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THE AUTOMATED ADMINSTRATIVE STATE: A CRISIS OF LEGITIMACY

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The legitimacy of the administrative state is premised on our faith in agency expertise. Despite their extra-constitutional structure, administrative agencies have been on firm footing for a long time in reverence to their critical role in governing a complex, evolving society. They are delegated enormous power because they respond expertly and nimbly to evolving conditions.

In recent decades, state and federal agencies have embraced a novel mode of operation: automation. Agencies rely more and more on software and algorithms in carrying out their delegated responsibilities. The automated administrative state, however, is demonstrably riddled with concerns. Legal challenges regarding the denial of benefits and rights—from travel to disability—have revealed a pernicious pattern of bizarre and unintelligible outcomes.

Scholarship to date has explored the pitfalls of automation with a particular frame, asking how we might ensure that automation honors existing legal commitments such as due process. Missing from the conversation are broader, structural critiques of the legitimacy of agencies that automate. Automation abdicates the expertise and nimbleness that justify the administrative state, undermining the very case for the existence and authority of agencies.

Yet the answer is not to deny agencies access to technology that other twenty-first century institutions rely upon. This Article points toward a positive vision of the administrative state that adopts tools only when they enhance, rather than undermine, the underpinnings of agency legitimacy.

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INTRODUCTION

In 2016, the Arkansas Department of Human Services decided to make a change.[1] Rather than having a nurse visit disabled residents at home to assess their care needs, the agency hired a software company to build an algorithm that would automate the determination.[2] The agency hoped to save money.[3] Instead, administrators found themselves in federal court.[4]

Arkansas' new system proved cruel and illogical. The Kafkaesque system decreased the home care of an amputee because he had no "foot problems."[5] As a result of the automated system's dysfunction, severely disabled Medicaid recipients were left alone without access to food, toilet, and medicine for hours on end.[6] Nearly half of Arkansas Medicaid recipients were negatively affected.[7] Obtaining relief from the software-based outcome was all but impossible.[8]

A federal court enjoined the state agency from using the automated system after a damning narrative emerged. Agency officials admitted they did not know how the system worked.[9] The authors of the algorithm and the software vendors were similarly unable, or unwilling, to provide an explanation.[10] On cross-examination in open court, the agency and its partners admitted not only that they failed to detect the errors that the litigants uncovered, but also that in many instances they lacked the expertise necessary to do so.[11]

Administrative agencies are a constitutional anomaly. They are permitted to exist, we are told, because the world is complicated and requires expertise and discretion beyond the capacity of legislatures.[12] And yet more and more agency officials are admitting—sometimes in open court—that they possess neither. Agencies are invested with governing authority (over the objections of many)

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[1] Colin Lecher, *What Happens When an Algorithm Cuts Your Health Care*, VERGE (Mar. 21, 2018, 9:00 AM), https://www.theverge.com/2018/3/21/17144260/healthcare-medicaid-algorithm-arkansas-cerebral-palsy.

[2] *Id.*

[3] *Id.*

[4] Ark. Dep't of Hum. Servs. v. Ledgerwood, 530 S.W.3d 336 (Ark. 2017).

[5] Memorandum from Kevin De Liban, Attorney, Legal Aid of Ark., Legal Aid of Arkansas Algorithm Absurdities—RUGs as Implemented in Arkansas 2 (n.d.) (on file with authors).

[6] Ledgerwood, 530 S.W.3d at 343.

[7] *See id.* at 340.

[8] Lecher, *supra* note 1.

[9] Telephone Interview with Kevin De Liban, Att'y, Legal Aid of Ark. (Apr. 26, 2019); *see also* Excerpted Transcript of Trial (Court's Rulings from the Bench) at 20, 31, Estate of Jacobs v. Gillespie, No. 16-cv-00119 (E.D. Ark. Oct. 27, 2016).

[10] Excerpted Transcript of Trial (Testimony of Brant Fries) at 22, *Estate of Jacobs*, 2017 WL 2960793.

[11] *See id.* at 49.

[12] *See infra* Part II.A.

due to their unique capabilities and knowledge, and now they are turning that authority to machines.

Since the turn of the millennium, inadequately resourced federal and state agencies have turned to automation for a variety of reasons but notably to contain costs.[13] A little over a decade ago, the problems associated with automating public-benefits determinations came into view.[14] In the public benefits arena, programmers embedded erroneous rules into the systems, more often by mistake or inattention than by malice or intent.[15] Systems cut, denied, or terminated individuals' benefits without explanation in violation of due process guarantees.[16]

Challenging automated decisions was difficult because systems lacked audit trails that could help excavate the reason behind the decisions.[17] Judicial review had limited value in light of the strong psychological tendency to defer to a computer's findings.[18] These problems affected hundreds of thousands of people (often the most vulnerable), wasted hundreds of millions of dollars, and produced expensive litigation.[19] Agencies spent millions to purchase automated systems.[20] And they spent millions more to fix the problems those systems created.[21]

Despite these concerns, agencies have continued to adopt—often via third-party vendors—automated systems that defy explanation even by their creators. New York officials are still using the defective algorithm litigated in Arkansas

[13] Danielle Keats Citron, *Technological Due Process*, 85 WASH. U. L. REV. 1249, 1253, 1276–77 (2008). As of 2004, 52 of 125 federal agencies surveyed by the Government Accountability Office reported the use of data mining, defined "as the application of database technology and techniques—such as statistical analysis and modeling—to uncover hidden patterns and subtle relationships in data and to infer rules that allow for the prediction of future results." U.S. GOV'T ACCOUNTABILITY OFF., GAO-04-548, DATA MINING: FEDERAL EFFORTS COVER A WIDE RANGE OF USES 1 (2004). Data mining has its perils but differs from automation. We further distinguish the use of modeling for planning versus the automation of agency tasks in Part IV.

[14] *See infra* notes 30, 38.

[15] *See* Citron, *supra* note 13, at 1256. For instance, the Colorado Benefits Management System (CBMS) had been making decisions using over 900 rules that had never been subject to notice-and-comment rulemaking. *Id.* CMBS terminated the Medicaid benefits of breast cancer patients "based on income and asset limits" unauthorized "by federal or state law," required eligibility workers to ask applicants if they were "beggar[s]" despite the absence of any legal mandate to do so, and denied food stamps to individuals with prior drug convictions in violation of Colorado law. *Id.* at 1268, 1280.

[16] *Id.* at 1279.

[17] *Id.* at 1253, 1276–77.

[18] *Id.* at 1271–72, 1298.

[19] *Id.* at 1269 n.132.

[20] *See* Danielle Keats Citron, *Open Code Governance*, 2008 U. CHI. LEGAL F. 355, 381.

[21] Citron, *supra* note 13, at 1269.

despite its clear deficiencies.[22] Idaho's health and welfare agency commissioned its own budget software tool to allocate the number of hours of home care for disabled Medicaid recipients.[23] That algorithmic tool also drastically cut individuals' home care hours without meaningful explanation and faced challenge in court.[24]

The pattern is hardly limited to health administration. State agencies have deployed algorithms and software to evaluate public school teachers in Texas, to assess and terminate unemployment benefits in Michigan, and to evaluate the risks posed by criminal defendants in D.C., Wisconsin, and elsewhere.[25]

Nor is the pattern limited to the states. The Department of Homeland Security has long deployed an algorithmic system—the so-called No-Fly List—to try to prevent terrorists from traveling.[26] This data-matching program has misidentified many individuals, in part because it uses crude algorithms that could not distinguish between similar names.[27] Thousands of people got caught in the dragnet, including government officials, military veterans, and toddlers.[28] The U.S. government would not say if one was on the list and provided no explanation for no-fly decisions.[29]

An increasingly wide variety of federal agencies leverages algorithms and automation in carrying out their statutorily committed duties. The IRS, SEC, USPS, and myriad other federal agencies are using machines in one manner or another.[30] A recent report shows that nearly half of all agencies use, or are investigating the use of, artificial intelligence.[31] Just last year an Executive Order

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[22] Lecher, *supra* note 1.

[23] K.W. v. Armstrong, 180 F. Supp. 3d 703, 708 (D. Idaho 2016).

[24] *Id.* at 706.

[25] Lecher, *supra* note 1; *see* Deirdre K. Mulligan & Kenneth A. Bamberger, *Procurement as Policy: Administrative Process for Machine Learning*, 34 BERKELEY TECH. L.J. 773, 776, 783–85, 792 (2019); RASHIDA RICHARDSON, JASON M. SHULTZ & VINCENT M. SOUTHERLAND, LITIGATING ALGORITHMS 2019 US REPORT: NEW CHALLENGES TO GOVERNMENT USE OF ALGORITHMIC DECISION SYSTEMS 11, 19 (2019), ainowinstitute.org/litigatingalgorithms-2019-us.pdf.

[26] *See* BARRY FRIEDMAN, UNWARRANTED: POLICING WITHOUT PERMISSION 261–62 (2017).

[27] Citron, *supra* note 13, at 1274.

[28] FRIEDMAN, *supra* note 26, at 261–62; Citron, *supra* note 13, at 1274.

[29] Citron, *supra* note 13, at 1275.

[30] Cary Coglianese & David Lehr, *Regulating by Robot: Administrative Decision Making in the Machine-Learning Era*, 105 GEO. L.J. 1147, 1162–65 (2017). *See generally* DAVID FREEMAN ENGSTROM, DANIEL E. HO, CATHERINE M. SHARKEY & MARIANO-FLORENTINO CUÉLLAR, GOVERNMENT BY ALGORITHM: ARTIFICIAL INTELLIGENCE IN FEDERAL ADMINISTRATIVE AGENCIES (2020), https://www-cdn.law.stanford.edu/wp-content/uploads/2020/02/ACUS-AI-Report.pdf (recent and thorough review of federal use of algorithms).

[31] ENGSTROM ET AL., *supra* note 30, at 16 ("[C]ontrary to popular perceptions presuming government agencies uniformly rely on antiquated systems and procedures, many agencies have in fact experimented with [artificial intelligence or machine learning]. Nearly half (64 agencies, or 45%) of canvassed agencies have

directed *all* federal agencies to explore the potential efficiencies of artificial intelligence.[32]

Agencies are listening. A January 2019 request for proposals from the U.S. Department of Health and Human Services sought a contract to coordinate artificial intelligence procurement, describing the contract as "the next logical step to integrating [intelligence automation and artificial intelligence] into all phases of government operations."[33]

The turn toward automation in recent decades has not gone unchallenged. Scholars have repeatedly pushed back against governmental use of software and algorithms to arrive at decisions and goals previously carried out by people. "The human race's rapid development of computer technology," observed Paul Schwartz thirty years ago in a related context, "has not been matched by a requisite growth in the ability to control these new machines."[34] In 2008, one of us (Citron) offered an extensive framework for evaluating and responding to agency reliance on technology.[35] In recent years this discourse has burgeoned into a full-blown literature spanning multiple disciplines.[36]

Yet the challenges posed to the automated administrative state to date tend to proceed from a very specific frame: the problem of automation arises when a machine has taken over a task previously committed to a human such that guarantees of transparency, accountability, and due process fall away.[37] This frame follows a tendency in law and technology generally to focus on how machines that substitute for humans undermine certain legally protected values or rights. The discussion of how best to restore due process in light of computer-

expressly manifested interest in [artificial intelligence or machine learning] by planning, piloting, or implementing such techniques.").

[32] Maintaining American Leadership in Artificial Intelligence, Exec. Order No. 13,859, 3 C.F.R. § 3967 (2019).

[33] Mulligan & Bamberger, *supra* note 25, at 779 (quoting U.S. DEP'T HEALTH & HUM. SERVS., SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS: SOLICITATION NUMBER 19-233-SOL-00098, at 9 (Jan. 10, 2019), https://perma.cc/6DEC-L5WQ).

[34] Paul Schwartz, *Data Processing and Government Administration: The Failure of the American Legal Response to the Computer*, 43 HASTINGS L.J. 1321, 1322 (1992).

[35] *See* Citron, *supra* note 13, at 1301–13; Citron, *supra* note 20, at 371–81.

[36] *See infra* Part I.

