of technological trends and their systemic legal implications.[57] Legislators, while empowered to enact broad reforms, operate within a political environment characterized by intense competition for agenda space, immediate constituent pressures, and often short-term electoral cycles, making sustained focus on long-range, complex technological governance difficult.

In contrast, legal scholars possess the relative independence, mandate for deep inquiry, and interdisciplinary potential necessary to examine the fundamental interactions between law, technology, and society over longer time horizons. To confine this unique potential primarily to refining existing doctrines in response to AI-generated disputes is to neglect a critical function: anticipating structural challenges and exploring alternative legal architectures capable of governing transformative technologies responsibly and effectively. The need for such proactive and systemic legal thinking is not only a matter of filling gaps in the

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[57] Michael C. Dorf, *Dicta and Article III*, 142 U. PA. L. REV. 1997, 1997–98 (1994) (exploring the tension between the mandates of Article III and the explanatory inclinations of a court); *see* David Gray, *Dangerous Dicta*, 72 WASH. & LEE L. REV. 1181, 1182–83 (2015) (reviewing the potential negative consequences arising from dicta); Pierre N. Leval, *Judging Under the Constitution: Dicta About Dict*a, 81 N.Y.U. L. REV. 1249, 1263 (2006) (warning about frequent citation of dictum); *see also* Judith M. Stinson, *Preemptive Dicta: The Problem Created by Judicial Efficiency*, 54 LOY. L.A. L. REV. 587, 601 (2021) (distinguishing between different types of dicta and warning that some may pose more rule of law concerns than others).

academic record; it is increasingly voiced by policymakers themselves. The U.S. Senate's AI Insight Forums, for instance, repeatedly surfaced calls from diverse stakeholders for greater regulatory clarity and forward-looking governance frameworks[58]—precisely the type of analysis legal scholars are uniquely positioned to initiate and inform. The frequent invitations extended to law professors to provide expert testimony before congressional committees grappling with AI policy further underscore the societal expectation that the legal academy will contribute substantively to navigating these complex issues.[59]

One might object that specialized policy think tanks, industry consortia, or government research agencies are better equipped for this task as they possess deeper technical expertise or closer ties to policy implementation. While these actors undoubtedly play vital roles, they often operate under different constraints or incentives. Think tanks often focus on shorter-term policy briefs, industry groups naturally advocate for particular interests, and government agencies typically work within existing statutory mandates and bureaucratic structures. Legal academia, at its best, offers a distinct intellectual space—one conducive to more detached, long-term analysis, critical examination of foundational assumptions, and the exploration of normative frameworks that transcend immediate political or commercial pressures.[60] Moreover, the university setting intrinsically facilitates the crucial interdisciplinary collaboration among computer scientists, ethicists, economists, sociologists, and others—which is essential for understanding AI's multifaceted impacts and for designing holistic legal solutions.

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58 *See* Gabby Miller, *US Senate AI 'Insight Forum' Tracker*, TECH POLICY PRESS (Dec. 8, 2023), https://www.techpolicy.press/us-senate-ai-insight-forum-tracker [https://perma.cc/HP4U-7SP5]; *see also* Bipartisan A.I. H. Task Force, 118th Cong., Report on Artificial Intelligence, at iv (2024), https://www.speaker.gov/wp-content/uploads/2024/12/AI-Task-Force-Report-FINAL.pdf [https://perma.cc/WC3E-RK79] (noting that the House AI Task Force relied extensively on expert input to put together its recommendations).

59 *See The Philosophy of AI: Learning from History, Shaping Our Future: Hearing Before the S. Comm. on Homeland Sec. & Governmental Affs.*, 118th Cong. 6 (2023) (statement of Margaret Hu, Professor of L., Wm. & Mary L. Sch.) https://www.congress.gov/118/chrg/CHRG-118shrg53996/CHRG-118shrg53996.pdf [https://perma.cc/V76F-RPVW].

60 *See* E. Blythe Stason, *Why a Profession?*, 21 LA. L. REV. 153, 157 (1960) (setting forth the "*architectural* role of the lawyer" as "pushing *outward* the frontiers of jurisprudence and *upward* many new and useful legal and governmental structures"); *cf.* David F. Cavers, *New Fields for the Legal Periodical*, 23 VA. L. REV. 1, 6–10 (1936) (calling for an expanded field of inquiry among legal scholars).

Incrementalism squanders this unique potential, defaulting instead to a narrower, doctrine-bound approach that fails to leverage the academy's comparative advantages.[61] By choosing the path of marginal adjustment over systemic inquiry, incrementalist scholarship effectively withdraws from the vital societal conversation about how to fundamentally align our legal infrastructure with a future increasingly shaped by AI, leaving a void that reactive policy or private ordering may dangerously fill.

C. Exacerbating Legal Tech Debt and Inviting Reactionary Policy

The failure to anticipate change and the abdication of the academy's foresight role converge on a third dimension of deficient scholarship: the active worsening of legal tech debt. This accumulating deficit—representing the misalignment between aging legal frameworks and accelerating technological realities—imposes tangible costs through inefficiency, uncertainty, and foregone innovation.[62] More perniciously, however, the persistence of incrementalist approaches, which prioritize minor patches over necessary structural reforms, allows this debt to compound, creating fertile ground for future crises and increasing the likelihood of eventual policy overcorrection.[63] When legal systems appear fundamentally incapable of addressing the challenges posed by powerful new technologies, public frustration mounts, trust in institutions erodes, and the political pressure for drastic, often ill-considered, intervention grows.[64]

The recent history of social media governance provides a sobering case study in the dynamics of accumulating legal tech debt. For years, as online platforms grew exponentially in scale and influence, foundational legal frameworks governing privacy,

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61 *See* Cavers, *supra* note 60, at 5–11 (critiquing the narrowness and rigidity of legal scholarship).

62 *Cf.* Julie E. Cohen, *Information Platforms and the Law*, 2 GEO. L. TECH. REV. 191, 191 (2018) (introducing concerns among some scholars that new technologies will challenge the rule of law by exposing "antiquated models of social control and regulation").

63 *See* Xi, *supra* note 41, at 90–91; Atkinson et al., *supra* note 29.

64 *See Americans' Solutions for Trust-Related Problems*, PEW RSCH. CTR. (July 22, 2019), https://www.pewresearch.org/politics/2019/07/22/americans-solutions-for-trust-related-problems/ [https://perma.cc/U8JZ-ARKF] (identifying dysfunction and opacity as causes for popular distrust and disappointment in the government); *cf.* Michael Guihot, Anne F. Matthew & Nicolas P. Suzor, *Nudging Robots: Innovative Solutions to Regulate Artificial Intelligence*, 20 VAND. J. ENT. & TECH. L. 385, 421 (2017) (warning about technological "decoupling" from regulations and calling on legislators to prevent such an outcome).

consumer protection, competition, and intermediary liability remained largely unchanged or were adapted only at the margins.[65] Scholars produced countless articles analyzing how existing torts might apply to online harms or debating interpretations of section 230 of the Communications Decency Act,[66] yet fundamental questions about platform power, algorithmic amplification, and data exploitation received insufficient systemic legal attention from lawmakers. This period of perceived regulatory neglect allowed significant legal tech debt to accrue. The result was not stable governance, but a volatile situation characterized by growing public backlash against platform practices,[67] widespread distrust fueled by controversies over misinformation and data breaches,[68] and, eventually, a surge of reactive legislative proposals at the state level.[69] Many of these proposals, born of frustration with federal inaction and the perceived inadequacy of existing law, have been criticized as overly broad, potentially infringing on constitutional rights, and creating a chaotic patchwork of conflicting regulations[70]—precisely the kind of pendulum

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65 *See, e.g.*, Ashley Deeks, *Foreword: Facebook Unbound?*, 105 VA. L. REV. ONLINE *1, *2 (2019); Cecilia Kang & David McCabe, *Efforts to Rein in Big Tech May Be Running Out of Time*, N.Y. TIMES (Jan. 20, 2022), https://www.nytimes.com/2022/01/20/technology/big-tech-senate-bill.html [https://perma.cc/G8XX-J5K7]; Siva Vaidhyanathan, *Facebook and the Folly of Self-Regulation*, WIRED (May 9, 2020, at 14:58 PT), https://www.wired.com/story/facebook-and-the-folly-of-self-regulation/ [https://perma.cc/RE5W-P87C].

66 Mary Graw Leary, *The Failed Experiment of Section 230 of the Communications Decency Act: How It Facilitates Exploitation and How It Must Be Reformed*, 70 VILL. L. REV. 49, 55 (2025); Michael Daly Hawkins & Matthew J. Stanford, *Uproot or Upgrade? Revisiting Section 230 Immunity in the Digital Age*, U. CHI. L. REV. ONLINE *1, *1 (2020); Enrique Armijo, *Reasonableness as Censorship: Section 230 Reform, Content Moderation, and the First Amendment*, 73 FLA. L. REV. 1199, 1201 (2021).

67 *See, e.g.*, Sarah Grevy Gotfredsen, *Section 230 Is Under Attack (Again)*, COLUM. JOURNALISM REV. (Mar. 27, 2025), https://www.cjr.org/the_media_today/section_230_bipartisan_bill_repeal.php [https://perma.cc/K6YQ-VQEY].

68 *See* Megan Brenan, *Americans' Trust in Media Remains at Trend Low*, GALLUP (Oct. 14, 2024), https://news.gallup.com/poll/651977/americans-trust-media-remains-trend-low.aspx [https://perma.cc/PN4L-ABP7]; David Kemp & Emily Ekins, *Poll: 75% Don't Trust Social Media to Make Fair Content Moderation Decisions, 60% Want More Control over Posts They See*, CATO INST. (Dec. 15, 2021), https://www.cato.org/survey-reports/poll-75-dont-trust-social-media-make-fair-content-moderation-decisions-60-want-more [https://perma.cc/7SYY-WY9Z]; KENNETH OLMSTEAD & AARON SMITH, PEW RSCH. CTR., AMERICANS AND CYBERSECURITY 2–3 (2017), https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2017/01/Americans-and-Cyber-Security-final.pdf [https://perma.cc/A7BN-FBM8].

69 *Social Media and Children 2024 Legislation*, NAT'L CONF. OF STATE LEGISLATURES (Nov. 22, 2024), https://www.ncsl.org/technology-and-communication/social-media-and-children-2024-legislation [https://perma.cc/LG23-XTXG].

70 Kyooeun Jang, Lulia Pan & Nicol Turner Lee, *The Fragmentation of Online Child Safety Regulations*, BROOKINGS INST. (Aug. 14, 2023), https://www.brookings.edu/articles/patchwork-protection-of-minors/ [https://perma.cc/PBK8-QC5P]; Hope Schumak-

swing from neglect to overreach that systemic foresight aims to avoid.

To argue that the complexity or political difficulty of reforming areas like privacy or intermediary liability justifies an incremental approach is to ignore the lesson of this recent history: delay does not simplify the problem; it allows the underlying tensions to fester and magnifies the eventual political and legal disruption.[71] Procrastination only guarantees more complexity; whether the resulting delay will facilitate increased understanding and wisdom is far less certain. While systemic reform is undoubtedly challenging, perpetuating known inadequacies in legal frameworks facing transformative technologies like AI is arguably far riskier. It creates vulnerabilities that bad actors can exploit,[72] allows harms to scale unchecked,[73] and increases the odds that when change finally comes, it will be driven by panic rather than prudence.[74] Incrementalist scholarship, by normalizing minor adjustments and deferring fundamental questions, becomes complicit in this accumulation of risk. It provides an intellectual justification for inaction, fostering a dangerous illusion of control while the gap between law and technology widens, ultimately making the legal system more brittle and less capable of navigating the future responsibly.