[37] An important, related literature examines the ways automation exacerbates inequality or entrenches bias. *See, e.g.*, VIRGINIA EUBANKS, AUTOMATING EQUALITY: HOW HIGH-TECH TOOLS PROFILE, POLICE, AND PUNISH THE POOR 180–88 (2018); Deborah Hellman, *Sex, Causation, and Algorithms: Equal Protection in the Age of Machine Learning*, 98 Wash. U. L. Rev. (2020); Solon Barocas & Andrew D. Selbst, *Big Data's Disparate Impact*, 104 CALIF. L. REV. 671, 673–74 (2016).

driven decision-making is an example.[38] The debate around liability for driverless cars is another.[39]

The 2017 article *Accountable Algorithms* is illustrative of the literature.[40] "Important decisions that were historically made by people are now made by computer systems," the authors write, and "accountability mechanisms and legal standards that govern decision processes have not kept pace with technology."[41] In other words, many consequential government decisions were once made by people, attended by accountability mechanisms suited to people. Now that machines make these decisions, law or technology must change to restore the rights and values afforded individuals under the previous arrangement. The authors suggest legal and technical mechanisms to restore the status quo ex ante.[42] Recently, some scholars and activists have called for a ban or moratorium on the use of automation unless or until such issues can be addressed.[43]

We have participated in the project of restoring rights and values displaced by technology for some time. The aim of this Article is to foreground a distinct question: whether automation by agencies threatens to erode long-standing justifications for having agencies at all.

On the standard account, legislatures delegate authority to agencies *because they must*. The Constitution commits to Congress the authority to make laws;[44] the world has become so complex and dynamic, however, that Congress must delegate its authority to administrative agencies.[45] The famously "functionalist" rationale for delegation rests on the affordances of bureaucracies, particularly

[38] *See generally* Citron, *supra* note 13.

[39] *See* Ryan Calo, *Commuting to Mars: A Response to Professors Abraham and Rabin*, 105 VA. L. REV. ONLINE 84, 84, 87 (2019).

[40] Joshua A. Kroll, Joanna Huey, Solon Barocas, Edward W. Felton, Joel R. Reidenberg, David G. Robinson & Harlan Yu, *Accountable Algorithms*, 165 U. PA. L. REV. 633 (2017).

[41] *Id.* at 636.

[42] *Id.* at 682–92.

[43] *See, e.g.*, Frank Pasquale, *A Rule of Persons, Not Machines: The Limits of Legal Automation*, 87 GEO. WASH. L. REV. 1, 6, 44–54 (2019) (suggesting that automation in the legal field should be limited to technology that complements, rather than replaces, an attorney's skills); Nathan Sheard, *The Fight Against Government Face Surveillance: 2019 Year in Review*, ELEC. FRONTIER FOUND. (Dec. 31, 2019), https://www.eff.org/deeplinks/2019/12/year-fight-against-government-face-surveillance (discussing local and state bans on the use of facial recognition technology and current concerns related to ongoing use by the FBI); Jane Wester, *NY State Senate Bill Would Ban Police Use of Facial Recognition Technology*, N.Y. L.J. (Jan. 27, 2020, 2:36 PM), https://www.law.com/newyorklawjournal/2020/01/27/ny-state-senate-bill-would-ban-police-use-of-facial-recognition-technology/ (describing a proposed New York State Senate bill that would prohibit law enforcement "from using facial recognition technology and some other kinds of biometric surveillance" and "create a task force to examine how to regulate biometric technology in the future").

[44] U.S. CONST. art. 1, § 8.

[45] *See infra* Part II.A.

their ability to accrue expertise and the prospect of flexible and nimble responses to complex problems.[46] Courts bless this extra-Constitutional arrangement and defer to agency decision-making for very similar reasons.[47]

Mounting evidence suggests that agencies are turning to systems in which they hold no expertise, and that foreclose discretion, individuation, and reason-giving almost entirely.[48] The automated administrative state is less and less the imperfect compromise between the text of the Constitution and the realities of contemporary governance. At some point, the trend toward throwing away expertise, discretion, and flexibility with both hands strains the very rationale for creating and maintaining an administrative state.[49] This is especially true where, as often, the very same processes of automation also frustrate the guardrails put in place by Congress and the courts to ensure agency accountability.

The question we ask in this Article is not how to restore the status quo ex ante given that machines have supplanted people. We ask instead whether technology obligates a fundamental reexamination of why Congress is permitted to hand off power to agencies in the first place.

The new direction we advocate is critical but ultimately constructive. We do not recommend the dissolution of the administrative state, which has turned to automation largely in response to a hostile political economy. Nor do we hope to foreclose the use of technology by state or federal agencies. Our ultimate recommendation is that agencies should consciously select technology to the extent its new affordances enhance, rather than undermine, the rationale that underpins the administrative state. This would be so even absent a looming legitimacy crisis. We observe that, far from demand a return to the status quo, new technology invites us to heighten and extend our expectations of what government can offer its citizens. Such examples exist in the literature and media; we believe they deserve greater attention and collect them here.

Our argument proceeds as follows: Part I traces the legal literature around agency automation to date, indicating certain limitations in the approach scholars (including us) have taken in framing the issues. Parts II and III advance

[46] *See* Edward H. Stiglitz, *Delegating for Trust*, 166 PA. L. REV. 633, 635 (2018) ("Looking to judicial opinions or academic writing, the dominant explanation of and justification for the administrative state is based on agencies' expertise and expansive rulemaking and adjudicatory capacities."); *infra* Part II.A.

[47] *See* Commodity Futures Trading Comm'n v. Schor, 478 U.S. 833, 845 (1986); *infra* Part II.A.

[48] *See* Citron, *supra* note 13, at 1261–62, 1277, 1282.

[49] Said another way, why wouldn't a Congress favorable to automation simply contract directly with software providers to carry out its legislative will?

the novel critique that, taken to its logical conclusion, agency automation undermines not only constitutional and administrative procedural guarantees, but also the very justification for having an administrative state in the first place.[50] This argument relies on recent litigation that has surfaced the dearth of expertise and the lack of responsiveness and flexibility around automation in open court, at least at the state level.

Part IV begins the complex project of resuscitating the justification for technology-enabled agencies. In particular, we call attention to the prospect that advances in artificial intelligence—thoughtfully deployed—have the potential to improve agency decision-making and planning. Agencies are increasingly able to "model" instead of "muddle" through and could use technology to help meet societies' rising expectations for impartiality and responsiveness.[51]

I. REPLACING VALUES COMPROMISED

There is a growing sense of unease as machines intrude upon humankind's most important institutions. Scholarship over the past decade has explored the impacts of automating various facets of criminal, civil, and administrative justice.[52] The consequences include the erosion of due process guarantees; the entrenchment of race, class, and gender bias; and the denial of structural safeguards. On the standard account, the "black box" of algorithmic justice simultaneously propagates error and bias while providing the veneer of objectivity.[53] Tasks once performed by officials and juries are now undertaken by machines.[54] And procedural mechanisms of transparency and accountability have not kept pace.[55]

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[50] Such an argument has been mentioned in passing, first by the authors and later by others, but has yet to be developed into a full-throated account. *See, e.g.*, Citron, *supra* note 13.

[51] *See infra* Part IV (referring to Charles E. Lindblom, *The Science of 'Muddling Through'*, 19 PUB. ADMIN. REV. 79 (1959)).

[52] *See, e.g.*, EUBANKS, *supra* note 37; Barocas & Selbst, *supra* note 37; Robert Brauneis & Ellen P. Goodman, *Algorithmic Transparency for the Smart City*, 20 YALE J.L. & TECH. 103, 115–18 (2018); Citron, *supra* note 13; Citron, *supra* note 20, at 357–58; Danielle Keats Citron & Frank Pasquale, *The Scored Society: Due Process for Automated Predictions*, 89 WASH. L. REV. 1, 7 (2014); Sonia Katyal, *Private Accountability in the Age of Artificial Intelligence*, 66 UCLA L. REV. 54, 56 (2019); Kroll et al., *supra* note 40, at 637–38; Andrea Roth, *Machine Testimony*, 126 YALE L.J. 1972, 1977–78 (2017); Schwartz, *supra* note 34, at 1322; Sonja B. Starr, *Evidence-Based Sentencing and the Scientific Rationalization of Discrimination*, 66 STAN. L. REV. 803, 804–05 (2014).

[53] *E.g.*, FRANK PASQUALE, BLACK BOX SOCIETY: THE SECRET ALGORITHMS THAT CONTROL MONEY AND INFORMATION 107 (2015).

[54] *See* Kroll et al., *supra* note 40, at 636, 703.

[55] *Id.* at 636–38.

This inquiry has a cyclical quality. Writing in 1991, Paul Schwartz chronicled the growing dependence of the administrative state on the collection, storage, and processing of data using computers.[56] Organizing his critique around two case studies, Schwartz argued that a newfound reliance on computers and data threatened the administration of "bureaucratic justice."[57] In particular, the "seductively precise" conclusions of machines function as objective criteria that lessen the perceived need for subjective judgments by people.[58] Computers, as deployed by the government, resist accountability and rob participants of their dignity, largely by removing their capacity to understand the processes to which they have been subjected.[59]

Twenty years prior, Laurence Tribe famously dismissed Bayesian approaches to evidence as "trial by mathematics."[60] Tracing a line between the practice of numerology in the Middle Ages and the American reverence for statistics in the 1970s, Tribe walked through the various problems associated with introducing probabilistic evidence into court to establish facts.[61] Tribe cast mathematics as the original black box, incapable of deep scrutiny by the trier of fact.[62] He noted the varied ways mathematical formulas seduce the unfamiliar juror or judge into a perception of objectivity.[63] Tribe bemoaned the dehumanizing changes mathematical methods bring to the very "character of the trial process itself."[64]

Each of these issues is, or should be, relevant today.[65] Schwartz's case studies of family aid and child welfare enforcement mirror almost precisely the case studies animating *Automating Inequality*, a celebrated book from 2017.[66] The very issue that sparked the trial-by-mathematics debate—a prosecutor's efforts in *People v. Collins* to link an interracial couple to a crime using statistics[67]—closely parallels the now infamous ProPublica story on racial bias

[56] Schwartz *supra* note 34, at 1324–25.

[57] *See generally id.* (citing JERRY L. MASHAW, BUREAUCRATIC JUSTICE (1983)).

[58] *Id.* at 1335, 1341–43.

[59] *Id.* at 1348–49, 1372, 1376, 1378–79.

[60] Laurence H. Tribe, *Trial by Mathematics: Precision and Ritual in the Legal Process*, 84 HARV. L. REV. 1329 (1971).

[61] *Id.* at 1329.

[62] *Id.* at 1393.

[63] *Id.* at 1331–32.

[64] *Id.* at 1375.

[65] Substitute "algorithm" for "math," and "Trial by Algorithm" could easily appear as a title in a future volume of the Harvard Law Review. You're welcome to the title.

[66] EUBANKS, *supra* note 37, at 180–88.

[67] People v. Collins, 438 P.2d 33, 39–40 (Cal. 1968)

in algorithmic risk assessment for sentencing.[68] Whatever its antecedents, the puzzle of how changes in technology interact with the dispensation of justice is once again timely and critical.

Our specific focus here is the administrative state's turn toward automation. To date, this conversation has tended to foreground procedural due process—i.e., the process the state owes individuals before depriving them of life, liberty, or property[69]—as well as challenges to rulemaking and open-sunshine commitments.[70]

Schwartz, in 1991, focused on the ways that computer and data-driven decision-making thwarted values, such as privacy, justice, and autonomy.[71] Years later, one of us (Citron) highlighted the mismatch behind the automated state and procedural guarantees, arguing for a new form of "technological due process" that would restore accountability and transparency to the system.[72] This work observed, for instance, that the *Matthews* calculus for due process was ill-suited to automated systems because it assumed that interventions would be cheap in the individual instance but expensive at scale.[73] In reality, a deep vetting of agency software is expensive at the front end but the benefits propagate across the entire system at the back end. Such vetting is crucial because programming mistakes constituted an *ultra vires* assumption of rulemaking power without legally required notice and public participation.[74]

Kate Crawford and Jason Schultz, in 2014, explore the prospect of "procedural data due process" to mitigate the tendency of data-driven analyses to "evade or marginalize traditional privacy protections and frameworks."[75] Crawford and Schultz draw from history, scholarship, and precedent to identify the elements of a fair hearing, seeking to translate those commitments into a world rife with analytics.[76] More recent work by Crawford and Schultz focuses on accountability for third-party vendors, suggesting that algorithms and

[68] Julia Angwin & Jeff Larson, *Bias in Criminal Risk Scores Is Mathematically Inevitable, Researchers Say*, PROPUBLICA (Dec. 30, 2016, 4:44 PM), https://www.propublica.org/article/bias-in-criminal-risk-scores-is-mathematically-inevitable-researchers-say.

[69] Citron, *supra* note 13, at 1281.

[70] Danielle Keats Citron & Frank Pasquale, *Network Accountability for the Domestic Intelligence Apparatus*, 62 HASTINGS L.J. 1441, 1464–65 (2011).

[71] Schwartz, *supra* note 34, at 1386.

[72] Citron, *supra* note 13, at 1313; Citron, *supra* note 20, at 355–57.

[73] Citron, *supra* note 13, at 1284–86.

[74] *Id.* at 1279.

[75] Kate Crawford & Jason Shultz, *Big Data and Due Process: Toward a Framework to Redress Predictive Privacy Harms*, 55 B.C. L. REV. 93, 93, 109 (2014).

[76] *Id.* at 111–21.

artificial intelligence be considered state action for purposes of constitutional challenges.[77]

Joshua Kroll and an interdisciplinary team of co-authors, noted above, decry the disconnect between decision-making systems—such as the algorithmic processes used by the IRS to select whom to audit or by immigration authorities to distribute visas—and the accountability mechanism that purport to govern them.[78] They explore techniques by which "authorities can demonstrate . . . that automated decisions comply with key standards of legal fairness."[79] They offer "procedural regularity," which partly draws upon "the Fourteenth Amendment principle of procedural due process," as the guiding principle for the redesign of agency systems.[80]

Recent work by Deirdre Mulligan and Kenneth Bamberger thinks systematically about "procurement as policy," whereby agencies hide policy changes in harder-to-review decisions about the purchase of machine learning systems.[81] According to the authors, "these systems frequently displace discretion previously held by either policymakers charged with ordering that discretion, or individual front-end government employees on whose judgment governments previously relied."[82] Mulligan and Bamberger offer a variety of techniques to reintroduce the human expertise, discretion, and political accountability that machines have displaced.[83]

These wise interventions, and many more, proceed from the assumption that the substitution of technology for people reduces transparency, accountability, or some other legally mandated value.[84] Constitutions and statutes, after all, were written on the assumption that people, not machines, would make decisions and execute most consequential tasks. Imagine, for example, a top presidential candidate is a self-aware machine built in 2050. Would the Constitution, written

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77 Kate Crawford & Jason Schultz, *AI Systems as State Actors*, 119 COLUM. L. REV. 1941, 1971–72 (2019).

78 Kroll et al., *supra* note 40, at 633.

79 *Id.* at 637.

80 *Id.* at 656–57. The authors also explore technical means to assure fidelity to the "substantive policy choice" of nondiscrimination. *Id.* at 678.

81 Mulligan & Bamberger, *supra* note 25, at 789, 822. *But see* ENGSTROM ET AL., *supra* note 30, at 15 (finding that "[c]ontrary to much of the literature's fixation on the procurement of algorithms through private contracting, over half of applications (84 use cases, or 53%) were built in-house").

82 *Id.* at 778.

83 *Id.* at 822–33.

84 *Id.* at 788.

by and about human beings, require that our robot wait to become president until 2085, making it the requisite thirty-five years of age?[85]

The substitution approach represents, in a sense, the legacy of the thinking of cyberlaw pioneer Lawrence Lessig. The ascendance of the commercial internet in the 1990s, which appeared to stand apart from existing social structures, led early theorists to predict an end to authoritarianism.[86] Lessig famously rejected this premise, predicting instead that our collective mediation by technology would shepherd in an era of exquisite control by governments and firms as they come to understand the new levers of power.[87]

In making his case, Lessig developed at least two sets of ideas that continue to guide law and technology analysis. First, Lessig postulated that law is only one of four "modalities" of regulation available to powerful institutions to channel behavior—markets, norms, and architecture also represent means of exerting control.[88] Even if a virtual or geographically dispersed community cannot be reached directly by statutes or court orders, the community is nevertheless governed by the software, hardware, and networks that constitute their underlying architecture.[89] Second, Lessig understood the interaction between law and cyberspace as a function of "latent ambiguities," i.e., legal puzzles revealed only when a change in technology alters human habits and capabilities.[90] Although less remarked than Lessig's mantra that "code is law," the notion that new technologies reveal latent ambiguities in the law informed a generation of technology law scholars.[91]

Lessig's approach was and remains groundbreaking; it is also deeply intuitive to lawyers, already steeped in analogic reasoning and problem-solving. We should not be surprised, therefore, to see the approach reflected across the

[85] *See* U.S. CONST. art. II, § 1, cl. 5 ("No Person except a natural born Citizen, or a Citizen of the United States, at the time of the Adoption of this Constitution, shall be eligible to the Office of President; neither shall any person be eligible to that Office who shall not have attained to the Age of thirty five Years, and been fourteen Years a Resident within the United States."). The example is adapted from Ryan Calo, *Much Ado About Robots*, CATO UNBOUND (Apr. 11, 2018), https://www.cato-unbound.org/2018/04/11/ryan-calo/much-ado-about-robots.

[86] LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE 4 (1999).

[87] *Id.* at 6, 8.

[88] *Id.*; *see* Lawrence Lessig, *The New Chicago School*, 27 J. LEGAL STUD. 661 (1998) (first articulating the four modalities of regulation as law, norms, markets, and architecture).

[89] Lessig, *supra* note 88, at 676.

[90] LESSIG, *supra* note 86, at 22; *see* James H. Moor, *What Is Computer Ethics?*, 16 METAPHILOSOPHY 266, 269 (1985) (discussing how technology creates "policy vacuums").

[91] LESSIG, *supra* note 86, at 22.

legal academy over the years.[92] We certainly should not be surprised to see the approach reflected in analyses of algorithms and artificial intelligence.

These technologies fascinate *precisely for their ability to substitute for humans*. The law assumes that humans will drive cars. Now robots do. Scholars, ourselves included, ask how we might reconstitute law, markets, norms, or technology to address the myriad latent ambiguities revealed when things start to act like people. There is the new practice that challenges existing legal assumptions. There is the resolution by code or law that restores us to the status quo. While there are certainly outliers, much law and technology scholarship follows this basic pattern.

We aim to challenge this long-standing approach. The problem with the substitution frame is twofold. By focusing on the specific guarantees that new technology displaces, the substitution approach inevitably misses the opportunity to reexamine first principles. Critics of algorithmic decision-making have largely assumed the prospect of restoring the status quo through specific alternations to legal and technical design, rather than foreground broader questions of legitimacy.[93]

The substitution approach also fails to consider whether the existing status quo is sufficient in light of new technical capabilities. Analyses of driverless car liability have largely assumed that people would still own individual vehicles but that they would not drive them.[94] But the technologies that underpin driverless cars could, for example, lead to a wholesale reexamination of mobility and transportation.[95] Perhaps the ascendance of artificial intelligence means that agencies should be held to *higher* standards and asked to pursue greater or different values.

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[92] *See, e.g.*, Orin S. Kerr, *The Problem of Perspective in Internet Law*, 91 GEO. L.J. 357, 358 (2003) (addressing Fourth Amendment issues in cyberspace based on the work of Lawrence Lessig).

[93] *Cf.* Anna Lauren Hoffmann, *Where Fairness Fails: Data, Algorithms, and the Limits of Antidiscrimination Discourse*, 22 J. INFO., COMMC'N. & SOC'Y. 900, 901 (2019) (arguing, in the context of antidiscrimination, that explorations of algorithmic bias "have tended to admit, but place beyond the scope of analysis, important structural and social concerns related to the realization of data justice").

[94] *E.g.*, Kenneth S. Abraham & Robert L. Rabin, *Automated Vehicles and Manufacturer Responsibility for Accidents: A New Legal Regime for a New Era*, 105 VA. L. REV. 127, 169 (2019) (addressing a gap in tort law occasioned by substituting machines for human drivers).

[95] *See* Calo, *supra* note 39, at 87 (critiquing the professors' assumption that autonomous transportation would continue to involve individual vehicle ownership).

II. JUSTIFYING THE ADMINISTRATIVE STATE

As the previous Part describes, challenges to agency automation tend to admonish the government for supplanting procedural rights and values by substituting a machine decision-maker for a human official. Recommendations take the form of changes to law or design that restore the status quo ex ante by reinstating the ability of subjects to understand, shape, and challenge the rules and decisions to which they are subject.

What follows is an argument that, in addition to the valuable work of restoring lapsed or eroded safeguards, critics should pull at the threads of the arguments justifying the automated administrative state to assess whether the entire tapestry unravels. That is a crucial missed opportunity, one we aim to repair.

A. Responding to Agency Skepticism: Governance in a Complex World

American administrative agencies have faced skepticism almost from their inception.[96] The reasons for skepticism are heterogeneous and evolving. Charges against agencies have run the gamut from overzealousness to bureaucratic inefficiency to agency capture and politicization.[97]

But the deepest critique of the administrative state came early and never left—namely, that administrative agencies *by their very nature* violate the text and spirit of the Constitution in exercising and even commingling powers committed to separate branches.[98]

There are distinct yet related aspects to this challenge. The first is that, because the Constitution vests "all legislative powers" in a Congress, the legislature is not free to delegate its authority to a separate body—a principle

[96] *See* Mark Seidenfeld, *A Civil Republican Justification for the Bureaucratic State*, 105 HARV. L. REV. 1511, 1513 (1992). Note that in the discussion that follows, we are describing *federal* agencies and administrative law. State agencies are subject to analogous if slightly different constraints. *See* Arthur Ear Bonfield, *The Federal APA and State Administrative Law*, 72 VA. L. REV. 297, 297 (1986) ("When the states developed their administrative law, they adopted many of the general concepts embodied in the 1946 federal Administrative Procedure Act."). Meanwhile, the examples that animate this paper are, by and large, state agency examples where existing litigation has focused on and generated a record. Our argument therefore makes at least one of two speculative assumptions: (1) that the case for the legitimacy of state agencies mirrors that of federal agencies, or (2) that the trend in automation at the federal level exemplifies similar dynamics at the state level.

[97] *E.g.*, DAVID SCHOENBROD, POWER WITHOUT RESPONSIBILITY: HOW CONGRESS ABUSES THE PEOPLE THROUGH DELEGATION 14–18 (1993); PHILIP HAMBURGER, IS ADMINISTRATIVE LAW UNLAWFUL? 7–8 (2014).

[98] Adrian Vermeule, *The Administrative State: Law, Democracy, and Knowledge*, *in* THE OXFORD HANDBOOK OF THE U.S. CONSTITUTION 259, 261 (Mark Tushnet, Mark A. Graber & Sanford Levinson eds., 2015).

known as nondelegation.[99] The second concern is that, by vesting agencies with the authority to make, enforce, *and* interpret rules, Congress violates the doctrine of separation of powers implicit in the tripartite structure of government.[100] Like the mythological Fates who spin, measure, and cut, each branch of government has a separate power than the other—the power to create, enforce, and interpret law.[101] Agencies by their nature elide these powers together.

Bolstering these concerns is the contested observation that agencies permit Congress to insulate itself from political fallout.[102] Rather than confront hard policy choices squarely as part of an open political process, the existence of agencies permits Congress to forward difficult decisions to the bureaucrats, many of whom are career officials who are largely insulated from the mercurial wrath of constituents.[103] If the agency's actions garner public approval, then Congress and the President can claim credit. If the actions or inactions of the agency garner scorn, Congress can distance itself from the decision and even haul in the offending official for excoriation for good measure. Open agency processes also become a lightning rod for special interests, who are then less likely to trouble Congress with their complaints and demands.

Since 1935, when the Supreme Court struck down two broad delegations of power to the Franklin Delano Roosevelt Administration under the National Industrial Recovery Act of 1933, few nondelegation challenges have gotten much traction.[104] All the Constitution seems to require of Congress today is that it lay down an "intelligible principle" in the agency's organic statute that guides agency action.[105] Such a principle can be broad indeed: the Federal Trade

[99] Mistretta v. United States, 488 U.S. 361, 371 (1989).