D. Undermining the Rule of Law

Ultimately, the cumulative effect of ignoring technological trajectories, abdicating the scholarly role of foresight, and allowing legal tech debt to fester strikes at the heart of the rule of law itself. The rule of law depends crucially on attributes like predictability, stability, equal application, and public confidence in legal institutions as legitimate arbiters of disputes and effective governors of societal challenges.[75] Incrementalism in the face of

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er, *The Patchwork That Won't Work*, PELICAN INST. PUB. POL'Y (Feb. 27, 2025), https://pelicanpolicy.org/technology-innovation/the-patchwork-that-wont-work/ [https://perma.cc/YTF2-FH96].

71 *See, e.g.*, Solove, *supra* note 1, at 16–17 (offering an extensive analysis of how AI challenges an outdated privacy regime).

72 *Id.* at 42–43.

73 *See, e.g.*, *id.* at 6.

74 *See id.* at 15–16.

75 *See* Jeff Rosen, *The Regulatory Pendulum*, NAT'L AFFS. (2024), https://www.nationalaffairs.com/publications/detail/the-regulatory-pendulum [https://perma.cc/B9R7-QJUF]; *see also* Anna Butenko & Pierre Larouche, *Regulation for Innovativeness or Regulation of Innovation*, 7 L. INNOVATION & TECH. 52, 68 (2015) (listing stability and predictability as commonly sought values for a legal system).

transformative AI actively corrodes each of these pillars.[76] The widening gap between technological capability and legal frameworks breeds uncertainty, making it difficult for individuals and organizations to plan their affairs or assess the legal consequences of deploying new technologies. This uncertainty is then amplified by the policy instability described previously.

When public legal systems appear inadequate or unresponsive to technologically driven problems, actors with sufficient resources are incentivized to seek refuge in private ordering. This might involve increasingly complex contractual arrangements designed to circumvent ambiguous public laws, greater reliance on private arbitration (potentially employing bespoke rules), or the development of entirely separate ecosystems for commerce and dispute resolution governed by platform rules rather than public law.[77] Such fragmentation, while presumably beneficial for participants, undermines the universality principle inherent in the rule of law, creating tiered systems of justice and exacerbating social and economic inequalities.[78] Consider, by analogy, the manner in which wealthier individuals or communities may bypass perceived inadequacies in public services by funding private security patrols or even private firefighting services, creating disparities in safety and responsiveness based on ability to pay.[79] A similar divergence could occur in access to effective governance and dispute resolution if public systems fail to keep pace with technology, leaving those without resources subject to increasing-

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76 *Cf.* Butenko & Larouche, *supra* note 75, at 67–68 (specifying the conditions under which the related concept of "regulatory disconnect" may occur).

77 *See* David Moscrop, *The Rich Want Their Own Cities*, JACOBIN (Jan. 27, 2024), https://jacobin.com/2024/01/rich-private-city-inquality-public [https://perma.cc/V42Z-5AFD]; David Morris, *We Now Have* a *Private Judicial System Just for Corporations*, INST. FOR LOC. SELF-RELIANCE (Sep. 28, 2015), https://ilsr.org/articles/we-now-have-a-private-judicial-system-just-for-corporations/ [https://perma.cc/R8FY-JTAX]. Note that this is not a new phenomenon. *See, e.g.*, Charles L. Lindner, *With the Courts Crowded, Private 'Justice' for the Rich and Famous*, L.A. TIMES (Dec. 25, 1994, at 00:00 PT), https://www.latimes.com/archives/la-xpm-1994-12-25-op-12908-story.html [https://perma.cc/HN65-6S29].

78 *See* Robert A. Stein, *What Exactly Is the Rule of Law?*, 57 HOU. L. REV. 185, 193 (2019) (including the idea that "[t]he law applies to everyone in society whatever their station in life" among other attributes of the rule of law).

79 *See, e.g.*, Laurel Wamsley & Leila Fadel, *Insurance Companies and Wealthy LA Residents Hire Private Firefighters for Protection*, NPR (Jan. 17, 2025, at 3:56 ET), https://www.npr.org/2025/01/17/nx-s1-5258240/insurance-companies-and-wealthy-la-residents-hire-private-firefighters-for-protection [https://perma.cc/L53W-EJ3K]; Hilary Brueck, *I Visited a 'Private ER' Where People Pay Up to $5,000 a Year to Skip the Hospital—Take a Look*, BUS. INSIDER (Dec. 19, 2019, at 6:30 PT), https://www.businessinsider.com/concierge-medicine-what-is-a-private-emergency-room-photos-2019-12 [https://perma.cc/ZCK5-ZL6V].

ly dysfunctional or irrelevant legal frameworks. This erosion of a common legal foundation damages social cohesion and trust.

Furthermore, the cycle of neglect followed by reactive, often constitutionally dubious, regulation injects instability into the legal landscape.[80] Businesses and individuals face a constantly shifting regulatory environment, characterized by conflicting state laws, ongoing litigation, and uncertain enforcement prospects.[81] This regulatory thrashing makes long-term planning difficult, chills innovation (particularly for smaller actors lacking resources to navigate complexity), and diminishes respect for the law as a stable guide for conduct. The resulting environment, marked by unpredictability, inequality of access, and wavering public confidence, is antithetical to the core tenets of the rule of law. Incrementalist scholarship, by failing to promote the timely, systemic reforms needed to avoid this cycle, contributes directly to this degradation.

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In sum, the prevailing incrementalist mode of legal scholarship, when applied to the challenges of AI, exhibits a dangerous pattern of unproductive thinking. By failing to engage seriously with plausible technological futures, neglecting the unique capacity of the legal academy for structural analysis and foresight, and consequently allowing legal tech debt to accumulate, this approach actively contributes to policy instability, erodes public trust, and ultimately undermines the rule of law. The argument here is not that all incremental legal analysis is without value; refining existing doctrines and addressing immediate conflicts remain necessary tasks. Rather, the central critique is one of proportion and priority. In an era defined by the potential for rapid, systemic technological change, the current imbalance—which overwhelmingly favors incremental adjustments over founda-

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80 *See* Catherine L. Carpenter, *Panicked Legislation*, 49 J. LEGIS. 1, 4–5 (2023) (flagging the destabilizing effects of governing in response to fear and popular risk estimates, which tend not to reflect the actual probability and severity of the risk in question); Dylan Tokar, *The Regulatory State Is in Flux Like Never Before, and Businesses Are Hating It*, WALL ST. J. (Sept. 3, 2024, at 5:30 ET), https://www.wsj.com/articles/the-regulatory-state-is-in-flux-like-never-before-and-businesses-are-hating-it-e7c7444a [https://perma.cc/8A9R-CMGG].

81 *See* DANIEL CASTRO, LUKE DASCOLI & GILLIAN DIEBOLD, THE LOOMING COST OF A PATCHWORK OF STATE PRIVACY LAWS 1, 14 (2022). *But see* MARK TRESKON ET AL., DO THE EFFECTS OF A REGULATORY PATCHWORK JUSTIFY STATE PREEMPTION OF LOCAL LAWS? 1 (2021) (flagging that proponents of state governments preempting local laws to create a uniform regulatory ecosystem often lack evidence to support their view).

tional inquiry—is untenable and perilous. Correcting this imbalance by fostering a more robust body of systemic, forward-looking legal scholarship is a necessity for increasing the odds that our legal infrastructure can effectively navigate the complexities of the AI era and uphold the principles of justice and the rule of law. The specific characteristics and methodologies of such systemic scholarship are the focus of the Part that follows.

III. DEFINING SYSTEMIC SCHOLARSHIP

Having established the limitations of prevailing incrementalist approaches to AI law and policy, the task becomes articulating a viable alternative. If adjusting existing legal rules at the margins is insufficient to navigate the transformative potential of AI, what kind of legal scholarship is required? This Part proposes and defines *systemic legal scholarship* as the necessary paradigm shift. It distinguishes this approach from incrementalism by focusing on its engagement with foundational legal structures, values, and processes rather than discrete rules. Furthermore, this Part outlines key methodological components for conducting such scholarship, emphasizing the adaptation of foresight techniques like scenario planning to anticipate and shape legal futures in alignment with technological trajectories. Finally, it distills these concepts into guiding principles for scholars seeking to contribute to this crucial endeavor. The objective is not to prescribe rigid dogma, but to foster a more ambitious, structurally aware, and ultimately more effective mode of legal inquiry capable of meeting the governance challenges posed by the age of AI.

A. Defining Systemic Versus Incremental Legal Analysis

The core distinction between systemic and incremental legal scholarship lies in the level of analysis and the scope of proposed reform. Incrementalism, as critiqued in Part II, operates primarily within the confines of existing legal frameworks. It accepts the fundamental architecture of a given legal domain—be it tort law, administrative procedure, or intellectual property—as largely sound and focuses on adapting specific rules, standards, or doctrines to accommodate new factual circumstances presented by AI. Its interventions are targeted, aiming to resolve specific ambiguities or address narrow conflicts generated by technology without fundamentally questioning the underlying legal structure.

Systemic scholarship, in contrast, takes the existing legal framework itself as the object of analysis and potential reform. It

does not merely ask how a new technology like AI fits into established legal categories; rather, it interrogates whether those categories, and the foundational assumptions, values, or operational logics they embody, remain suitable in light of potentially transformative technological shifts. Its scope is broader, targeting not just individual rules but the organizing principles, core values, or operational logics that underpin entire legal regimes. A systemic approach asks whether the very foundations need rethinking.

Consider the distinction as illuminated by Ajay Agrawal, Joshua Gans, and Avi Goldfarb using the example of AI in education.[82] An incremental approach might deploy AI tools to enhance existing educational structures—using AI to automate grading within conventional courses, provide personalized tutoring supplementary to standard curricula, or optimize bus routes for traditional school schedules.[83] These are valuable "point" applications, improving efficiency or effectiveness within the established paradigm. A systemic approach, however, contemplates how AI enables a fundamental redesign of the educational system itself. It might envision eliminating age-based grade levels entirely, replacing them with a fluid, competency-based progression tailored to individual student learning curves as assessed and guided by AI.[84] This latter approach abandons the easy path of small amendments to the rules of the existing game and demands changes to the game itself. This approach restructures the foundational unit (the grade level) and the core process (pedagogy and progression) around the capabilities of the new technology.[85]

A compelling legal analogy can be found in the potential adaptation of the *Federal Rules of Civil Procedure* (*FRCP*)—the foundational architecture governing federal litigation—to the realities of AI. An incremental approach, reflecting current scholarship and proposed rule amendments, focuses on adapting specific *FRCP* rules to AI-related challenges. For instance, scholars, practitioners, and jurists debate how Rule 26 (governing discovery duties) might be modified to address the unique challenges of accessing and understanding relevant AI training data or algorithmic decision-making processes.[86] They also analyze potential

82 *See* AGRAWAL, GANS & GOLDFARB, *supra* note 31, at 69–70.

83 *See id.*

84 *See id.* at 67, 69–70.

85 *See id.* at 69–71.

86 *See, e.g.*, Kizzy Jarashow & Artem Skorostensky, *Opening the Black Box of Generative AI: Explainability in Bankruptcy Cases*, GOODWIN LAW (July 22, 2024), https://www.goodwinlaw.com/en/insights/publications/2024/07/insights-practices-aiml-

amendments to Rule 11 (governing representations to the court) to account for attorney use of AI tools in drafting pleadings.[87] These are necessary adjustments, attempting to fit AI-related issues into the existing procedural framework by modifying discrete components.