[100] Gillian E. Metzger, *Delegation, Accommodation, and the Permeability of Constitutional and Ordinary Law*, *in* THE OXFORD HANDBOOK OF THE U.S. CONSTITUTION, *supra* note 98, at 422.

[101] The Fates or "Moirai" are physical manifestations of the concept of destiny that appear in HESIOD, THEOGONY and elsewhere as part of Greco-Roman lore.

[102] SCHOENBROD, *supra* note 97, at 17. For a well-known counterpoint, see Jerry Mashaw, *Prodelegation: Why Administrators Should Make Political Decisions*, 1 J. L., ECON. & ORG. 81, 87 (1984).

[103] SCHOENBROD, *supra* note 97, at 9.

[104] *See* Panama Refining Co. v. Ryan, 293 U.S. 388, 432 (1935); A.L.A. Schechter Poultry Corp. v. United States, 295 U.S. 495, 539 (1935). Supreme Court case law also prohibits Congress from using administrative constructs to reserve for itself a power the Constitution does not commit to it (e.g., appointment), limiting the constitutionally assigned power of another branch (e.g., removal), or bypassing a constitutional mandate (e.g., bicameralism and presentment). Immigration & Naturalization Servs. v. Chadha, 462 U.S. 919, 957, 959 (1983).

[105] Mistretta v. United States, 488 U.S. 361, 372 (1989) (quoting J.W. Hampton, Jr., & Co. v. United States, 276 U.S. 394, 406 (1928)). Changes in the composition of the Supreme Court, especially the appointment of noted delegation skeptic Justice Brett Kavanaugh, may eventually lead the Court to reexamine this doctrine. If this occurs, a return to professionalism in Congress will be all the more important; even those federal lawmakers more accustomed to grandstanding will need to invest time and energy into the project of lawmaking, getting into the weeds of legislative policy with career staff. *See* Jonathan Rauch, *The War on*

Commission Act charges the FTC with policing against "unfair or deceptive acts or practices."[106] Congress need only provide the agency with an adequate sense of its will and expectations and agency officials are off and running. For present purposes, the precise contours of the intelligible principle test are less interesting than the rationale for upholding what is today a massive administrative state touching most aspects of daily life.

Proponents of agencies then and now have countered skeptics with great force.[107] Some note that while the Constitution does not endorse the establishment of (many) agencies, nor does it expressly forbid them.[108] Nearly all proponents draw from a similar set of positive justifications for the administrative state that ultimately found support in Supreme Court precedent. Foremost among these justifications is that managing the modern world is beyond the institutional capability of Congress alone.[109] Agencies are anomalous but necessary because the world is more complex and dynamic than the framers might have imagined.[110]

Several related insights follow. Congress must obtain assistance from another entity to carry out its statutorily committed responsibilities. Protecting the Jews of Prague was beyond the capacity of the Rabbi ben Bezalel; legend has it that he had to fashion a golem.[111] The entity Congress creates must be positioned to accrue adequate expertise to manage a complex industry, challenge, or societal environment. And the entity must have sufficient flexibility—indeed, the discretion—to individuate its policies by context and respond to changes on the ground in our dynamic, contemporary world.

The Supreme Court has endorsed each of these precepts on multiple occasions. Famously in *Mistretta v. United States*, the Court announced: "our jurisprudence has been driven by a practical understanding that in our increasingly complex society, replete with ever changing and more technical

Professionalization, NAT'L AFFS., vol. 46 (2021), https://www.nationalaffairs.com/publications/detail/the-war-on-professionalism.

[106] Federal Trade Commission Act of 1914, 15 U.S.C. § 45(a)(1).

[107] *See* Mashaw, *supra* note 102; Kenneth Culp Davis, *A New Approach to Delegation*, 36 U. CHI. L. REV. 713, 715 (1969).

[108] Davis, *supra* note 107, at 719.

[109] *Id.* at 715.

[110] *See* Metzger, *supra* note 100, at 412. For example, the second Congress decided it needed to choose where post offices would be built. Act of Feb. 20, 1792, ch. VII, § 1, 1 Stat. 232.

[111] RICHARD BURTON, PRAGUE: A CULTURAL AND LITERARY HISTORY 62–69 (2003). The golem was powerful but beholden to the will of the Rabbi, who was able to return his creation to clay following the completion of its task. *Id.*

problems, Congress simply cannot do its job absent an ability to delegate power under broad general directives."[112]

The functionalist position has clear intuitive appeal. Congress is comprised of a few hundred representatives and their staff. For the legislature not only to become expert in railway travel, disease control, or nuclear energy, but also to keep up with changes in these fields and deal with exceptions or special circumstances, seems far beyond any single body's institutional capacity. Rather, Congress must be permitted to create a series of entities, each capable of mastering a particular domain and of making informed choices within that context. Indeed, the position must have clear intuitive appeal, given that the Constitution just as clearly vests "All legislative Powers herein granted" in Congress.[113]

The allowances sanctioning the administrative state emerged against an important backdrop of structural safeguards. In 1946, in reaction to the explosion of agency activity under FDR during the New Deal, reformers in Congress crafted the Administrative Procedure Act (APA) as a compromise.[114] This statute lays out the structure under which federal agencies must operate, and it provides instructions to the courts on how to review agency actions.[115] Many agency activities fly under the radar of administrative law as non-binding. These include reports, convenings, and myriad other actions that have no direct impact on the primary conduct (behavior) of regulated entities or the public. But when agencies act upon the world or bind their own conduct in particular ways, they are subject to procedural constraints and open their actions to judicial review.

The APA provides for two major means of binding agency action: (1) rulemaking, whereby the agency formulates prospective regulations, and (2) adjudications, whereby the agency applies those rules to particular regulated entities.[116] Most rulemaking and adjudication are conceptually "informal" and hence it is up to agency, largely in its discretion, to set out the procedures.[117] But even so, Congress and the courts generally require agencies making rules to solicit stakeholder comments on those rules and provide detailed explanations

[112] Mistretta v. United States, 488 U.S. 361, 372 (1989).

[113] U.S. CONST. art. 1, § 1.

[114] *See* Vermont Yankee Nuclear Power Corp. v. Natural Res. Def. Council, Inc., 425 U.S. 519, 523–24 (1978) (describing the origins of the APA).

[115] Administrative Procedure Act of 1946, 5 U.S.C. §§ 551–59. The APA has remained nearly unchanged over six decades, although it was amended to include a transparency provision known as the Freedom of Information Act. *Id.* at § 552.

[116] *Id.* at §§ 553, 554.

[117] *Id.* at § 553.

of their bases.[118] Similarly, agency adjudications must satisfy the strictures of due process and generate a sufficient record so as to be subject to meaningful judicial review.[119]

Judicial review of administrative actions is highly complex. The inquiry involves a blend of common law, constitutional law, and statutory interpretation.[120] Broadly speaking, courts defer to agency interpretations of their own organic statutes unless congressional will is clear, the agency's interpretation is unreasonable, or deference is otherwise inappropriate.[121] Courts give arguably greater deference to an agency's interpretation of its own duly promulgated regulations, which generally will control unless clearly erroneous.[122]

Under the APA, the DNA of the federal administrative state, courts defer to agency fact-finding as well as reasoning in arriving at a decision unless it is unsupported by substantial evidence or otherwise arbitrary or capricious.[123] Where an agency has expertise but no clear enforcement authority, courts are nevertheless obliged to give extra weight to the interpretation according to its persuasiveness.[124] Courts even defer to agencies on whether additional process, due under the Fifth Amendment, is helpful or burdensome—despite a general commitment to review constitutional questions de novo: "In assessing what process is due in this case, substantial weight must be given to the good-faith judgments of the individuals charged by Congress with the administration of social welfare programs that the procedures they have provided assure fair consideration of the entitlement claims of individuals."[125]

Riddled with caveats and nuances (and a headache for law students), these standards of deference constitute Administrative Law 101. The primary justification for such deference is very similar to the justification of the administrative state as a whole: agency expertise.[126] Courts presume that the

[118] *Id.* at § 552 (requiring notice, comment, and statement); *see* Citron, *supra* note 13, at 1288–89 (discussing how software undermines informal rulemaking).

[119] Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402, 416, 420 (1971).

[120] Noga Morag-Levine, *Agency Statutory Interpretation and the Rule of Common Law*, 2009 MICH. ST. L. REV. 51, 65–66.

[121] Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 844–45 (1984).

[122] Auer v. Robbins, 519 U.S. 452, 461 (1997). Recently the Supreme Court placed limits on *Auer*, precluding greater deference absent genuine ambiguity, and then only where the agency has relevant expertise and has exercised appropriate judgment. *See* Kisor v. Wilkie, 139 S. Ct. 2400 (2019).

[123] 5 U.S.C. § 706(2)(A).

[124] Skidmore v. Swift & Co., 323 U.S. 134, 139–40 (1944).

[125] Mathews v. Eldridge, 424 U.S. 319, 349 (1976).

[126] Stiglitz, *supra* note 46, at 635, 645.

agencies are experts in designated policy areas whereas courts are not.[127] That argument is fortified by the notion that courts owe deference to agencies because they are entrusted, given their expertise, to fulfill congressional mandates.[128] The very reason that Congress can transfer its authority under the Constitution to another technical body is, again, the agencies' particular ability to accrue expertise and respond with flexibility and precision to specific problems.[129]

B. Deference to Algorithms?

Much scholarship questions the legality of agency actions using algorithms. Very little work to date interrogates the ongoing sufficiency of the justifications underpinning the automated administrative state. Work by one of us (Citron) has addressed the impact of automation on notice and choice requirements in agency rulemaking and public participation generally.[130] *Technological Due Process* began the work of conceptualizing automated systems as "de facto delegations of rulemaking power," arguing that agencies in essence re-delegate their Congressional authority to computer programmers.[131] And the paper noted—with great concern—the irony that the inevitable changes to policy that come from effectively rewriting written laws via automation should be entitled to zero deference from courts but in practice will be largely unreviewable.[132]

A recent paper instead defends the use of certain tools by agencies in select contexts as consistent with the APA. Cary Coglianese and David Lehr "consider how nonhuman decision tools would have to be used to comport with the nondelegation doctrine and with rules about due process, antidiscrimination, and governmental transparency."[133] The authors dismiss the concern over delegation on the apparent basis that the necessity of setting an "objective function," or goal,[134] for machine learning systems means that there will always be an "intelligible principle"[135] in the constitutional sense, and that algorithms lack self-interest, such that delegating to machines differs from delegating to private parties.[136]

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127 *Id.* at 647.
128 *Id.* (quoting Chevron U.S.A., Inc. v. Nat. Res. Def. Council, 467 U.S. 837, 865 (1984)).
129 Mistretta v. United States, 488 U.S. 361, 372 (1989).
130 *See* Citron, *supra* note 13.
131 *Id.* at 1294, 1296.
132 *Id.* at 1299–1300.
133 Coglianese & Lehr, *supra* note 30, at 1154.
134 *Id.* at 1180.
135 *Id.* at 1179.
136 *Id.* at 1180.

We question whether an objective function, in the sense of an arbitrary goal the system seeks to maximize, bears the slightest resemblance to an intelligible principle directed at agency officials. Yet Coglianese and Lehr's analysis is most interesting for what it omits. The authors analyze machine learning under a doctrine developed to ascertain whether delegations to people pass constitutional muster.[137] They do not appear to question whether re-delegating authority to machines in ways that jettison expertise and discretion might undermine the vary rationale for delegation. Said another way, Coglianese and Lehr appear to conflate the test itself for the reasons behind it.

Mulligan and Bamberger come to a different conclusion than Coglianese and Lehr. Their recent paper focuses on the ways government adoption of new technology—particularly the artificial intelligence technique of machine learning—undermines key democratic elements of administrative governance.[138] Citing one of us (Citron), they note that policymaking requires notice and comment, which procurement of software systems appears to end run.[139] The authors emphasize in particular the "foundational principle that decisions of substance must not be arbitrary or capricious"[140]—a standard located in the APA.[141] The systems the U.S. government is increasingly procuring yield results that no human can justify.

These few works appear to constitute the entirety of the conversation to date regarding the legitimacy of the automated state as a matter of first principles.[142] Normatively, each work grounds its force in meeting or failing to meet a doctrinal or statutory requirement.

We believe more needs to be said regarding the fundamental legitimacy concerns raised by automation. We do not expect or hope to be the final word on this issue. Quite the opposite: Our purpose is to marshal argument and evidence sufficient to touch off a discussion of whether the automated administrative state is headed for a legitimacy crisis. We see reason to think that it is.

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137 *Id.* at 1154.

138 *See* Mulligan & Bamberger, *supra* note 25, at 780–82.

139 *Id.* at 814, 816.

140 *Id.* at 804.

141 5 U.S.C. § 706.

142 Supreme Court of California Justice Mariano-Florentino Cuéllar discusses the trade-offs involved in delegating agency decisions to machines. Mariano-Florentino Cuéllar, *Cyberdelegation and the Administrative State* (Stanford Pub. L., Working Paper No. 2754385, 2016). He problematizes delegation but does not go so far as to question the theoretical footing or justification of the administrative state. *Id.* at 2–3.

III. THE LOOMING LEGITIMACY CRISIS

The administrative state has been justified for over a century in a particular way. The argument that automation is eroding agency legitimacy is conceptual and empirical. The conceptual component is straightforward. If the administrative state represents a constitutional anomaly justified by scholars and courts in light of the unique affordances of bureaucracies—namely, the accrual of expertise, the potential for individuation and rapid response, and the exercise of discretion—then the *absence* of these qualities undermines that justification. This is especially so where the structural safeguards that discipline administrative power are being eroded by the same machine processes. We make this argument at length below.

The empirical question is different. The empirical question asks whether and to what extent agencies are, in fact, throwing away expertise and discretion. Historically this has not been an easy question to answer. And it remains difficult, given the protections of trade secrets,[143] the nuances of "policy by procurement,"[144] and the vagaries of administrative law.[145] Yet, in recent years, important gaps have been filled. Litigation across the country in a diverse array of administrative contexts has revealed a common pattern: agencies do not understand and cannot control the machines to which they have delegated their authority.

A. Lessons from Litigation

Due to the courage and diligence of lawyers all over the country, we are in a better position today than in recent memory to understand the pathologies of agency automation and its betrayal of the presumption of agency expertise and flexibility. In the decade since the publication of *Technological Due Process*, governments have doubled down on automation despite its widening problems.[146] The state's embrace of automation, however, has not gone unchallenged, for the good of impacted individuals and scholarly evaluation of the corrosion of expertise, flexibility, and nimbleness in agency action.

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[143] *See* Rebecca Wexler, *Life, Liberty, and Trade Secrets: Intellectual Property in the Criminal Justice System*, 70 STAN. L. REV. 1343, 1377–95 (2018).

[144] Mulligan & Bamberger, *supra* note 25, at 779–80.

[145] Sovereign immunity entitles the government to set the terms of when and if agencies are sued. *See* Darby v. Cisneros, 509 U.S. 137, 152–53 (1993). The APA waives immunity for some nonmonetary (i.e., equitable) relief but subject to extensive requirements including finality, ripeness, and exhaustion of administrative remedies. *See id.*

[146] Harry Surden, *Values Embedded in Legal Artificial Intelligence* (U. of Colo. L. Legal Stud., Working Paper, No. 17-17, 2017).

Automation has not been as clear a win for governmental efficiency and fairness as administrators had hoped and as vendors have claimed. It has not eliminated bias but rather traded the possibility of human bias for the guarantee of systemic bias.[147] Prior failures have not informed present efforts. Instead, problems have multiplied, diversified, and ossified. Government has expanded automation despite clear warnings about potential pitfalls. Agencies have continued to use relatively straightforward rules-based systems despite their obvious flaws.[148] More troublingly, they have adopted even more complex and even more varied efforts at automated decision-making despite having no evidence that the tech even works—they're proceeding without proof of concept. The stakes couldn't be higher.[149]

Automation has misallocated public resources,[150] denied individualized process, and exacted significant costs on individuals.[151] Automated systems are hardly engines of efficiency. To the extent that they are predictable, it is in their misdirection of government services. They impair individualized process, making decisions about individuals without notice and a chance to be heard[152] and embedding rules that lack democratic imprimatur.[153] They create instability and uncertainty that upends people's lives. And they mask difficult policy choices. If agencies want to make policy choices like cutting care for certain types of beneficiaries, they ought to say so rather than burying the problem in an automated system.

In courts across the country, attorneys have challenged government automation's pathologies in varied arenas, including public benefits, jobs, child-welfare, airline travel, and criminal sentencing. Litigation has forced some

147 Lecher, *supra* note 1.

148 *Id.*

149 Surden, *supra* note 146.

150 Citron, *supra* note 13, at 1269.

151 Lecher, *supra* note 1.

152 *See, e.g.*, Barry v. Lyon, 834 F.3d 706, 710 (6th Cir. 2016) (holding that Michigan's public benefits system erroneously terminated food assistance benefits of more than 20,000 individuals based on a crude data matching algorithm in violation of due process guarantees); Cahoo v. SAS Analytics Inc., 912 F.3d 887, 892 (6th Cir. 2019) (lawsuit against companies involved in creation of flawed software that erroneously terminated unemployment benefits of thousands of Michigan residents); Ryan Felton, *Lawsuit Challenging Michigan Unemployment Fraud Cases Moves Forward*, DETROIT METRO TIMES (Mar. 30, 2016, 6:16 PM), https://www.metrotimes.com/news-hits/archives/2016/03/30/lawsuit-challenging-michigan-unemployment-fraud-cases-moves-forward (describing a federal lawsuit alleging the Michigan Integrated Data Automated System violates equal protection and due process).

153 *See, e.g.*, Ark. Dep't of Hum. Servs. v. Ledgerwood, 530 S.W.3d 336, 344–45 (Ark. 2017) (finding a substantial likelihood Arkansas Department of Human Services failed to provide proper notice under the APA when promulgating automated reassessment system).

government agencies to address glaring problems, but others persist.[154] Because challenges to systems have wrought ad hoc rather than systemic change, we have only begun to discover the pathologies of the automated administrative state. Then, too, litigation offers a limited set of tools—it can only address violations of laws or constitutional commitments already enshrined in law.

The litigation highlighted shows how far away we have moved from the animating reasons for agency delegation. It demonstrates that automation has led to the adoption of inexpert tools that waste government resources and deny individuals any meaningful form of due process. As the lawsuits discussed show, automated systems create chaos rather than providing more nimble and flexible responses.

We have already mentioned the ill-fated system adopted by the Arkansas Department of Human Services (DHS). In Arkansas, as in other states, physically disabled Medicaid recipients can opt to live at home with state-funded care in lieu of residing in a nursing facility.[155] Prior to 2016, registered nurses determined the home care services available to Medicaid recipients.[156] Nurses interviewed recipients and filled out a 286-question survey to determine a person's hours of weekly home care, with a maximum of fifty-six hours per week.[157]

In 2016, Arkansas DHS replaced nurse evaluations with algorithmic decisions. According to DHS administrators, computers would be cheaper and would not play favorites as nurses might.[158] DHS turned to the nonprofit coalition InterRAI, which licenses its "Resource Utilization Group system" (RUGs) to agencies across the country.[159] In the DHS system, the RUGs

[154] *See id.* at 345.

[155] ARChoices In Homecare Home and Community-Based Waiver, 016-06 ARK. CODE R. 075, §§ 211.000, 213.210 (LexisNexis 2020); *see* Plaintiff's Memorandum of Law in Support of Motion for Temporary Restraining Order and Preliminary Injunction at 3, Ledgerwood v. Ark. Dep't Hum. Servs., No. 60-cv-17-442 (Cir. Ct. Pulaski Cnty. Jan. 31, 2017). Home care in Arkansas is on average $18,000 per year, whereas a nursing home would cost the state $50,000 per year. Marci Manley, *Working 4 You: Explaining the Formula for Care Claimed to Cause Cuts to Needy*, KARK NEWS 4 (Nov. 15, 2017, 11:36 PM), https://www.kark.com/news/working-4-you-explaining-the-formula-for-care-claimed-to-cause-cuts-to-needy/.

[156] 016-06 ARK. CODE R. 075, § 212.300(D)(6) (LexisNexis 2020); Alternatives for Adults with Physical Disabilities Waiver, 016-06 ARK. CODE R. 18, § 212.200(E) (LexisNexis 2020). *See* Manley, *supra* note 155.

[157] *See* Plaintiff's Memorandum of Law in Support of Motion for Temporary Restraining Order and Preliminary Injunction at 15, *Ledgerwood*, No. 60-cv-17-442.

[158] Lecher, *supra* note 1. DHS Administrator Craig Cloud told a local news station that the RUGs algorithm "uses objective standards" and renders "consistent decisions." *See Formula for Care*, *supra* note 95.

[159] Lecher, *supra* note 1. InterRAI's algorithms "are used in health settings in nearly half of the US states, as well as in other countries." *Id.* InterRAI has a contract with DHS. The nonprofit's President Brant Fries serves as the principal investigator on that contract. Excerpted Transcript of Trial, *supra* note 10, at 3. Fries built an

algorithm sorted physically disabled Medicaid recipients into categories (or tiers) through a complex series of classifications and statistical calculations.[160] A software vendor hired by DHS then operationalized the decisions.[161] The vendor used the RUGs algorithm to calculate the number of hours of care allocated to individuals on a weekly basis.[162] Medicaid recipients, once sorted into a tier, could not be moved to another tier even if their needs changed.[163]

Once in effect, the new system produced arbitrary and illogical results.[164] If a person was a foot amputee, the RUGs algorithm indicated that the person "didn't have any [foot] problems" even though the lack of the limb meant that they needed more assistance rather than less.[165] It ignored crucial facts about individuals, such as their ability to walk, frequency of falls, and history of incontinence.[166] It failed to account for the severity of individuals' conditions even though DHS regulations required an account of such distinctions.[167] For instance, the "algorithm allocates someone with quadriplegia, dementia, and schizophrenia the same care as someone who just has quadriplegia, even though the dementia and schizophrenia likely mean that more care time is needed."[168] Kevin De Liban, counsel for Legal Aid of Arkansas, astutely coined the phrase "algorithmic absurdities" to capture these developments.[169]

initial version of RUGs pursuant to a seven-million-dollar grant from the U.S. Government. *Id.* at 8. The DHS system uses the RUG III home version, which was written in January 2009. *Id.* at 10–11.

[160] *See, e.g.*, Ark. Dep't of Hum. Servs. v. Ledgerwood, 530 S.W.3d 336, 339 (Ark. 2017). To say that the RUGs algorithm is complex understates the point. The testimony of Fries demonstrates the point. Excerpted Transcript of Trial, *supra* note 10, at 11–19, 26 ("[W]e use some fairly sophisticated statistical capability to say . . . . [W]hat explains that this person costs more than that person. . . . the statistical software looks through thousands of possibilities and says this is the best one."). Fries noted, "You have to understand, there's a lot of code here. It's a complicated algorithm . . . . there's 17 pages of code. . . . Someone took this code, which is written in a very basic language that any programmer can understand, but someone has to take this logic and translate it into whatever the software is that the vendor uses." *Id.* at 51.

[161] Excerpted Transcript of Trial, *supra* note 10, at 51.

[162] *Id.* at 49.

[163] *Id.* at 57.

[164] Lecher, *supra* note 1.

[165] *Id.*

[166] Memorandum from Kevin De Liban, *supra* note 5, at 3.