A systemic approach to the *FRCP* in the age of AI, however, would step back and question the suitability of the entire framework's adversarial, party-driven, and often human-centric assumptions.[88] It might ask, for example, whether the fundamental structure of party-controlled discovery, established long before the existence of massive datasets and complex algorithms, remains the most efficient or just method for uncovering truth when AI systems are involved.[89] Perhaps AI tools themselves could enable a shift toward a more inquisitorial model, where neutral, court-appointed AI systems assist in identifying relevant information or even conducting a preliminary assessment of case merits, fundamentally altering the roles of litigants and the court.[90] Alternatively, a systemic approach might re-evaluate the very concept of notice pleading under Rule 8 in an era where AI could potentially analyze factual patterns and predict legal outcomes with increasing accuracy from the outset, perhaps justify-

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generative-ai-bankruptcy-cases [https://perma.cc/3BZH-EZXD]; John Connolly, *New Question for Expert Witness: Who Drafted This Report, You or Your Machine?*, JD SUPRA (Jan. 15, 2025), https://www.jdsupra.com/legalnews/new-question-for-expert-witness-who-7761463/ [https://perma.cc/MDC3-L8G9].

87 *See* Jessica R. Gunder, *Rule 11 Is No Match for Generative AI*, 27 STAN. TECH. L. REV. 308, 351, 361 (2024).

88 *Cf.* Stephanos Bibas, *Lawyers' Monopoly and the Promises of AI*, YALE L.J. FORUM (Mar. 14, 2025), https://www.yalelawjournal.org/forum/lawyers-monopoly-and-the-promises-of-ai [https://perma.cc/8EFY-PBGD] (hinting at the need for a more holistic reassessment of the *FRCP* in the age of AI).

89 Some members of the legal community have briefly reflected on broader reforms to the core aspects of civil litigation in light of AI advances. *See* John Villasenor, *How AI Will Revolutionize the Practice of Law*, BROOKINGS INST. (Mar. 20, 2023), https://www.brookings.edu/articles/how-ai-will-revolutionize-the-practice-of-law/ [https://perma.cc/QLH3-FY3E] (specifying that discovery may undergo particular changes due to AI); Jonathan Ciottone, *A Paradigm Shift in Legal Practice: Enhancing Civil Litigation with Artificial Intelligence*, NAT'L L. REV. (Apr. 24, 2024), https://natlawreview.com/article/paradigm-shift-legal-practice-enhancing-civil-litigation-artificial-intelligence [https://perma.cc/2GE3-X9E6] (asserting that AI may cause a paradigm shift in civil litigation); *cf. Generative AI: How It Will Change Litigation*, QUINN EMANUEL (May 23, 2023), https://www.quinnemanuel.com/thefirm/publications/generative-ai-how-it-will-change-litigation/ [https://perma.cc/4PUF-LVMV] (exploring the potential for generative AI to automate repetitive tasks in the legal field).

90 For an example of scholarship more in line with this approach, see Felix Steffek, *A Story of Two Holy Grails: How Artificial Intelligence Will Change the Design and Use of Corporate Insolvency Law*, U. CHI. L. REV. ONLINE *1, *2–3 (2024) (analyzing whether AI can predict court decisions).

ing more demanding initial pleading standards or entirely different mechanisms for filtering meritorious claims.[91] Such proposals involve more than tweaking Rule 26 or Rule 11; they call for redesigning the foundational stages and underlying logic of the litigation process itself, leveraging AI not just as a tool within the old system, but as a catalyst for creating a new one. This is the essence of systemic legal scholarship: it engages with the possibility of fundamental architectural change, rather than confining itself to renovating the fixtures within the existing structure.

B. The Imperative of Systemic Analysis amid Foundational Technological Shifts

The critique of incrementalism in Part II underscores its inadequacy as well as the pressing need for a fundamentally different approach. The imperative for adopting *systemic legal scholarship* arises directly from the nature of AI itself and the predictable patterns of how transformative technologies reshape society.[92] Specifically, the importance of this approach is grounded in AI's potential for system-level impact,[93] the tendency for foundational innovation to originate in the private sector before influencing public frameworks,[94] and the consequent necessity for legal scholarship to engage in anticipatory, system-level design thinking rather than reactive adaptation.

First, the most compelling justification for systemic legal analysis lies in the understanding that AI's truly transformative effects, like those of prior general-purpose technologies, will manifest most profoundly through the redesign of entire systems, not

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91 *See id.* at *3.

92 *See* Robert D. Atkinson & Jackie Whisman, *Podcast: General-Purpose Technologies and the Rise of Great Nations, with Jeffrey Ding*, INFO. TECH. & INNOVATION FOUND. (Aug. 5, 2024), https://itif.org/publications/2024/08/05/general-purpose-technologies-rise-great-nations-with-jeffrey-ding/ [https://perma.cc/H6B4-AA7C] (interviewing Jeffrey Ding on the tendency of general-purpose technologies, such as AI, to transform society).

93 *See* AGRAWAL, GANS & GOLDFARB, *supra* note 31, at 17.

94 *See* Robert Delorme, *Digital Strategies in Local Government: Private Sector and Early Adopters Lessons Learned*, W. UNIV. (July 2016), https://localgovernment.uwo.ca/resources/docs/research_papers/2016/Delorme,%20Robert%20-%202016%20%20PUBLIC.pdf [https://perma.cc/8FHK-6JBF] (discussing the tendency of the private sector to adopt new technologies sooner than public sector actors); Audrey Kurth Cronin, *How Private Tech Companies Are Reshaping Great Power Competition*, JOHN HOPKINS SCH. OF ADVANCED INT'L STUD.: HENRY A. KISSINGER CTR. FOR GLOB. AFFS. (Aug. 2023), https://kissinger.sais.jhu.edu/programs-and-projects/kissinger-center-papers/how-private-tech-companies-are-reshaping-great-power-competition/ [https://perma.cc/J4JM-XVEZ] (providing an overview of how private companies, rather than governments, create novel technologies).

merely the optimization of discrete tasks.[95] As forcefully argued by Agrawal, Gans, and Goldfarb, the paradigm shift enabled by AI as a prediction technology occurs when organizations move beyond using it as a "point solution" within existing structures and instead re-architect core processes and strategies around its capabilities.[96] Just as electricity eventually led to redesigned factories and workflows, not just electrically powered versions of older machines,[97] AI's ultimate impact involves reimagining how information is processed, decisions are made, and value is created at a systemic level.[98] Legal scholarship must mirror this reality. If AI's potential is systemic, then the legal thinking required to govern it responsibly and effectively must also be systemic: capable of envisioning and evaluating fundamental changes to legal architecture, not just adjustments to existing components.

Second, historical patterns strongly suggest that these foundational, AI-driven system redesigns are likely to emerge first in the private sphere, necessitating proactive public law engagement.[99] Private actors, often facing fewer regulatory constraints and possessing greater agility, are typically the earliest adopters and innovators in leveraging new technologies for systemic advantage.[100] We can foresee the plausible rise of sophisticated, AI-

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95 *Cf.* Matt Kapko, *'Point Solutions Just Need to Die': The End of the One-Trick Security Tool*, CYBERSECURITY DIVE (Oct. 31, 2022), https://www.cybersecuritydive.com/news/security-tool-strategy/635280/ [https://perma.cc/VK5N-U586] (observing that the pitfalls of point-based solutions often befall firms looking to bolster their cybersecurity and concluding that "[o]rganizations are often better served by cybersecurity tools that integrate across an entire stack").

96 *See* AGRAWAL, GANS & GOLDFARB, *supra* note 31, at 15–16.

97 *Id.* at 8, 10.

98 The transformative potential of system-wide adoption of AI has already caught on in the private sector. An increasing number of "AI-native" firms have designed their entire operations around AI. Investors have made sizable bets on these early initiatives. *See, e.g.*, Steven Rosenbush, *AI-Native Companies Are Growing Fast and Doing Things Differently*, WALL ST. J. (Feb. 7, 2025, at 5:00 ET), https://www.wsj.com/articles/ai-native-companies-are-growing-fast-and-doing-things-differently-97af5e56 [https://perma.cc/UN5B-TGJJ]; Kent Bennett et al., *Part I: The Future of AI is Vertical*, BESSEMER VENTURE PARTNERS (Sep. 3, 2024), https://www.bvp.com/atlas/part-i-the-future-of-ai-is-vertical [https://perma.cc/N3WH-U2M7].

99 *See* Tod Newcombe, *The Complicated History of Government Technology*, GOV'T TECH. (Oct. 2, 2017), https://www.govtech.com/computing/the-complicated-history-of-government-technology.html [https://perma.cc/5FFC-LMUS].

100 *See* Stephanie Kanowitz, *The Late-Mover Advantage: Faster, More Successful Tech Adoption*, ROUTE FIFTY (July 19, 2022), https://www.route-fifty.com/infrastructure/2022/07/late-mover-advantage-faster-more-successful-tech-adoption/374671/ [https://perma.cc/AZ7U-L8KL]; *cf.* Klaus Schwab, *The Fourth Industrial Revolution: What It Means, How to Respond*, WORLD ECON. F. (Jan. 14, 2016), https://www.weforum.org/stories/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/ [https://perma.cc/7E3Q-ZCNG] (detailing how private actors leaned

native platforms for private governance, such as end-to-end alternative dispute resolution systems or bespoke contractual ecosystems operating largely outside traditional legal oversight.[101] The crucial insight from history is that such private innovations rarely remain isolated; they exert gravitational pulls on public law. Consider the development of commercial arbitration: originating as a private mechanism among merchants seeking expertise and efficiency unavailable in royal courts.[102] Its principles and demonstrated utility gradually led to judicial acceptance and ultimately legislative endorsement via statutes like the Arbitration Act of 1925[103] and, later, the Federal Arbitration Act,[104] altering the landscape of public dispute resolution.[105] Similarly, the evolution of negotiable instruments,[106] stock exchange self-regulation eventually codified in securities law,[107] and private credit reporting systems[108] all illustrate a recurring dynamic: private solutions to governance problems generated by new economic realities often precede and profoundly influence public legal development. Systemic legal scholarship is vital precisely because it allows us to anticipate this dynamic in the context of AI.[109] By analyzing potential AI-driven private innovations, it

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into "agile" workflows before the public sector). *Contra* Stuart Bretschneider, *Idea to Retire: Government Lags in Adopting Technology*, BROOKINGS INST. (Apr. 5, 2016), https://www.brookings.edu/articles/idea-to-retire-government-lags-in-adopting-technology/ [https://perma.cc/T3ME-HPUL].

101 *See About – Future Dispute Resolution*, STAN. UNIV., https://conferences.law.stanford.edu/future-dispute-resolution/about/ [https://perma.cc/28N9-78B6] (last visited May 5, 2025) (detailing a conference focused on the integration of generative AI into dispute resolution systems hosted by Stanford Law School); Bryan Jung, *Will AI Transform Dispute Resolution As We Know It?*, THOMSON REUTERS (Apr. 15, 2021), https://mena.thomsonreuters.com/en/resources/legal/articles/2021/will-ai-transform-dispute-resolution-as-we-know-it.html [https://perma.cc/3Z3J-8URC].

102 *See generally* Frank D. Emerson, *History of Arbitration Practice and Law*, 19 CLEV. ST. L. REV. 155 (1970) (providing a history of arbitration); Earl S. Wolaver, *The Historical Background of Commercial Arbitration*, 83 UNIV. PA. L. REV. 132 (1934) (discussing the situations and practices that formed the origin of commercial arbitration).

103 *See* Emerson, *supra* note 102, at 162–63.

104 *See* Imre Stephen Szalai, *Exploring the Federal Arbitration Act Through the Lens of History*, 2016 J. DISP. RESOL. 115, 115 (2016).

105 *See id.* at 115–16.

106 *See* Frederick K. Beutel, *The Development of State Statutes on Negotiable Paper Prior to the Negotiable Instruments Law*, 40 COLUM. L. REV. 836, 836–37 (1940).

107 *See* John I. Sanders, *Break from Tradition: Questioning the Primacy of Self-Regulation in American Securities Law*, 7 MICH. BUS. & ENTREPRENEURIAL L. REV. 93, 93–99 (2017).

108 *See* Austin H. Krist, *Large-Scale Enforcement of the Fair Credit Reporting Act and the Role of State Attorneys General*, 115 COLUM. L. REV. 2311, 2313–16 (2015).

109 As it stands, some forecasted the need for system-wide AI governance far before the current AI wave. *See* Michael Guihot, Anne F. Matthew & Nicolas P. Suzor, *Nudging*

can proactively develop public law frameworks that channel these developments toward broader societal goals, rather than waiting to react defensively after private systems become deeply entrenched.

Therefore, the central role of systemic legal scholarship is anticipatory design. It involves moving beyond the reactive posture inherent in incrementalism and embracing the challenge of designing legal frameworks robust enough to accommodate a range of plausible AI futures.[110] This proactive stance is particularly critical in legal domains already burdened by significant legal tech debt, those areas identified in Part II where the accumulated weight of outdated rules and processes creates the greatest friction with technological advancement. Foundational frameworks like the *FRCP*[111] or complex regulatory regimes governing government procurement[112] represent prime examples where the failure to modernize has created deep structural impediments. Systemic scholarship targets precisely these areas, recognizing that the inertia of such rule-bound systems makes marginal adjustments insufficient. Again, as Agrawal, Gans, and Goldfarb explain, changes to individual rules in such systems result in very little, if any, improvements because of the interdependent nature of systems made up of complex and interconnected rules.[113] Instead, this approach to scholarship explores how these domains might be fundamentally re-architected, leveraging or accounting for AI, to better serve societal needs for innovation, justice, efficiency, and responsible governance in the twenty-first century. This requires not only identifying where existing struc-

*Robots: Innovative Solutions to Regulate Artificial Intelligenc*e, 20 VAND. J. ENT. & TECH. L. 385, 391–92 (2017) (stating that in order for the government to influence AI development and direct it toward the public interest, "it must be able to understand and influence this complex and intricate web of actors that often have diverse goals, intentions, purposes, norms, and powers").

110 *See* Max Roser, *AI Timelines: What do Experts in Artificial Intelligence Expect for the Future?*, OUR WORLD IN DATA: AI (Feb. 7, 2023), https://ourworldindata.org/ai-timelines [https://perma.cc/DTA7-MD55] (summarizing the range of estimates by experts regarding AI progress).

111 *See* LAWS. FOR CIV. JUST., DRI – THE VOICE OF THE DEF. BAR, FED'N OF DEF. & CORP. COUNS., & INT'L ASS'N OF DEF. COUNS., RESHAPING THE RULES OF CIVIL PROCEDURE FOR THE 21ST CENTURY 3–5 (2010), https://www.uscourts.gov/file/document/reshaping-rules-civil-procedure-21st-century-need-clear-concise-and-meaningful [https://perma.cc/V9SJ-F8BM].

112 *Cf.* Dan Chenok, *How Can Governments Use AI to Improve Procurement?*, THE REGUL. REV. (June 30, 2022), https://www.theregreview.org/2022/06/30/chenok-how-can-governments-use-ai-to-improve-procurement/ [https://perma.cc/W565-2JM6] (describing the myriad and outdated regulations shaping the federal government's procurement practices).

113 *See* AGRAWAL, GANS & GOLDFARB, *supra* note 31, at 65–70.

tures fail but also engaging creatively with the design of viable, values-aligned alternatives.

C. Leveraging Foresight Methodologies for Systemic Legal Design

The commitment to anticipatory design, central to systemic legal scholarship as outlined above, necessitates a structured approach to looking ahead. Identifying which legal domains are most susceptible to disruption by AI, where legal tech debt poses the greatest impediment, or where proactive legal frameworks can best channel technological development requires more than intuition; it requires disciplined foresight. While legal scholars should avoid the pitfalls of attempting precise technological prediction—a task best left to technologists and superforecasters[114]—they can and must learn from the methodologies employed in technical forecasting to inform a more rigorous legal forecasting. This involves understanding the hallmarks and limitations of AI forecasting itself, then adapting appropriate foresight techniques to anticipate legal pressures and design robust, adaptive legal systems. The goal is not to predict the future with certainty,[115] but to map the landscape of plausible futures and prepare the legal infrastructure accordingly, potentially identifying areas ripe for comprehensive reform—reform that involves changing entire decision-making structures, standards, and principles.

Technical forecasting in the AI domain employs a range of methods to anticipate future capabilities and impacts. Common approaches include extrapolating performance trends on established benchmarks,[116] analyzing scaling laws related to computational power and dataset size,[117] surveying expert opinion on de-

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114 *See How Accurate Are the Superforecasters?*, GOOD JUDGMENT, https://goodjudgment.com/resources/the-superforecasters-track-record [https://perma.cc/W98M-75H4] (last visited May 5, 2025); Jack Clark, *Import AI 404: Scaling Laws for Distributed Training; Misalignment Predictions Made Real; and Alibaba's Good Translation Model*, IMPORT AI (Mar. 17, 2025), https://importai.substack.com/p/import-ai-404-scaling-laws-for-distributed [https://perma.cc/66F9-G9MG] (reporting instances of forecasters accurately predicting developments in AI).

115 This is the case in AI forecasting, too. *See* Ross Gruetzemacher et al., *Forecasting AI Progress: A Research Agenda*, 170 TECH. FORECASTING & SOC. CHANGE 1, 1 (2021) (framing AI forecasting as imperfect, yet important to planning for certain risks).

116 *See* MASLEJ ET AL., *supra* note 2, at 20–22.

117 *See, e.g.*, Clark, *supra* note 114.

velopment timelines,[118] tracking investment flows and talent migration,[119] and modeling the potential economic or societal consequences of anticipated breakthroughs.[120] Organizations like the Stanford Institute for Human-Centered AI (producing the annual *AI Index Report*)[121] and research groups like Epoch AI[122] play significant roles in consolidating data and providing structured analyses of these trends. These efforts, while invaluable, are subject to inherent limitations and valid critiques. AI forecasting is often highly speculative, particularly concerning long-term predictions or the emergence of fundamentally novel capabilities.[123] Forecasts can be influenced by the biases or incentives of the experts surveyed, may overemphasize quantifiable metrics while neglecting qualitative shifts, and struggle to account for unpredictable geopolitical events or paradigm-shifting discoveries.[124]

Despite these imperfections, engaging with AI forecasting remains essential from both societal and scholarly perspectives. Even imperfect forecasts provide crucial inputs for strategic planning, resource allocation, and risk mitigation.[125] They help frame the range of possibilities, identify potential bottlenecks (like data scarcity or energy constraints),[126] highlight emerging

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118 *See, e.g.*, KATJA GRACE ET AL., THOUSANDS OF AI AUTHORS ON THE FUTURE OF AI 1–3, 19 (2024), https://arxiv.org/pdf/2401.02843v1 [https://perma.cc/P37T-7P7M].

119 *Cf.* REMCO ZWETSLOOT, ROXANNE HESTON & ZACHARY ARNOLD, CTR. FOR SEC. & EMERGING TECH., STRENGTHENING THE U.S. AI WORKFORCE 1–5, 7 (2019) (citing a dearth of AI talent as a potential cause for slower AI progress in the US).

120 *See, e.g.*, James Pethokoukis, *AI and the Economy: Scenarios for a World with Artificial General Intelligence*, AM. ENTER. INST. (Mar. 18, 2024), https://www.aei.org/articles/ai-and-the-economy-scenarios-for-a-world-with-artificial-general-intelligence [https://perma.cc/BKZ2-C37K].

121 *See* MASLEJ ET AL., *supra* note 2.

122 *Fostering a Rigorous Understanding of the Future of AI*, EPOCH AI, https://epoch.ai/research [https://perma.cc/VF3R-7WKW] (last visited May 5, 2025).

123 *See* Yoshua Bengio, *Implications of Artificial General Intelligence on National and International Security*, ASPEN INST. 1 (Oct. 2024), https://www.aspeninstitute.org/wp-content/uploads/2024/10/Bengio_National-and-International-Security-in-an-AGI-Context_Final.pdf [https://perma.cc/6PP2-MFBU]; Stephen McAleese, *AGI as a Black Swan Event*, LESSWRONG (Dec. 4, 2022), https://www.lesswrong.com/posts/B823KjSvD5FnCc6dc/agi-as-a-black-swan-event [https://perma.cc/W5GE-ZG3C].

124 *See* Kelsey Piper, *Where AI Predictions Go Wrong*, VOX (June 7, 2024, at 06:00 PT), https://www.vox.com/future-perfect/354157/ai-predictions-chatgpt-google-future [https://perma.cc/8B8N-2LPL]; Jeffrey Funk & Gary Smith, *Why A.I. Moonshots Miss*, SLATE (May 4, 2021, at 05:45 PT), https://slate.com/technology/2021/05/artificial-intelligence-moonshots-usually-fail.html [https://perma.cc/69J9-95KN].

125 *See, e.g.*, Gruetzemacher et al., *supra* note 115, at 1–2.

126 *See* Tim Fist & Arnab Datta, *How to Build the Future of AI in the United States*, INST. FOR PROGRESS (Oct. 23, 2024), https://ifp.org/future-of-ai-compute [https://perma.cc/AB9X-QNNU].

safety and ethical concerns,[127] and inform public discourse and policy debates.[128] For legal scholars, understanding the methodologies, assumptions, and uncertainties within technical AI forecasts is critical not for adopting their specific predictions, but for grasping the potential scale and speed of change that the legal system may need to accommodate. It allows legal analysis to be grounded in a realistic appraisal of technological momentum, rather than operating in a vacuum.

The crucial step is translating these insights into effective legal forecasting. The objective here shifts from predicting technological milestones to anticipating the resulting pressures on legal doctrines, institutions, and values, and exploring potential legal responses. Several foresight methodologies can be adapted for this purpose:

1. *Delphi Method*: This involves structured, iterative surveys of experts (including legal scholars, technologists, ethicists, social scientists, and affected stakeholders) to elicit and refine judgments about future legal challenges and potential solutions.[129] Its strength lies in leveraging diverse expertise and facilitating consensus-building or clarifying disagreements.[130] However, it can be resource-intensive and susceptible to expert biases or groupthink if not carefully managed.[131]
2. *Trend Analysis*: This method focuses on extrapolating existing trends relevant to the legal system, such as patterns in AI-related litigation, evolving regulatory approaches in adjacent fields or other jurisdictions, or the adoption rates of specific AI tools within legal practice or

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127 *See* Darrell M. West, *How AI Can Enable Public Surveillance*, BROOKINGS INST. (Apr. 15, 2025), https://www.brookings.edu/articles/how-ai-can-enable-public-surveillance [https://perma.cc/3UFX-Q383].