[167] *Id.*

[168] *Id.*

[169] Lecher, *supra* note 1. Kevin De Liban did what no DHS official could do. When DHS officials were stating publicly that they could not explain why the algorithm operated as it did, De Liban decoded its decisions by comparing the code and master assessment handbook with the cases of more than 150 people who sought his help. Telephone Interview with Kevin De Liban, *supra* note 9. Through that process, De Liban found countless problems, including the ones described above. *Id.* There could have been far more, but De Liban worked with the clients that he had to discover the problems that he did. *Id.*

In 2016, De Liban sued DHS in federal court on behalf of physically disabled Arkansas residents whose home care had been reduced an average of *43%* after the adoption of RUGs.[170] For one Medicaid recipient, aid was cut more than *53%*.[171] The algorithmic system left severely disabled Medicaid recipients alone without access to food, toilet, and medicine for hours on end.[172] Approximately *47%* of Arkansas Medicaid recipients were negatively impacted.[173]

The author of the RUGs algorithm, Brant Fries, testified at trial.[174] During cross-examination, De Liban asked Fries to conduct a manual check of plaintiff Ethel Jacobs's case.[175] As the author of the algorithm, Fries was uniquely situated to compare how the code should work and how it actually worked.[176] What Fries found—and what the state's counsel sheepishly admitted—was that the RUGs system had made "a mistake" in Jacobs's case.[177] Plaintiffs' counsel summed up plaintiffs' position:

> [W]e're gratified that DHS has reported the error and certainly happy it's been found, but that almost proves the point of the case. There's this immensely complex system around which no standards have been published, so that no one in their agency caught it until we initiated federal litigation and spent hundreds of hours and thousands of dollars to get here today.[178]

Fries admitted that there were likely other mistakes as yet undetected in the system but offered no systemic method capable of detecting and addressing them.[179]

De Liban prevailed in court. A federal judge permanently enjoined DHS from automating home care decisions until it could explain the reasons behind

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[170] As De Liban told us, he relied on the arguments in *Technological Due Process*, see Citron, *supra* note 13, in drafting his complaint. Telephone Interview with Kevin De Liban, *supra* note 9.

[171] Plaintiff's Memorandum of Law in Support of Motion for Temporary Restraining Order and Preliminary Injunction at 16, Ledgerwood v. Ark. Dep't Hum. Servs. (2017) (No. 60CV-17-442), at 16 (Cir. Ct. Pulaski Cnty. May 14, 2018).

[172] Memorandum Order at 7, Ledgerwood v. Ark. Dep't Hum. Servs., No. 60CV-17-442 (Cir. Ct. Pulaski Cnty. May 14, 2018).

[173] Telephone Interview with Kevin De Liban, *supra* note 9 (discussing federal lawsuit concerning the Home Community Based Program).

[174] Excerpted Transcript of Trial, *supra* note 10, at 21–22.

[175] *Id.* at 21.

[176] *Id.* at 21–22 ("DHS is using a system to sort these folks into 23 categories. That is what Dr. Fries can tell us about, is what it takes. And our claim around due process is—implicates what knowledge is available about how people get sorted.").

[177] *Id.* at 36.

[178] *Id.* at 37–38.

[179] *Id.*

the decisions.[180] After DHS failed to suspend its use of the algorithmic system in 2017, De Liban sued the agency in state court, seeking to enjoin its operation on the grounds that its adoption had violated the state's Administrative Procedure Act.[181] A state judge ordered DHS to stop using the RUGs algorithm because the agency failed to follow the state's rulemaking procedures.[182] During the rulemaking process, DHS failed to explain that human decision-makers would be replaced with an automated system.[183]

The Arkansas litigation sheds light on the pathologies of today's algorithmic decision-making systems. Agencies continue to struggle with how to give meaningful notice about a computer's decisions. Despite a decade of experience, for example, we have not yet figured out how to provide notice about automated decisions.[184]

To be clear, Arkansas is not the only state bedeviled by such "algorithmic absurdities." Idaho's health and welfare agency built its own budget software tool to allocate the number of hours of home care for disabled Medicaid recipients.[185] That algorithmic tool drastically cut individuals' home care hours without explanation.[186] The ACLU asked the agency to account for their clients' change in benefits.[187] An answer never arrived. The reason? The algorithm was a "trade secret."[188]

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[180] Order at 1–2, *Estate of Jacobs*, 2017 WL 2960793.

[181] Plaintiff's Memorandum of Law in Support of Motion for Temporary Restraining Order and Preliminary Injunction, Ledgerwood v. Ark. Dep't Hum. Servs. (2017) (No. 60CV-17-442), at 18, 24 (Cir. Ct. Pulaski Cnty. May 14, 2018).

[182] Memorandum Order at 6, Ledgerwood v. Ark. Dep't Hum. Servs., No. 60 CV-17-442 (Ark. Cir. Ct. May 14, 2018).

[183] *Id.*; Telephone Interview with Kevin De Liban, *supra* note 9. DHS sought to do an end run around that ruling, issuing an "emergency" rule saying that it was absolved of having to go through a rulemaking process. The trial court found the effort "manifestly preposterous" and "disobedient" and granted the plaintiffs' motion for contempt. Ark. Dep't of Hum. Servs. v. Ledgerwood, 571 S.W.3d 911, 917 (Ark. 2019) ("Effective immediately, the proposed promulgating emergency rule is hereby enjoined, not based on any new action. It is enjoined as a deliberate and calculated disobedience of the permanent injunction entered by this court on May 14, 2018.").

[184] Lecher, *supra* note 1 (quoting Fries as acknowledging that he doesn't have best practices on how to give notice on how algorithms work and it is "something we should do").

[185] K.W. v. Armstrong, 180 F. Supp. 3d 703, 708 (D. Idaho 2016).

[186] Jay Stanley, *Pitfalls of Artificial Intelligence Decisionmaking Highlighted in Idaho ACLU Case*, ACLU (June 2, 2017, 1:30 PM), https://www.aclu.org/blog/privacy-technology/pitfalls-artificial-intelligence-decisionmaking-highlighted-idaho-aclu-case.

[187] *Id.*

[188] Stanley, *supra* note 186. *See generally* Wexler, *supra* note 143, at 1377–95 (describing the evolution and application of trade secret privilege).

The ACLU sued the health agency for injunctive and declaratory relief.[189] The lawsuit alleged that the agency violated plaintiffs' due process rights and that its new decision-making tool produced arbitrary results.[190] According to plaintiffs' experts, the system was built on incomplete data and "fundamental statistical flaws."[191] During discovery, the ACLU deposed agency employees about their construction of the algorithmic system.[192] As plaintiffs' counsel recounts, "everybody pointed a finger at somebody else."[193] During the depositions, employees claimed that others were responsible: "[E]ventually[,] everybody was pointing around in a circle."[194]

The court sided with plaintiffs. The court found that the budget tool's unreliability "arbitrarily deprive[d] participants of their property rights and hence violate[d] due process."[195] As the court explained, the agency built the tool based on flawed and incomplete information.[196] More than 18% of the records used to build the tool "contained incomplete or unbelievable information."[197] The court noted that the agency adopted the budget software though it knew up to 15% of recipients would not receive adequate funding.[198] The agency knew the software needed to be recalculated but failed to do so, and it never checked to determine how many participants were allocated insufficient funds.[199]

The court urged the parties to "agree to a plan to improve the [budget software] tool and institute regular testing to ensure its accuracy."[200] The agency needed to test the tool to ensure its accuracy and establish a "robust appeals process where the inevitable errors can be corrected."[201] The court further found that the notice provided to recipients violated due process because it gave recipients no explanation for the cut in benefits so that they could not challenge the reduction.[202]

189 *K.W.*, 180 F. Supp. 3d at 703.
190 *Id.*
191 Stanley, *supra* note 186.
192 *Id.*
193 *Id.*
194 *Id.*
195 *K.W.*, 180 F. Supp. 3d at 718.
196 *Id.* at 711.
197 *Id.*
198 *Id.*
199 *Id.* at 712.
200 *Id.* at 718.
201 *Id.* at 714.
202 *Id.* at 720.

Opaque algorithms decide whether public employees can keep their jobs and provide little way for employees to understand why or to protest the decision. Cities and states use algorithmic systems to evaluate public school teachers.[203] Typically, those systems known as "value-added appraisal" systems are built by private vendors.[204] The algorithms compare test scores of students at the beginning and end of a school year as a way to measure the students' progress and supposedly are

> adjusted to try to account for factors other than teacher effectiveness, such as socioeconomic status, that might be responsible for the students' progress or lack thereof. The adjusted results for the students that are taught by a particular teacher are then used to produce an evaluation of that teacher's effectiveness.[205]

This is teacher evaluation by black-box algorithm—teachers can't discern the factors for evaluation, let alone the reason for the ultimate findings.

Starting in 2011, a Houston school district used a "value-added" appraisal system provided by a private vendor, SAS Analytics Inc., to assess teacher performance.[206] The system measured teacher efficacy by endeavoring to track the teacher's impact on student test scores over time.[207] Generally speaking, a teacher's algorithmic score was based on comparing the average growth of student test scores of the particular teacher compared to the statewide average.[208] The score was converted to a test statistic called the "Teacher Gain Index," which classified teachers into five levels of performance, ranging from "well above" to "well below" average.[209]

Initially used to determine teacher bonuses, the algorithmic system was used to sanction employees for low student performance on standardized tests.[210] In 2012, the school district declared a goal of ensuring that "no more than 15% of teachers with ratings of ineffective are retained."[211] It followed suit—by 2014, approximately 25% of "ineffective teachers were 'exited.'"[212]

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203 Brauneis & Goodman, *supra* note 52, at 103.

204 *Id.* at 150.

205 *Id.* at 150–51.

206 Hous. Fed'n. of Teachers. v. Hous. Indep. Sch. Dist., 251 F. Supp. 3d 1168, 1172 (S.D. Tex. 2017).

207 *Id.*

208 *Id.*

209 *Id.*

210 *Id.* at 1174.

211 *Id.*

212 *Id.* at 1175.

The teachers' union sued the school district on due process grounds, arguing that the teachers could not examine the algorithm to challenge its accuracy.[213] Plaintiffs sought to permanently enjoin the school district's use of the scores in the termination or nonrenewal of contracts, a constitutionally protected property interest.[214] The court found a due process violation because teachers had no way to replicate and challenge their scores.[215]

The court noted its concern about the algorithm's accuracy. As the court pointed out, the school district never verified or audited the system.[216] The court noted that "when a public agency adopts a policy of making high stakes employment decisions based on secret algorithms incompatible with minimum due process, the proper remedy is to overturn the policy, while leaving the trade secrets intact."[217]

As the court underscored and as the defendant conceded, scores might contain errors, including data entry mistakes and code glitches, which will not be promptly corrected.[218] The court explained that "[a]lgorithms are human creations, and subject to error like any human endeavor."[219] The court expressed concern that the entire system was fraught with inaccuracies given the "house-of-cards fragility of the EVAAS system"—the "wrong score of a single teacher could alter the scores of every other teacher in the district."[220] Thus, "the accuracy of one score hinges upon the accuracy of all."[221]

In a challenge brought by a public school teacher in New York, a state trial court found that the value-added appraisal model was arbitrary and capricious.[222] The court highlighted the biases and statistical shortcomings of the system and noted the lack of transparency such that the plaintiff could not understand what she needed to do to achieve a satisfactory score.[223]

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213 *Id.* at 1176.

214 *Id.* at 1174.

215 *Id.* at 1180.

216 *Id.* at 1177.

217 *Id.* at 1179.

218 *Id.* at 1177.

219 *Id.*

220 *Id.* at 1178.

221 *Id.* The court dismissed the substantive due process claim because the "loose constitutional standard of rationality allows government to use blunt tools which may produce marginal results." *Id.* at 1182. The court explained that the algorithmic scoring system would pass muster under the rationality inquiry even if they are accurate only a little over half of the time. *Id.*

222 Lederman v. King, No. 5443-14, slip op. at 26416 (N.Y. Sup. Ct. May 10, 2016).

223 *Id.*

Michigan's unemployment benefits system is another case in point. Before 2013, the Michigan Unemployment Agency had 1,200 staffers who oversaw unemployment claims. Staffers relied on a legacy IT system to administer claims and to check for fraud.[224] In 2011, the Michigan legislature eliminated the requirement that the state's Unemployment Insurance Agency (Agency) obtain a court order before seizing a claimant's wages, tax refunds, and bank funds.[225] The Agency seized on the chance to replace its system with a fully automated one.[226] According to officials, an automated system would enhance efficiency by eliminating 400 jobs, or one-third of the Agency's staff.[227] It promised to identify fraudulent employment filings efficiently.[228]

The Agency spent close to $45 million on the Michigan Integrated Data Automated System (MiDAS), working with a vendor to build the system.[229] MiDAS went live in October 2013.[230] In short order, the number of persons accused of unemployment fraud "grew fivefold in comparison to the average number found using the old system."[231] In two years, more than 34,000—up to 50,000—people were accused of fraud.[232] Only 7% of those thousands of individuals had actually committed fraud.[233]

MiDAS charged those accused a 400% penalty of the claimed amount of fraud plus penalties and interest.[234] Once claims were substantiated through a flimsy notice process, MiDAS garnished the wages, tax refunds, and bank accounts of the accused.[235] In its first year, MiDAS generated $69 million in fines from alleged fraud, up from $3 million the year before.[236] Michigan

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224 Robert N. Charette, *Michigan's MiDAS Unemployment System: Algorithm Alchemy Created Lead, Not Gold*, IEEE SPECTRUM (Jan. 24, 2018, 7:00 PM), https://spectrum.ieee.org/riskfactor/computing/software/michigans-midas-unemployment-system-algorithm-alchemy-that-created-lead-not-gold.