128 Daniel Kokotajlo et al., *supra* note 33 (choose "Why is it valuable?" from dropdown).

129 *See* Supachai Chuenjitwongsa, *How To: Conduct a Delphi Study*, CARDIFF UNIV. (2017), https://www.cardiff.ac.uk/__data/assets/pdf_file/0010/1164961/how_to_conduct_a_delphistudy.pdf [https://perma.cc/ZVG4-CF2E]; Daniel Beiderbeck et al., *Preparing, Conducting, and Analyzing Delphi Surveys: Cross-Disciplinary Practices, New Directions, and Advancements*, 8 METHODSX 1, 2 (2021).

130 *See The Delphi Method*, THE DECISION LAB, https://thedecisionlab.com/reference-guide/management/the-delphi-method [https://perma.cc/S7PM-JK9F] (last visited May 5, 2025); NORMAN C. DALKEY, RAND, THE DELPHI METHOD: AN EXPERIMENTAL STUDY OF GROUP OPINION 16–17 (1969), https://www.rand.org/content/dam/rand/pubs/research_memoranda/2005/RM5888.pdf [https://perma.cc/M4W9-4N2H].

131 *See The Delphi Method*, *supra* note 130; *cf.* DALKEY, *supra* note 130, at 75 (noting that certain factors such as the timing of the exercise may alter results).

regulated industries.[132] While potentially offering data-grounded insights, its primary limitation is its reliance on historical patterns, making it less effective at anticipating discontinuous change or novel legal issues.[133]

3. *Prediction Markets*: These employ market mechanisms where participants make financial bets based on the likelihood of specific future legal or regulatory events (e.g., "Will the Supreme Court overturn Doctrine X related to AI by 2030?").[134] Proponents argue they effectively aggregate dispersed information and provide probabilistic forecasts.[135] Challenges include designing effective markets for complex legal questions, ensuring sufficient liquidity and participation, and the potential for manipulation.[136]
4. *Scenario Planning*: This technique involves developing a set of distinct, plausible, and internally consistent narratives about the future based on key driving forces and critical uncertainties.[137] For AI legal forecasting, uncertainties might include the pace of capability development, the nature of dominant AI architectures, primary modes of societal adoption (e.g., centralized vs. decentralized), or prevailing regulatory philosophies (e.g., permissive vs. precautionary). Legal scholars would then analyze the legal needs, challenges, and optimal framework designs within each plausible scenario.

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132 *See* Steffi Friedrichs, *Trend-Analysis of Science, Technology and Innovation Policies for BNCTs* 5, 19 (OECD, Working Paper No. 2018/08, 2018); CTR. FOR PUB. POL'Y, *Forecasting: Trend Analysis and Pattern Detection: Current Techniques*, UNIV. OF HOU.: HOBBY SCH. OF PUB. AFFS., https://uh.edu/hobby/cpp/forecasting/current-techniques/ [https://perma.cc/CK8C-85RP] (last visited May 5, 2025) (detailing specific techniques for performing trend analysis as applied in the public policy context); *cf.* John C. Chambers, Satinder K. Mullick & Donald D. Smith, *How to Choose the Right Forecasting Technique*, HARV. BUS. REV. (July 1971), https://hbr.org/1971/07/how-to-choose-the-right-forecasting-technique [https://perma.cc/H5MA-HVDK] (assessing the value of the X-11 technique, a form of trend analysis).

133 *See What Is Trend Analysis? Understanding Its Role in Finance*, SANTA CLARA LEAVEY SCH. OF BUS.: BLOG (Mar. 28, 2025, at 09:17 PT), https://onlinedegrees.scu.edu/media/blog/what-is-trend-analysis [https://perma.cc/NG4N-DSQE].

134 *See* Tom W. Bell, *Government Prediction Markets: Why, Who, and How*, 116 PENN. ST. DICK. L. REV. 403, 404–05 (2011) (setting forth the key aspects of prediction markets).

135 *See id.* ("Prediction markets, because they collect and quantify relatively accurate estimates about the likelihood of future events, offer a promising solution to the problem of government ignorance.").

136 *See id.* at 414–15 (listing some potential legal issues and design flaws with prediction markets).

137 *See* CONSORTIUM FOR SCENARIO PLAN., *What Is Scenario Planning*, LINCOLN INST. OF LAND POL'Y, https://www.lincolninst.edu/centers-initiatives/consortium-scenario-planning/introduction-scenario-planning/ [https://perma.cc/8HVN-HG6T] (last visited May 5, 2025).

While each method offers potential value, scenario planning appears particularly well-suited for the demands of systemic AI legal scholarship. Its primary strength lies in its explicit embrace of deep uncertainty, allowing scholars to explore legal implications across a range of divergent but plausible futures rather than betting on a single predicted outcome. This aligns perfectly with the unpredictable nature of AI development.[138] Furthermore, scenario planning inherently facilitates interdisciplinary collaboration, providing a structured framework for integrating insights from technologists, economists, ethicists, and others in constructing the scenarios and analyzing their legal dimensions.[139] Its narrative format makes complex futures more accessible and promotes transparency regarding underlying assumptions.[140] Crucially, by generating a menu of potential legal challenges and corresponding adaptive strategies tailored to different future contexts, scenario planning directly supports the goal of designing robust, resilient, and dynamic legal frameworks—the core objective of systemic legal scholarship.[141] It moves beyond prediction toward strategic preparedness, equipping the legal community to navigate multiple potential pathways rather than optimizing for one potentially incorrect forecast.

D. Guiding Principles for Systemic AI Legal Scholarship

Equipped with an understanding of systemic analysis and the potential of foresight methodologies like scenario planning, the challenge remains translating these concepts into a concrete scholarly practice. Moving beyond the critique of incrementalism requires not just a different perspective but also a distinct approach to formulating research questions and developing legal proposals. What principles, then, should guide legal academics seeking to contribute to the development of robust, future-

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138 *See* Rafael Ramírez et al., *Using Scenario Planning to Reshape Strategy*, MIT SLOAN MGMT. REV., Summer 2017, at 31–32, https://sloanreview.mit.edu/article/using-scenario-planning-to-reshape-strategy/ [https://perma.cc/2Y6Z-HUHA] (recommending the use of scenario planning amid "periods of turbulence, unpredictable uncertainty, novelty, and ambiguity").

139 *See* Annika Steele, *Scenario Planning*, THE DECISION LAB, https://thedecisionlab.com/reference-guide/organizational-behavior/scenario-planning [https://perma.cc/E9HH-7XRD] (last visited May 5, 2025).

140 *See id.*

141 *See* Ramírez et al., *supra* note 138, at 32 (providing case studies in which organizations relied on scenario planning to develop specific investment initiatives responsive to the ins and outs of scenario).

oriented AI governance? This section distills the preceding analysis into three core guidelines for conducting systemic AI legal scholarship. Adherence to these principles can help ensure that legal inquiry actively shapes, rather than reacts to, the profound societal shifts portended by AI.

First, systemic scholarship must identify and prioritize legal domains ripe for foundational change, informed by disciplined forecasting. Instead of addressing issues randomly as they arise, this approach requires a deliberate effort to pinpoint areas where existing legal frameworks are most likely to falter or create significant friction under plausible future scenarios involving advanced AI. The insights gleaned from legal forecasting methodologies, particularly scenario planning as advocated above, are crucial here. By exploring diverse trajectories of AI development and adoption, scholars can identify legal regimes prone to accumulating high levels of legal tech debt, systems whose foundational assumptions are directly challenged by AI capabilities, or areas where proactive legal redesign is essential to unlock significant societal benefits or mitigate substantial risks anticipated across multiple scenarios.[142] This prioritization might focus on longstanding areas of legal inadequacy exacerbated by AI (like privacy law)[143] or on novel governance challenges emerging directly from AI's unique characteristics (like algorithmic accountability or the regulation of AGI).[144] Identification of such scholarly gaps can be driven by both descriptive forecasting (what legal pressures are likely?) and normative commitments (what legal changes are needed to steer AI toward desirable societal goals, like equity or human flourishing?).

Second, having identified a priority domain, systemic scholarship must propose wholesale, structural reforms under the assumption of deep, system-level AI integration. This principle marks the sharpest departure from incrementalism. Rather than

142 Related forecasts inform the debate over the future of work in the age of AI—pinpointing industries and professions that may require greater reskilling and upskilling opportunities in the near future. *See, e.g.*, Molly Kinder et al., *Generative AI, the American Worker, and the Future of Work*, BROOKINGS INST. (Oct. 10, 2024), https://www.brookings.edu/articles/generative-ai-the-american-worker-and-the-future-of-work/ [https://perma.cc/D4AZ-FPTB]; RAKESH KOCHHAR, PEW RSCH. CTR., WHICH U.S. WORKERS ARE MORE EXPOSED TO AI ON THEIR JOBS? 19–21 (2023), https://www.pewresearch.org/social-trends/2023/07/26/which-u-s-workers-are-more-exposed-to-ai-on-their-jobs [https://perma.cc/2225-6U4M].

143 *See* Solove, *supra* note 1, at 15–16, 18.

144 *See* Yavar Bathaee, *The Artificial Intelligence Black Box and the Failure of Intent and Causation*, 31 HARV. J.L. & TECH. 889, 895 (2018).

suggesting modifications to existing rules to accommodate AI as an add-on, systemic proposals envision how the entire legal domain might be re-architected with AI considered a foundational element, not an exception or a mere addition to an existing system. This involves questioning the core operational logic, entrenched values, and basic structural components of the targeted legal system. Drawing again from the *FRCP* analogy, systemic proposals would not stop at tweaking discovery rules but might reimagine the entire fact-finding process or the adversarial balance itself, assuming the availability of sophisticated AI tools for analysis and prediction. Similarly, systemic reform of data governance might move beyond patchwork consent requirements to propose entirely new frameworks like data trusts or public data commons designed for an AI-driven world. This requires intellectual boldness—a willingness to challenge long-held assumptions and propose potentially paradigm-shifting alternatives, justified by their alignment with plausible future needs and desired societal outcomes as revealed through foresight analysis.

Third, and critically, systemic legal proposals must infuse dynamism and adaptability into their design. Recognizing the inherent uncertainty surrounding AI's long-term trajectory—the possibility that progress might accelerate beyond current forecasts, stagnate unexpectedly, or veer in unforeseen directions[145]—systemic frameworks built around AI cannot be rigid blueprints. Instead, they must incorporate mechanisms allowing them to evolve and adapt as technological realities and societal understanding change.[146] This principle of dynamism acts as a crucial hedge against the risks of forecasting errors and ensures that systemic reforms do not simply replace old rigidities with new ones. Adaptability can be embedded through various means: incorporating mandatory periodic reviews and sunset clauses for new regulations;[147] designing principles-based rules

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145 *See* Nathan Lambert, *State of Play of AI Progress (and Related Brakes on an Intelligence Explosion)*, INTERCONNECTS (Apr. 30, 2025), https://www.interconnects.ai/p/brakes-on-an-intelligence-explosion [https://perma.cc/F3M3-L3UR] (reviewing the predictions made in the AI 2027 forecast and identifying points of divergence).

146 *Cf.* Anton Leicht, *The New AI Policy Frontier*, THREADING THE NEEDLE (May 5, 2025), https://writing.antonleicht.me/p/the-new-ai-policy-frontier [https://perma.cc/4U95-ETNN] (evaluating a change in AI policy discourse that reflects increased agreement that dynamic, decentralized governance frameworks may work best given AI's characteristics).