225 *See id.*

226 *Id.*

227 *Id.*

228 *Id.*

229 *Id.*

230 *Id.*

231 *Id.*; *see also* Memorandum from H. Luke Shaefer, Assoc. Professor, Univ. of Mich., & Steve Grey, Gen. Manager, Mich. Unemployment Ins. Project, to Gay Gilbert, Adm'r, U.S. Dep't of Labor (May 19, 2015) (available at https://waysandmeans.house.gov/sites/democrats.waysandmeans.house.gov/files/documents/Shaefer-Gray-USDOL-Memo_06-01-2015.pdf).

232 *Id.*

233 Jack Lessenberry, *State Unemployment Computer Had Anything but the Golden Touch*, TRAVERSE CITY REC. EAGLE (Dec. 31, 2017), https://www.record-eagle.com/opinion/columns/jack-lessenberry-state-unemployment-computer-had-anything-but-the-golden/article_c03418a5-41a3-5b87-9663-9d4cfc42591c.html.

234 Charette, *supra* note 224.

235 *Id.*

236 *Id.*

lawmakers have promised to seek at least $30 million in compensation for those falsely accused.[237]

If MiDAS identified discrepancies between information provided by claimants and information accessible to the system including employer and state agency records, then it would find fraud.[238] MiDAS also "flagged claimants through an 'income spreading' formula[, which] calculated a claimant's income in a fiscal quarter and averaged the claimant's weekly earnings, even if the person did not actually make any money in a given week."[239] MiDAS automatically determined a claimant engaged in fraud if the employee reported no income for any week during a quarter in which the claimant earned income.[240]

At least 90% of the MiDAS fraud determinations were inaccurate.[241] Part of the problem was that MiDAS was mining corrupt or inaccurate data.[242] For instance, a consultant report found that MiDAS has trouble converting data from the legacy system.[243] MiDAS also could not read information scanned into the system.[244] Also problematic were the inaccuracies raised by the "income spreading" formula.[245] The Agency made no effort to check the system's findings.[246]

The implications were profound. Once MiDAS flagged fraud through a web portal that many people did not check, the state garnished people's wages, federal and state income tax refunds, and bank accounts.[247] The Agency used these collection techniques without giving claimants an opportunity to contest the fraud determinations.[248] As alleged in an ongoing suit against agency officials, the Agency "made no attempt to consider the facts or circumstances of a particular case, or determine whether the alleged fraud was intentional, negligent, or simply accidental."[249]

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237 *Id.*

238 Cahoo v. SAS Analytics Inc., 912 F.3d 887, 892 (6th Cir. 2019).

239 *Id.* at 892–93.

240 *Id.* at 893.

241 Paul Egan, *Data Glitch Was an Apparent Factor in False Fraud Charges*, DETROIT FREE PRESS (Jul. 30, 2017, 12:01 AM), https://www.freep.com/story/news/local/michigan/2017/07/30/fraud-charges-unemployment-jobless-claimants/516332001/.

242 *Id.*

243 *Id.*

244 *Id.*

245 *Cahoo*, 912 F.3d at 892–93.

246 *Id.*

247 Charette, *supra* note 224.

248 *Cahoo*, 912 F.3d at 894.

249 *Id.* at 894.

Litigation surfaced damning evidence. In April 2015, plaintiffs brought a class action against the Agency, alleging that the MiDAS "robo-adjudication[s]" violated their due process rights.[250] Plaintiffs sought to enjoin the Agency from future constitutional violations and to require it to maintain proper procedures for determining fraud.[251] The complaint alleged that MiDAS never informed claimants about the basis for the Agency's finding of fraud.[252] Under the terms of the settlement, the Agency agreed to review all fraud determinations made by MiDAS and to stop all collection activities including wage garnishments and tax return seizures for claimants who received fraud determinations at the hands of MiDAS.[253] A class of plaintiffs has sued agency officials in their individual capacity as well as the vendor who helped build the system.[254] That case is ongoing.

Five months later, the Agency ceased using MiDAS for fraud determinations after being sued by the federal government.[255] The state apologized for the false claims for unemployment fraud.[256] In August 2017, the Agency completed a review of fraud cases and reversed 64% of them,[257] promising to refund $21 million to claimants.[258]

MiDAS, like other malfunctioning government systems, created havoc. People had to hire lawyers to fight the false fraud accusations.[259] Many could not afford counsel and had to fight the allegations alone, to little effect.[260] They suffered economic instability.[261] Some people had to declare bankruptcy.[262] Some had their homes foreclosed, and some "were made homeless."[263] People's credit scores suffered after their wages were garnished and tax refunds seized.[264]

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250 Complaint & Jury Demand at 2, 26, Zynda v. Zimmer, No. 2:15-CV-11449, 2015 WL 1869615 (E.D. Mich. Apr. 21, 2015).

251 *Id.* at 27.

252 *Id.* at 11–12.

253 Stipulated Order of Dismissal at 6 n.1, Zynda v. Arwood, No. 2:15-CV-11449 (E.D. Mich. Feb. 2, 2017).

254 *Cahoo*, 912 F.3d at 887.

255 Charette, *supra* note 224.

256 *Id.*

257 *Id.*

258 Lessenberry, *supra* note 233.

259 *Id.*

260 Memorandum of H. Luke Shaefer & Steve Grey, *supra* note 231 (discussing case of Barbara Hills, who was erroneously accused of committing fraud on ten occasions, all for the same underlying mistake, and how she had to protest each determination separately).

261 *Id.*

262 Charette, *supra* note 224.

263 *Id.*

264 *Id.*

The financial harm exacted may exceed $100 million.[265] Virginia Eubanks rightly argues that government decision-making systems create a "digital poorhouse."[266]

At the federal level, there are glimpses of similar phenomena. Algorithmic determinations have led to the erroneous seizure of people's federal income tax refunds and the garnishment of their wages. They have led to the wrongful suspension of people's Social Security benefits.[267] But an especially dramatic example deals with the ability of Americans to travel.

For many years now, the "No Fly" computer matching system has targeted innocent people as terrorists without a meaningful chance to exonerate themselves.[268] The No-Fly List "prevents listed individuals from boarding commercial aircraft."[269] Individuals were denied the right to fly; others were detained at airports; still others were arrested.[270] The "No Fly" data-matching program misidentified individuals because it used crude algorithms that could not distinguish between similar names.[271] Thousands of people got caught in the dragnet, including government officials, military veterans, and toddlers.[272] The U.S. government would not say if one was on the list and provided no explanation for no-fly decisions.[273]

In 2008, the Ninth Circuit held that the composition of watchlists warranted judicial review. The court noted:

> Just how would an appellate court review the agency's decision to put a particular name on the list? There was no hearing before an administrative law judge; there was no notice-and-comment procedure. For all we know, there is no administrative record of any sort for us to review. So if any court is going to review the government's decision to put [plaintiff] on the No-Fly List, it makes sense that it be a court with the ability to take evidence.[274]

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265 *Id.*

266 EUBANKS, *supra* note 37.

267 Telephone Interview with Kevin De Liban, *supra* note 9.

268 Citron, *supra* note 13, at 1274–75.

269 Jeffrey Kahn, *Terrorist Watchlists*, *in* THE CAMBRIDGE HANDBOOK OF SURVEILLANCE 71, 73 (David Gray & Stephen Henderson eds., 2017).

270 *See generally* JEFFREY KAHN, MRS. SHIPLEY'S GHOST: THE RIGHT TO TRAVEL AND TERRORIST WATCHLISTS (2013).

271 Citron, *supra* note 13, at 1274.

272 *Id.*; *see, e.g.*, FRIEDMAN, *supra* note 28, at 261.

273 Kahn, *supra* note 269, at 90.

274 Ibrahim v. Dep't of Homeland Sec., 538 F.3d 1250, 1256 (9th Cir. 2008) (citations omitted).

Ever since then, litigation has had a modest impact on the watchlist problem. In those cases, discovery was often short-circuited by claims of executive privilege or state secrets privilege.[275] In a suit brought by the ACLU, thirteen U.S. citizen plaintiffs (including several military veterans) alleged that the No-Fly List prevented them from air travel.[276] The FBI offered to take some of the plaintiffs off the list if they became government informants.[277] The federal court found that the No-Fly list violated the plaintiffs' due process rights, but refused to dictate a suitable process.[278]

The court ordered the government to "fashion new procedures that provide Plaintiffs with the requisite due process . . . without jeopardizing national security."[279] The court ordered the government to disclose to the plaintiffs their status on the watchlist.[280]

And yet, as Jeffrey Kahn explains, "watchlists are now an established feature in the country's national security architecture, as natural to a generation of Americans born after 9/11 as submitting to a search at the airport."[281] Anyone who remains on the No-Fly List will be unable to get meaningful notice and a chance to be heard.[282] The government still refuses to explain why someone appears on the list, though people can file a "redress form" to get themselves removed from the list. Barry Friedman astutely notes, "This sort of Kafkaesque nightmare should scare all of us, right down to our anklebones."[283]

People frequently experience "punishing personal trauma" in the wake of erroneous automate decisions.[284] In November 2004, Dr. Rahinah Ibrahim, an accomplished architect and academic, was mistakenly included on the No-Fly List.[285] She was arrested, detained, and denied return to the U.S., despite twenty years of legal residency.[286] Ten years later, a federal district court judge

[275] TODD GARVEY & EDWARD C. LIU, CONG. RSCH. SERV., R41741, THE STATE SECRETS PRIVILEGE: PREVENTING THE DISCLOSURE OF SENSITIVE NATIONAL SECURITY INFORMATION DURING CIVIL LITIGATION 6 (2011).

[276] Complaint at 4, Latif v. Holder, No. 3:10-CV-750, 2015 WL 1883890 (D. Or. Apr. 24, 2015).

[277] *See, e.g.*, Third Amended Complaint at 21–22, Latif v. Lynch, No. 3:10-CV-750 (D. Or. Jan. 11, 2013).

[278] Latif v. Holder, 28 F. Supp. 3d 1134, 1163 (D. Or. 2014).

[279] *Id.* at 1162.

[280] *Latif*, No. 3:10-CV-750, at *1.

[281] Kahn, *supra* note 269, at 73.

[282] *See* FRIEDMAN, *supra* note 28, at 280.

[283] *Id.*

[284] Charette, *supra* note 224.

[285] Ibrahim v. Dep't of Homeland Sec., 62 F. Supp. 3d 909, 916 (N.D. Cal. 2014).

[286] *Id.* at 917.

concluded that she should never have been included on the No-Fly List.[287] The judge captured her suffering in this way: "This was no minor human error but an error with palpable impact, leading to the humiliation, cuffing, and incarceration of an innocent and incapacitated air traveler."[288]

B. Undermining Functionalism

This emerging record, taken together, paints a disturbing picture of unforced errors and gaps in understanding and accountability. Recall again the rationale of scholars and jurists in support of the administrative state. The legislature commits its authority under broad delegations of power to agencies because agencies have the requisite expertise and flexibility to govern a complex and evolving world.

But agency officials do not appear to understand the systems they have commissioned to carry out this task. Crucially, they cannot explain them in public or in court because they do not know how they work. Whatever expertise that officials hold gets translated—ostensibly—into software language that officials have neither learned to speak nor have any bona fides to speak. Having encoded agency rules in automated software systems, officials cannot exercise discretion any more than members of the legislature. To the extent conditions change—either fiscal, normative, scientific, or otherwise—the official is not in a position to adapt.