147 *See, e.g.*, Sofia Ranchordás, *Innovation-Friendly Regulation: The Sunset of Regulation, The Sunrise of Innovation*, 55 JURIMETRICS 201, 201, 216–20 (2015); Mike Turley, William D. Eggers & Pankaj Kishnani, *5 Principles for Regulating Emerging Technologies*, WALL ST. J.: RISK & COMPLIANCE J. (May 22, 2019, at 18:01 PT),

supplemented by evolving technical standards or guidance;[148] establishing regulatory sandboxes or experimental safe harbors to test novel approaches;[149] building in feedback loops that monitor real-world impacts and trigger adjustments;[150] or creating adaptive governance structures capable of learning and modifying rules over time. By embedding such mechanisms, systemic scholarship can propose foundational change without succumbing to brittle inflexibility, thereby fostering legal regimes that are both transformative in vision and resilient in practice, capable of navigating the enduring uncertainties of the AI era.

These three principles—prioritizing domains through forecasting, proposing wholesale structural change, and embedding dynamism—provide a framework for moving legal scholarship beyond the limitations of incrementalism. They encourage a more ambitious, forward-looking, and ultimately more responsible engagement with the governance challenges and opportunities presented by AI. Part IV will now illustrate the application of this framework by exploring potential systemic reforms across three critical areas with respect to integrating AI into public education: creating the regulatory and investment ecosystem necessary to develop responsive AI tools, ensuring widespread understanding and adaptation, and enabling effective governmental use.

IV. SYSTEMIC AI SCHOLARSHIP CASE STUDY: PUBLIC EDUCATION

Parts II and III established the profound shortcomings of incrementalist legal scholarship in the face of AI and articulated an alternative paradigm: systemic legal scholarship guided by fore-

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https://deloitte.wsj.com/riskandcompliance/5-principles-for-regulating-emerging-technologies-01558573333 [https://perma.cc/KRF4-59BY].

148 *See* DOUGLAS ARNER ET AL., A PRINCIPLES-BASED APPROACH TO THE GOVERNANCE OF BIGFINTECHS 12 (2021), https://www.undp.org/sites/g/files/zskgke326/files/2021-10/UNDP-UNCDF-TP-3-3-A-Principles-based-Approach-to-the-Governance-of-BigFintechs-EN.pdf [https://perma.cc/5UF4-KQ3J].

149 *See, e.g.*, *Removing Barriers for Utah Innovators*, UTAH DEP'T OF COM.: OFF. OF A.I. POL'Y, https://ai.utah.gov/regulatory-mitigation/ [https://perma.cc/Y6AJ-SP2G] (last visited May 6, 2025).

150 *See* Lori S. Bennear & Jonathan B. Wiener, Adaptive Regulation: Instrument Choice for Policy Learning over Time 2, 6 (Feb. 12, 2019) (unpublished working paper) (available at https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/Regultion%20%20adaptive%20reg%20%20Bennear%20Wiener%20on%20Adaptive%20Reg%20Instrum%20Choice%202019%2002%2012%20clean.pdf) [https://perma.cc/W99RT4WC]; Mark Fenwick, Erik P. M Vermeulen & Marcelo Corrales Compagnucci, *Business and Regulatory Responses to Artificial Intelligence: Dynamic Regulation, Innovation Ecosystems and the Strategic Management of Disruptive Technology*, ARXIV (July 28, 2024), https://arxiv.org/pdf/2407.19439 [https://perma.cc/53MS-NT4G].

sight, architectural ambition, and adaptive design. Moving from theoretical framework to practical application, this Part illustrates how such an approach might be employed to reimagine a critical domain ripe for transformation: public education. Education serves as a particularly salient case study due to its fundamental importance for individual opportunity and societal progress, the significant potential for AI to reshape pedagogical methods and outcomes,[151] and the substantial legal tech debt currently hindering innovation within existing educational structures.[152] Embracing the normative stance that AI *should* be leveraged to create a more effective, equitable, and personalized educational experience for all,[153] this Part applies the principles of systemic scholarship to explore potential wholesale reforms. It proceeds by examining three essential pillars for integrating AI foundationally into public education: first, building the necessary data infrastructure and innovation ecosystem (Section IV.A); second, fostering widespread understanding and adaptation among students, educators, and the workforce (Section IV.B); and third, enabling the effective use and procurement of AI tools by governmental and educational institutions (Section IV.C). The proposals offered are illustrative—not as definitive solutions but as exemplars of the kind of systemic thinking required to align our legal and institutional frameworks with the transformative potential of AI in this vital sphere.

A. An Antiquated Public Education System

Applying the systemic framework begins with identifying critical areas where foundational change is most needed. Public

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151 *See* MIGUEL A. CARDONA, ROBERTO J. RODRIGUEZ & KRISTINA ISHMAEL, U.S. DEP'T OF EDUC., OFF. OF EDUC. TECH., ARTIFICIAL INTELLIGENCE AND THE FUTURE OF TEACHING AND LEARNING 2–5 (2023); Claire Chen, *AI Will Transform Teaching and Learning. Let's Get It Right.*, STAN. INST. FOR HUM.-CENTERED A.I. (Mar. 9, 2023), https://hai.stanford.edu/news/ai-will-transform-teaching-and-learning-lets-get-it-right [https://perma.cc/3FP4-V7KJ].

152 *See* Elise Young, *Educational Privacy in the Online Classroom: FERPA, MOOCs, and the Big Data Conundrum*, 28 HARV. J.L. & TECH. 549, 550, 570 (2015) ("[The Family Educational Rights and Privacy Act] is so dated that when confronted with a technology that can collect and use big data, like MOOCs, the statute practically breaks down.").

153 *But see* Jen Roberts, *Proactively Limiting the Use of AI in the Classroom*, EDUTOPIA: CHATGPT & GENERATIVE AI (Jan. 23, 2025), https://www.edutopia.org/article/addressing-ai-use-proactively-classroom/ [https://perma.cc/YV7X-4QL5] (examining the need for limits on the use of AI in the classroom); Brad East, *Luddite Pedagogy: It's OK to Ignore AI in Your Teaching*, THE CHRON. OF HIGHER EDUC. (Apr. 3, 2025), https://www.chronicle.com/article/luddite-pedagogy-its-ok-to-ignore-ai-in-your-teaching [https://perma.cc/G6XD-EM6X].

education emerges as a prime candidate, not only because of AI's potential to revolutionize learning,[154] but also because the sector is encumbered by decades of accumulated legal and institutional legal tech debt that actively thwarts innovation.[155] Key laws governing the use of student data, including the Family Educational Rights and Privacy Act (FERPA), provide for well-intentioned privacy protections that nevertheless stymie adoption of new educational tools and methods.[156] This debt, as defined in Part III, represents the profound misalignment between the existing, often antiquated, rules and structures governing education and the requirements for developing and deploying advanced technologies like AI effectively and equitably. Overcoming this inertia to build the necessary foundations for beneficial AI—particularly robust data infrastructure and supportive regulatory ecosystems—constitutes the first essential step toward systemic transformation.

At the heart of this challenge lies the fundamental currency of modern AI: data.[157] The remarkable capabilities of contemporary AI models, from large language models to sophisticated analytical tools, are predicated on their training over vast quantities of high-quality data.[158] It is from this data that models learn patterns, relationships, and representations of the world.[159] Conse-

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154 *See* ROBIN LAKE & BREE DUSSEAULT, CTR. ON REINVENTING PUB. EDUC., WICKED OPPORTUNITIES: LEVERAGING AI TO TRANSFORM EDUCATION 2 (2024), https://crpe.org/wp-content/uploads/ThinkForward-2024.pdf [https://perma.cc/BMY7-U4ZL] ("Generative AI's rapidly maturing capabilities offer the opportunity to shift education systems in positive ways and create new models for teaching and learning.").

155 *See* An-Me Chung et al., *Empowering Student Agency in the Digital Age: The Role of Privacy in EdTech*, NEW AM. (Feb. 27, 2025), https://www.newamerica.org/education-policy/briefs/empowering-student-agency-in-the-digital-age-the-role-of-privacy-in-edtech/ [https://perma.cc/FJ8S-MFWE] (noting that the Children's Online Privacy Protection Rule (COPPA), the Children's Internet Protection Act (CIPA), and FERPA can slow or prevent districts from adopting new technology); Young, *supra* note 152, at 550–53.

156 *See* Chung et al., *supra* note 155.

157 *See* Kevin Frazier, *Unlocking AI for All: The Case for Public Data Banks*, LAWFARE (Oct. 2, 2024, at 13:00 PT), https://www.lawfaremedia.org/article/unlocking-ai-for-all--the-case-for-public-data-banks [https://perma.cc/R37L-C4BM].

158 *See* Ilia Shumailov et al., *AI Models Collapse When Trained on Recursively Generated Data*, 631 NATURE 755, 755, 757–58 (2024); Thomas C. Redman, *Ensure High-Quality Data Powers Your AI*, HARV. BUS. REV. (Aug. 12, 2024), https://hbr.org/2024/08/ensure-high-quality-data-powers-your-ai [https://perma.cc/S52T-PKUC]; Deepa Seetharaman, *For Data-Guzzling AI Companies, the Internet Is Too Small*, WALL ST. J. (Apr. 1, 2024, at 05:30 ET), https://www.wsj.com/tech/ai/ai-training-data-synthetic-openai-anthropic-9230f8d8 [https://perma.cc/6TD6-6VJZ].

159 Kevin Roose, *The Data That Powers A.I. Is Disappearing Fast*, N.Y. TIMES (July 19, 2024), https://www.nytimes.com/2024/07/19/technology/ai-data-restrictions.html [https://perma.cc/H675-R64Z].

quently, the availability, scale, diversity, and integrity of training data are critical determinants of an AI system's performance, reliability, fairness, and ultimate utility.[160] Indeed, concerns are already mounting within the broader AI field about potential future bottlenecks arising from the exhaustion of readily available, high-quality human-generated text and image data on the public internet.[161] This trend highlights the strategic importance of securing access to rich, domain-specific datasets for continued progress, particularly for applications aimed at specialized fields or the public good.[162] Without sufficient and appropriate data, the development of capable, safe, and unbiased AI tools is simply not possible.

This general imperative for data access collides with particular force against the realities of the public education sector, creating a paradox where a domain rich in potentially valuable data operates, in practice, as a data desert for AI innovation aimed at public benefit.[163] The accumulation of legal tech debt in public education manifests as a complex web of interlocking rules, fragmented governance, and institutional resistance that collectively stifle the data flows necessary for building effective AI tools. At the federal level, statutes like FERPA, COPPA, and CIPA, enacted long before the advent of modern AI, impose restrictions on the use and disclosure of student data.[164] While crucial for protecting student privacy, FERPA's ambiguous provisions and often conservative interpretations by institutions

160 *See id.*; Redman, *supra* note 158.

161 *See* Roose, *supra* note 159; Cade Metz et al., *How Tech Giants Cut Corners to Harvest Data for A.I.*, N.Y. TIMES (Apr. 8, 2024), https://www.nytimes.com/2024/04/06/technology/tech-giants-harvest-data-artificial-intelligence.html [https://perma.cc/AU3P-LGJW].

162 *See* Carlos S. Saldana, *From Data to Care: How AI Can Transform Public Health*, IDSA: SCI. SPEAKS BLOG (Apr. 9, 2024), https://www.idsociety.org/science-speaks-blog/2024/from-data-to-care-how-ai-can-transform-public-health/ [https://perma.cc/SWJ8-7TNF] (discussing how an incomplete data record hinders the usefulness of AI tools in the public health domain); Hope Hodge Seck, *Good Data, Trust Critical to AI in Public Health*, GOVCIO (June 27, 2024), https://govciomedia.com/good-data-trust-critical-to-ai-in-public-health/ [https://perma.cc/W8KG-V7KA] (drawing the connection between a high quantity of high-quality data to robust AI tools for public health purposes).

163 *See* Dylan Walsh, *A Data-Centered Approach to Education AI*, STAN. UNIV. FOR HUM.-CENTERED A.I. (Feb. 26, 2024), https://hai.stanford.edu/news/data-centered-approach-education-ai [https://perma.cc/6EMF-ZQEF] (interviewing Mei Tan about the need for more high-quality data to develop useful educational AI tools); *cf.* JULIA H. KAUFMAN ET AL., RAND, UNEVEN ADOPTION OF ARTIFICIAL INTELLIGENCE TOOLS AMONG U.S. TEACHERS AND PRINCIPALS IN THE 2023–2024 SCHOOL YEAR 15–16 (2025) (reporting data privacy concerns as a reason for slow AI adoption by schools).

164 *See* Chung et al., *supra* note 155.

create significant uncertainty and chill the use of educational data for developing and validating AI tools, even for clearly beneficial purposes like personalized learning or identifying at-risk students.[165] This federal layer is further complicated by a patchwork of state-specific student privacy laws, adding further compliance burdens and hindering the creation of interoperable systems or datasets that could support AI development at scale.[166]

Compounding these regulatory hurdles is the highly fragmented governance structure of American public education.[167] With primary control often residing at the state and local district levels, decisions regarding technology adoption, data management practices, curriculum choices, and pedagogical approaches vary immensely.[168] This fragmentation results in siloed data systems incapable of communicating with each other, inconsistent technical standards, and procurement processes that favor large incumbents or bespoke local solutions over potentially more effective, scalable AI platforms.[169] Consequently, developers seeking to build AI educational tools face enormous challenges in access-

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165 *See* Yeseul Do, *Beyond Privacy: Regulating ChatGPT for Young Adults in Educational Contexts*, 14 N.Y.U. J. INTELL. PROP. & ENT. L. 263, 290–91 (2025) (discussing uncertainty around the extent to which FERPA limits the use of AI in educational settings); *cf.* ROLAND HANCOCK ET AL., RECONSIDERING EDUCATION POLICY IN THE ERA OF GENERATIVE AI 5 (2023) (recognizing that FERPA and related regulations do not entirely account for the policy questions by educational AI tools).

166 *See* NEIL CHILSON & TAYLOR BARKLEY, ABUNDANCE INST., COMMENT ON REQUEST FOR INFORMATION TO EXPLORE DATA PRIVACY AND SECURITY FRAMEWORK 2 (2025), https://cdn.hubabudance.institute/pdf/AbundanceInstitute_2025_EmergingTech_Publications_APR_CommentOnRequestForInformationToExploreDataPrivacyAndSecurityFramework.pdf [https://perma.cc/4AM9-AHAV]; Erik Dullea, *Will Federal Initiatives Stave Off Disparate State-Level Regulation of Artificial Intelligence?*, HUSCH BLACKWELL (Feb. 26, 2024), https://www.huschblackwell.com/newsandinsights/will-federal-initiatives-stave-off-disparate-state-level-regulation-of-artificial-intelligence [https://perma.cc/XP4Q-LER9] (exploring the possibility of a patchwork of state-specific AI laws).

167 *See* Jennifer Ayscue & Gary Orfield, *States with Highly Fragmented School Districts Have Greater Levels of School Segregation*, LSE (Apr. 22, 2015), https://blogs.lse.ac.uk/usappblog/2015/04/22/states-with-highly-fragmented-school-districts-have-greater-levels-of-school-segregation/ [https://perma.cc/TN99-YPHC] (pointing to the fragmented nature of the U.S. public school system as a source of some of its faults).

168 *See* Bree Dusseault, *New State AI Policies Released: Signs Point to Inconsistency and Fragmentation*, CTR. ON REINVENTING PUB. EDUC. (Mar. 2024), https://crpe.org/new-state-ai-policies-released-inconsistency-and-fragmentation/ [https://perma.cc/43FU-8KWE] (reviewing a hodge-podge of approaches to integrating AI into the classroom among America's school districts).

169 *Cf.* Natasha Singer, *How Google Took Over the Classroom*, N.Y. TIMES (May 13, 2017), https://www.nytimes.com/2017/05/13/technology/google-education-chromebooks-schools.html [https://perma.cc/J2F2-MAHM] (chronicling how Google managed to become the default tech provider to districts across the country).

ing representative, high-quality data for training and validation, navigating myriad procurement processes, and integrating their tools across diverse technical environments.[170] Furthermore, deeply ingrained institutional factors—including standardized testing regimes that incentivize traditional instruction, inadequate funding for technology infrastructure and teacher training, and cultural resistance to novel pedagogical models—reinforce the status quo and make the systemic adoption of AI-enabled approaches exceedingly difficult.[171] This mountain of interconnected regulatory constraints, structural fragmentation, and institutional inertia constitutes a formidable barrier, preventing the sector from realizing the potential benefits of data-driven insights and AI-powered tools that require precisely the kind of scale, interoperability, and data access that the current system inhibits.

Addressing this foundational legal tech debt requires much more than incremental adjustments to existing rules, such as making it easier for teachers to integrate AI into lesson planning. A systemic, bottoms-up redesign of student data governance, conceived with the development and deployment of beneficial AI explicitly in mind, is necessary. How best to achieve this redesign is the subject of the second stage of systemic AI scholarship.

B. Wholesale Change

Addressing the foundational legal tech debt also necessitates that scholars embrace the second stage of systemic AI scholarship: the proposal of wholesale, structural changes designed for an AI-suffused future. The goal is for scholars to envision and articulate concrete, alternative architectures for governing educational data that enable AI innovation while safeguarding student rights. The specific proposals outlined below are illustrative examples of such systemic thinking, focusing first on reforming pri-

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170 See Courtney Radsch, *Dismantling AI Data Monopolies Before It's Too Late*, TECH POL'Y. PRESS (Oct. 9, 2024), https://www.techpolicy.press/dismantling-ai-data-monopolies-before-its-too-late [https://perma.cc/RM83-2XP4].

171 *See* Alyson Klein, *Schools Are Taking Too Long to Craft AI Policy. Why That's a Problem*, EDUCATIONWEEK (Feb. 19, 2024), https://www.edweek.org/technology/schools-are-taking-too-long-to-craft-ai-policy-why-thats-a-problem/2024/02 [https://perma.cc/P6SQ-ZVFT]; Bree Dusseault & Justin Lee, *AI Is Already Disrupting Education, but Only 13 States Are Offering Guidance for Schools*, CTR. ON REINVENTING PUB. EDUC. (Oct. 2023), https://crpe.org/ai-disrupt-ed-13-states/ [https://perma.cc/Z9BP-VNLY]. *But see* Melissa Kay Diliberti, Robin J. Lake & Steven R. Weiner, *More Districts Are Training Teachers on Artificial Intelligence*, RAND (Apr. 8, 2025), https://www.rand.org/pubs/research_reports/RRA956-31.html [https://perma.cc/AT59-LQYS].

vacy law, second on standardizing data infrastructure within the public system, and third on creating mechanisms for governed data access and collaboration.

First, confronting the chilling effect of outdated privacy regulations necessitates re-architecting the legal framework governing student data use for AI. Instead of endless interpretive debates around FERPA's ambiguities, a systemic approach might involve enacting new federal legislation specifically tailored to the opportunities and risks of AI in education. Such legislation could establish clear, nationally consistent rules for accessing and using educational data for AI research, development, and deployment under specific conditions. This might involve creating tiered data access regimes based on data sensitivity and use case, defining robust standards for anonymization, pseudonymization, and aggregation suitable for AI training, and establishing explicit safe harbors for researchers and developers who adhere to stringent ethical guidelines, technical safeguards, and independent oversight protocols. Alternatively, or additionally, Congress could amend FERPA itself to explicitly authorize certain beneficial AI-related uses under defined conditions, moving beyond its current framework focused primarily on disclosure restrictions. The key systemic element is the shift from defensively interpreting old rules to proactively designing a new legal regime optimized for responsible innovation within clearly defined ethical boundaries, potentially preempting conflicting state laws to ensure national consistency.

Second, overcoming the debilitating effects of administrative and technical fragmentation requires systemic intervention to mandate standardized data infrastructure and collection protocols across the public education system. These reforms focus on building the capacity for consistent, high-quality data collection and aggregation within and between educational institutions. Voluntary initiatives will likely prove insufficient.[172] A more potent mechanism involves leveraging the federal government's

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172 *Cf.* GILLIAN DIEBOLD, CTR. FOR DATA INNOVATION, OVERCOMING BARRIERS TO DATA SHARING IN THE UNITED STATES 12 (2023), https://www2.datainnovation.org/2023-data-sharing-barriers.pdf [https://perma.cc/T4GG-2H4P] (observing that the federal government mandates the sharing of certain data rather than hoping that voluntary measures suffice); Noah Teixeira & Jae June Lee, *Insufficient Transparency in Data Sharing: A Call for Change*, CTR. ON POVERTY & INEQ.: BLOG (Nov. 16, 2023), https://www.georgetownpoverty.org/issues/insufficient-transparency-in-data-sharing-a-call-for-change/ [https://perma.cc/WVT7-RRGA] (contending that less formal data sharing agreements may often lack the sort of transparency necessary to allow for accountability).

spending power: Congress could condition significant federal education funding streams (such as those under the Elementary and Secondary Education Act)[173] on state and district adoption of mandatory technical standards. These standards, potentially developed and maintained by a newly chartered national educational technology standards body comprising diverse stakeholders, would dictate common formats for data collection (encompassing not just administrative records but also the granular learning process data vital for AI), require the use of secure, open APIs for interoperability, and ensure baseline capabilities for data management across all participating districts. This represents a systemic attack on the data silo problem, aiming to create a coherent, interoperable data foundation across the nation's schools, ensuring data relevant to AI development is collected consistently and can be aggregated meaningfully, at least within the public system's boundaries.

Third, having established clearer legal permissions (Proposal 1) and standardized infrastructure (Proposal 2), a functional ecosystem requires creating new, governed mechanisms for data access and collaboration, including with external partners. While standardization enables aggregation, effective AI development often necessitates access by researchers and specialized tool developers, including those in the private sector. This requires moving beyond current restrictive and ad hoc sharing practices toward secure, managed access pathways. A systemic solution could involve state-level initiatives to create Educational Data Trusts or Commons.[174] These independent or quasi-governmental entities, operating under clear statutory mandates and robust governance structures (including ethical review boards with parent and community representation), could securely house pseudonymized or aggregated longitudinal data from participating districts. They would act as trusted intermediaries, managing controlled access for vetted researchers and certified private partners under strict data use agreements that mandate privacy safeguards, security protocols, regular audits, and potentially benefit-sharing arrangements. Complementing such institutional structures, systemic reform could also promote the development

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173 Elementary and Secondary Education Act of 1965, Pub. L. No. 89-10, 79 Stat. 27 (codified as amended in scattered sections of 20 U.S.C.).

174 *See* Kevin Frazier & Kevin Wei, *Beyond Big Tech: The Revolutionary Potential of State Data Commons*, LAWFARE (Mar. 27, 2025, at 13:00 PT), https://www.lawfaremedia.org/article/beyond-big-tech—the-revolutionary-potential-of-state-data-commons [https://perma.cc/CRP3-F9YX].

and adoption of standardized legal templates for data use agreements, further enabling valuable analysis and tool development while minimizing raw data exposure. These mechanisms all work toward creating secure gateways and clear rules for utilizing the data foundation established by Proposals 1 and 2, facilitating collaboration with external innovators under rigorous oversight.

These examples—redesigning privacy law for AI use cases, mandating interoperable data infrastructure, and creating new data sharing institutions and technical capabilities—illustrate the kind of ambitious, structural thinking required by the second principle of systemic scholarship. They aim not just to adjust existing rules but to build fundamentally new legal and administrative foundations better suited to the demands and potential of the AI era in public education. The final necessary element, addressed next, is ensuring these new systems possess the capacity for ongoing adaptation.

C. Embedding Dynamism: Ensuring Adaptive Governance for Educational AI

The systemic reforms proposed for educational data governance—encompassing revised privacy laws, mandated infrastructure standards, and new data access mechanisms—represent a necessary architectural shift. Yet, proposing such foundational changes fulfills only two of the three core principles of systemic scholarship. The final, critical element is to embed mechanisms for dynamism and adaptation directly into the new framework. Without such features, even the most thoughtfully designed systemic reform risks succumbing to the same forces of technological change and societal evolution that rendered the previous regime obsolete by simply substituting one form of legal tech debt for another down the line. Ensuring that the governance system can coevolve with AI requires building in processes for ongoing monitoring, evaluation, and revision from the outset.

A primary mechanism for achieving this adaptability involves instituting mandatory, periodic reviews and potentially outcome-triggered sunset provisions for the core statutes and regulations governing educational AI data. Unlike traditional legislation that often remains unchanged for decades,[175] systemic

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175 *See* Frank H. Easterbrook et al., *Showcase Panel IV: A Federal Sunset Law*, 16 TEX. REV. L. & POL. 339, 343–44 (2012) (restating the views of scholars (and jurists) who regard sunset clauses as a necessary tool to clear obsolete laws from the books); Jody Freeman & David B. Spence, *Old Statutes, New Problems*, 163 U. PA. L. REV. 1 *passim*

frameworks in rapidly evolving domains should incorporate requirements for regular, substantive re-evaluation—perhaps every five or seven years.[176] Critically, these reviews should be more than procedural; they should be tied to assessments of whether the framework is achieving specific, predefined goals related to innovation, equity, privacy protection, and educational outcomes. Failure to meet key performance indicators or the emergence of significant unforeseen negative consequences could trigger not just review, but potentially automatic sunsetting of certain provisions, forcing legislative reconsideration and preventing the ossification of ineffective or harmful rules. While designing appropriate metrics and causal attribution presents challenges, building in such accountability loops is essential for ensuring the framework remains aligned with its intended purposes and responsive to real-world results.

Complementing periodic legislative review, agile regulatory bodies with defined authority to update specific rules and technical standards are essential for maintaining dynamism at an operational level. The national educational technology standards body proposed earlier, or the governance boards overseeing state-level data trusts or commons, should be explicitly empowered to revise technical protocols, data security requirements, ethical guidelines for AI use, and potentially data access criteria more rapidly than is possible through full legislative or notice-and-comment rulemaking processes. Such bodies, operating within clear statutory bounds and composed of diverse experts (including technologists, educators, ethicists, privacy advocates, and community representatives), could respond more nimbly to emerging best practices, new technological capabilities, or identified vulnerabilities, ensuring that the operational rules keep pace with the field without requiring constant statutory amendment.

Furthermore, the sheer scale and complexity of monitoring a dynamic AI ecosystem suggests the need for technology-assisted regulatory oversight. Human regulators alone may struggle to track the proliferation of educational AI tools, analyze their impacts across diverse student populations, or detect subtle compli-

(2014) (analyzing the ramifications of serial congressional failures to update antiquated laws).

176 *See* Martin Totaro & Connor Raso, *Agencies Should Plan Now for Future Efforts to Automatically Sunset Their Rules*, BROOKINGS INST. (Feb. 25, 2021), https://www.brookings.edu/articles/agencies-should-plan-now-for-future-efforts-to-automatically-sunset-their-rules/ [https://perma.cc/JYK7-VZEV] (evaluating a proposal for mandatory sunsetting of agency rules pursuant to specific time limitations).

ance failures or emergent risks within complex data flows. Here, AI itself can be leveraged responsibly as a regulatory tool—a possibility already explored by the Administrative Conference of the United States, albeit in different contexts.[177] AI systems could be developed to continuously monitor anonymized system logs, analyze aggregate data on tool usage and performance, audit algorithmic systems for bias or security vulnerabilities, and identify anomalous patterns requiring human investigation. Such systems would function as powerful analytical support for human regulators and oversight bodies, enabling faster detection of problems, more comprehensive evaluation of the framework's effectiveness, and more evidence-based decision-making regarding necessary adjustments. Ensuring the transparency, fairness, and contestability of these regulatory AI tools themselves would, of course, be paramount.

Finally, embedding dynamism also involves maintaining space for ongoing learning and experimentation within the regulatory framework. Mechanisms like regulatory sandboxes or time-limited safe harbors can provide controlled environments where novel educational AI applications or data governance approaches can be tested under regulatory supervision before potentially being approved for wider deployment. This allows regulators and the ecosystem to learn about the real-world implications of new technologies in a lower-risk setting, generate valuable data to inform future rule updates, and prevent the premature prohibition of potentially beneficial innovations due to uncertainty.

Collectively, these mechanisms—mandatory outcome-based reviews, agile regulatory updating, AI-assisted monitoring, and structured experimentation—aim to create a governance framework for educational AI that is not static but *learning* and *adaptive*. By embedding dynamism as a core design principle, systemic legal scholarship seeks to avoid repeating the cycle of legal tech debt accumulation, fostering a legal ecosystem that can promote responsible innovation and navigate the enduring uncertainties of technological progress while remaining true to fundamental societal values. This forward-looking, adaptive quality

177 *See, e.g.*, *Using Algorithmic Tools in Regulatory Enforcement*, ADMIN. CONF. OF THE U.S. (Dec. 17, 2024), https://www.acus.gov/document/using-algorithmic-tools-regulatory-enforcement [https://perma.cc/M5QA-83AQ] (exploring ways AI could function as a cost-effective regulatory tool in the context of federal agencies automating the administration of the law).

is the hallmark distinguishing truly systemic reform from mere structural replacement.

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The exploration of AI within the context of public education underscores the practical application and necessity of the systemic scholarship framework advanced in this Article. By identifying education as a domain burdened by significant legal tech debt yet ripe with potential for AI-driven transformation, the analysis moved beyond incremental fixes. Instead, it illustrated the potential for wholesale, architectural reforms targeting the foundational issues of data governance—encompassing proposals for modernizing privacy laws, mandating interoperable data infrastructure, and establishing new mechanisms for secure data sharing and collaboration. Crucially, embedding principles of dynamism—through outcome-tied reviews, agile regulatory bodies, technology-assisted monitoring, and structured experimentation—directly into these proposed reforms addresses the inherent uncertainties of technological progress and aims to prevent the future accumulation of debilitating legal tech debt. These intertwined steps exemplify the core tenets of systemic scholarship articulated in Part III: prioritizing domains through forecasting, proposing foundational change rather than marginal adjustments, and infusing adaptability to ensure resilience. While the specific proposals offered here for reforming data governance in education are illustrative rather than exhaustive, they demonstrate how a systemic approach, informed by foresight and committed to adaptive design, can generate concrete pathways toward aligning our legal and institutional structures with the profound challenges and opportunities presented by AI. This mode of analysis provides the necessary toolkit for navigating not only the future of education but also the myriad other domains poised for transformation in the age of AI.

V. CONCLUSION

The rapid ascent of AI confronts the legal system with a challenge unparalleled in recent history, demanding more than the cautious incrementalism that has traditionally characterized legal scholarship and reform. This Article has argued that clinging to marginal adjustments of existing rules in the face of potentially exponential technological change constitutes a form of deficient or unproductive scholarship, one that ignores foreseeable developments, abdicates the academy's unique role in anticipatory governance, exacerbates the costly accumulation of legal

tech debt, and ultimately risks undermining public trust and the stability of the rule of law itself.

As an antidote, this Article proposes and elaborates a framework for *systemic legal scholarship*—an approach defined by its commitment to identifying domains ripe for foundational change through disciplined foresight, its ambition in proposing wholesale architectural reforms suited for deep technological integration, and its insistence on embedding dynamism and adaptability into new legal designs. The application of this framework to the critical area of data governance in public education illustrates how such systemic thinking might generate concrete proposals aimed at overcoming entrenched barriers and responsibly harnessing AI's potential for societal benefit.

While this Article has focused on articulating the systemic framework and illustrating its application in one domain, the work of reimagining our legal infrastructure for the age of AI is vast and extends far beyond the specific proposals discussed here. Several crucial areas, touched upon only briefly or not at all, demand similar systemic inquiry. Foremost among these is the future of adjudication. How might court procedures, evidentiary rules, standards of review, and even the role of judges need to adapt systemically in a world where AI plays significant roles in generating evidence, predicting case outcomes, or potentially even assisting in judicial decision-making? Incremental adjustments to evidence rules or discovery practices will likely prove insufficient. A systemic approach must grapple with the fundamental structure and assumptions of the dispute resolution process itself. Furthermore, the inherently international dimension of AI development and deployment requires systemic consideration. This Article's focus on domestic legal reform must be complemented by scholarship exploring how international law, transnational governance regimes, and cross-border regulatory coordination need to evolve systemically to address global challenges like AI arms races, differing ethical standards, and international data flows vital for AI training.

Beyond these specific domains, several broader considerations warrant ongoing attention as we navigate the AI transition. The systemic framework presented here, while motivated by AI, holds relevance for future emerging technologies as well. Whether confronting advances in synthetic biology, neurotechnology, or quantum computing, the core principles of engaging in foresight, contemplating structural legal change, and prioritizing adaptability offer a valuable methodology for legal scholarship seeking

to stay ahead of the curve. Moreover, the practical success and societal acceptance of any AI governance framework will depend critically on real-world adoption rates and public trust. Legal scholars must remain attuned to these dynamics, recognizing that even well-designed systemic reforms may require further adaptation based on how AI is actually used, perceived, and integrated into the social fabric.

Ultimately, however, the most crucial takeaway extends beyond specific technologies or legal domains. The accelerating pace of change in the twenty-first century demands a fundamental reorientation within legal academia itself. The comfortable habit of incremental analysis, while possessing its own intellectual traditions and satisfying rigors, is no longer sufficient when confronting potentially foundational societal shifts. Embracing a systemic, forward-looking, and adaptive approach to legal scholarship is an imperative for fulfilling the legal profession's enduring responsibility to serve as stewards of the rule of law. During turbulent periods of technological and social transformation, the capacity of our legal institutions to maintain order, facilitate justice, and command public legitimacy hinges on their ability to adapt meaningfully. Legal scholarship, by daring to think systemically and proactively engage with the challenges of the future, plays an indispensable role in ensuring that adaptation is guided by reason, informed by foresight, and committed to the enduring pursuit of human flourishing.