In Arkansas, neither agency officials nor third-party providers are able to articulate how to debug their system, despite the profound consequences for disabled residents.[289] Agency officials pointed the finger at third-party vendors, who pointed it right back. In Texas, a court referred to an algorithmic system to assess public teacher performance as a "house of cards" that was riddled with uncorrectable errors.[290] In Michigan, a fraud detection system was inaccurate 85% of the time, leading the agency to reverse 64% of determinations.[291] The Ninth Circuit Court of Appeals ordered the government to fashion new procedures around the No-Fly List, which have yet to be developed.[292]

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287 *Id.* at 927.

288 *Id.*

289 Alejandro de la Garza, *States' Automated Systems Are Trapping Citizens in Bureaucratic Nightmares with Their Lives on the Line*, TIME (May 28, 2020, 2:24 PM), https://time.com/5840609/algorithm-unemployment/.

290 Hous. Fed'n. of Teachers v. Hous. Indep. Sch. Dist., 251 F. Supp. 3d 1168, 1178 (S.D. Tex. 2017).

291 Charette, *supra* note 224.

292 *See* Ibrahim v. Dep't of Homeland Sec., 538 F.3d 1250, 1256–57 (9th Cir. 2008).

The administration law literature astutely addresses, in Jody Freedman and Martha Minow's words, "government by contract."[293] The U.S. government relies extensively on third-party private contractors to carry out its responsibilities, particularly in the military and intelligence sectors.[294] Contractors are more difficult to supervise and hold accountable than government employees.[295] They have been known to waste government resources or engage in outright fraud.[296] Semi-private parties imbued with sovereign authority can undermine democratic norms and diminish the capacity of government itself to respond to citizen concerns.[297]

These concerns are neither overblown nor adequately addressed. Yet they differ substantially from the trends in agency automation. The privatization debate concerns *which expert* is entrusted to carry out the will of the public. In some quarters, an excessive reliance on semi-private third parties threatens constitutional safeguards and erodes sovereign legitimacy.[298] Nonetheless, contractors—whether technically public or private employees—are capable of acting as repositories of expertise in the agency sense. Contractors are often former government employees, which gives them bona fides in bids for government work.[299] Relying on subject matter expertise, they can still exercise discretion, give reasons for decisions, and respond to evolving needs or circumstances.

The administrative state's turn toward automation is troubling because of the absence of expertise and flexibility. The questions we raise are not about *which expert* is appropriate but rather *whether the absence of expertise* undermines the legitimacy of the automated administrative state. Software systems designed, adopted, and deployed today lack the benefits of expertise almost entirely.

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293 GOVERNMENT BY CONTRACT: OUTSOURCING AND AMERICAN DEMOCRACY (Jody Freeman & Martha Minow eds., 2009).

294 PAUL R. VERKUIL, OUTSOURCING SOVEREIGNTY: HOW PRIVATIZATION OF GOVERNMENT FUNCTIONS THREATENS DEMOCRACY AND WHAT WE CAN DO ABOUT IT 129 (2007); Martha Minow, *Outsourcing Power: Privatizing Military Efforts and the Risks to Accountability, Professionalism, and Democracy*, *in* GOVERNMENT BY CONTRACT, *supra* note 293, at 110, 110–11.

295 *See generally* Gillian E. Metzger, *Private Delegations, Due Process, and the Duty to Supervise*, *in* GOVERNMENT BY CONTRACT, *supra* note 293, at 291.

296 OFF. OF THE UNDER SEC'Y OF DEF. FOR ACQUISITION & SUSTAINMENT, DEP'T OF DEF., REPORT TO CONGRESS SECTION 889 OF THE FY 2018 NDAA REPORT ON DEFENSE CONTRACTING FRAUD 2–3 (2018).

297 Paul R. Verkuil, *Public Law Limitations on Privatization of Government Functions*, 84 N.C. L. REV. 397, 468 (2006); Kimberly N. Brown, *"We the People," Constitutional Accountability, and Outsourcing Government*, 88 IND. L.J. 1347, 1352 (2013).

298 Metzger, *supra* note 295, at 293, 295.

299 Ruben Berrios, *Government Contracts and Contractor Behavior*, 63 J. BUS. ETHICS 119, 121 (2006) (describing the "revolving door that often sends contractors into government positions and former government officials into contracting firms").

A number of caveats are in order. We know about the examples above because they have resulted in litigation.[300] Automated systems that litigants challenge presumably represent the outer bounds of egregious agency action. At the same time, it is possible that these egregious failures may only represent the tip of the iceberg. That courts enjoined these systems does show that the judiciary is capable of oversight to some degree.

The examples from ligation to date tend to involve state agencies, not federal ones. Presumably the justifications for state agencies mirror those for federal ones. There are also federal examples, such as the No-Fly List.[301] Other countries, such as Australia and New Zealand, have similar struggles.[302] Meanwhile, the APA imposes significant restrictions as to timing and venue for challenging federal agency action, which state law may not, such that challenges to federal systems may be more onerous.[303] We do know, however, that federal agencies are making increasing use of algorithms and automation as a matter of fact and official policy.

Importantly, there are, in theory, existing pathways for agency officials to reintroduce and reclaim their expertise, discretion, and flexibility. Agency officials could become experts in the systems they administer, and those systems could be built in such a way so as to preserve discretion and respond to changing conditions in real time (e.g., through software updates). We are skeptical given two decades of evidence, but it is analytically possible and worthy of further exploration. Several recent works we mention take this approach. Kroll and his coauthors develop a set of legal and technical principles—borrowed from the realm of engineering—that they imagine as capable of restoring transparency and accountability to administrative and other government decision-making.[304] In a lengthy section titled "Informing Agency Deliberation with Technical Expertise," Mulligan and Bamberger offer an extensive vision for reintroducing

[300] AI Now, the NYU-based think tank addressing the social impacts of artificial intelligence, has assembled much of this litigation in a series of workshops in 2018 and 2019 entitled *Litigating Algorithms*. The insights of this article are derived from their reports, but also from digging into the record and interviewing one of the central litigants. RICHARDSON ET AL., *supra* note 25.

[301] *See supra* notes 268–71 and accompanying text.

[302] Luke Henriques-Gomes, *The Automated System Leaving Welfare Recipients Cut Off with Nowhere to Turn*, GUARDIAN (Oct. 16, 2019, 8:30 AM), https://www.theguardian.com/technology/2019/oct/16/automated-messages-welfare-australia-system (discussing the widespread problem with automated decision-making public benefits systems in Australia).

[303] The APA lays out the requirements for challenging agency action at 5 U.S.C. §§ 702–06, which courts have filled out with thicker or additional requirements such as standing and ripeness.

[304] Kroll et al., *supra* note 40, at 637.

technical expertise into procurement and other important government processes.[305]

Nevertheless, the more agencies automate under the current *modus operandi*, the more they undermine the premise of the administrative state. Agencies deserve the power they possess based on their expertise, flexibility, and nimbleness. This is true not only at a pragmatic level, but also at the level of first principles. Agencies that automate throw away expertise and discretion with both hands. Automation also thwarts structural requirements, such as the APA and meaningful judicial oversight.

Meanwhile, agencies waste money rather than make the gains in efficiency or anti-biasing that justified the turn to automation in the first place. If this trend holds or accelerates, it is high time for scholars and society to question not only whether process guarantees are sufficient, but also whether the entire enterprise is justified in the first instance. Congress seems as capable of contracting with software vendors to automate enforcement. A Congress of machines has no need for a middle person.

IV. TOWARD A NEW VISION OF THE ADMINISTRATIVE STATE

Let us summarize the argument so far. In recent years, we have seen an acceleration of a concerning trend toward inexpert, flawed automation. Administrative agencies have increasingly turned to automation to make consequential, binding decisions about the Americans they govern. The trend has not gone unnoticed; as a rich, interdisciplinary literature shows, the automation of the administrative state threatens important values, such as participation and due process. This Article contributes to this discussion by developing a challenge to the automated administrative state at the level of justification: an overreliance on algorithms and software undermines the very rationale for quasi-legislative bureaucracies. Recent litigation, in particular, paints a vivid picture of agency officials who lack expertise in the systems that they employ, cannot give reasons for binding agency actions, and throw away the individualized discretion that justifies the administrative state in the first instance.

The present state of affairs invites a variety of reactions. Above, we alluded to an ongoing project that responds to automation's disruption of rights and values through a combination of legal and technical reforms. These include

[305] Mulligan & Bamberger, *supra* note 25, at 835.

creating "transparent systems and assigning limited procedural and substantive rights" (Schwartz),[306] developing a full-throated conception of "open code governance"[307] and "technological due process" (Citron),[308] reimaging fair hearings[309] and treating machines as state actors (Crawford and Schultz),[310] and developing technological tools for "procedural regularity" (Kroll et. al).[311]

As discussed, these responses largely involve restoring the status quo ex ante, and shoring up eroded rights and values as opposed to re-examining and justifying the administrative state *in toto*. Some academics and especially activists in recent years have married this call to restore rights and values with demands for a moratorium or ban on the use of automation by government agencies unless or until its many deficiencies can be addressed.[312]

One response to claims of agency illegitimacy is to try to address the shortfalls piecemeal through legal and technical design. A second response with a long pedigree is to urge a dramatic reduction in the administrative state itself. This is the approach of David Schoenbrod in *Power Without Responsibility*, which conceptualizes the administrative state as a kind of political laundering operation whereby Congress seeks to influence the world while shielding itself from accountability.[313] It is the approach of Philip Hamburger in *Is Administrative Law Unlawful?*, which aims to counter the narrative that "binding administrative power is . . . a novelty, which developed in response to the necessities of modern life."[314] For Hamburger and others, the administrative state represents a complex play for power. The proper response to political laundering or the "revival of absolute power" is to adhere closely to the text of the Constitution, dismantle the administrative state, and force Congress to do the legislating.[315] This is *a fortiori* true in an automated administrative state, wherein agencies commit a significant portion of their power to still less accountable third parties that design the systems agencies deploy.

306 Schwartz, *supra* note 34, at 1376.

307 Citron, *supra* note 20, at 355, 358.

308 Citron, *supra* note 13, at 1258.

309 Crawford & Schultz, *supra* note 75, at 115–17.

310 Crawford & Schultz, *supra* note 77, at 1943–44.

311 Kroll et al., *supra* note 40, at 662.

312 Sheard, *supra* note 43.

313 SCHOENBROD, *supra* note 97, at 8.

314 HAMBURGER, *supra* note 97, at 493.

315 *Id.* at 493, 508. Presumably, these authors would not completely dismantle the administrative state, but rather limit its capacities as much as possible to executive functions. Moreover, the Necessary and Proper Clause and other clauses of the Constitution expressly mention Departments and Officers of government, such that even a strict textualist reading must envision some level of bureaucracy. U.S. CONST. art. I, § 8, cl. 18.

We are sympathetic to, and have deeply engaged with, the first project. To the extent the adoption of technology by the state has eroded civil rights and values, those rights and values should be restored or else the technology should be abandoned. Yet as framed, neither the critique nor the recommendations cut deep enough. Even were it possible somehow to design legal and technical systems capable of fully restoring due process to automated decision-making, a wholesale turn to automation by the agency officials could still undermine the justification for the administrative state through the displacement of expertise and discretion. But more importantly, the availability of new technological affordances invites an additional, important question: is the status quo even sufficient? Put simply, shouldn't the availability of better tools lead to *higher* standards for governance?

We are less sympathetic to the second project, at least at a practical level. Conceptually, we understand that a large and expensive bureaucracy maintained at public expense, lacking justification even under a functionalist interpretation of the Constitution, should not be sustained. But the most plausible reason that the administrative state has turned to automation in the first place is deliberate resource constraints.[316] Due in large measure to a political economy that has systematically underfunded and disempowered the administrative state, agencies struggle to meet the enormous needs and expectations of the populace. "We blame the Department of Motor Vehicles for long lines at the counters," Jerry Mashaw writes, "not the legislature that refuses to fund additional personnel and equipment."[317] We would not abandon the administrative state, and the many people who rely upon it, on the basis that agencies have been channeled by sustained political and economic forces into desperate measures that undermine their legitimacy.

Ultimately, we prefer a third response, one that neither lets agencies off the hook for their often devastatingly poor choices around technology, nor forces agencies to abandon technology altogether on pain of political extinction. We hope in this final section to lay out a positive vision for how the administrative state might engage with new technology more wisely, beginning to re-justify itself in light of new affordances and otherwise update its mission for the twenty-first century. This positive program involves, at its base, the deliberate and self-

316 For a lengthy discussion of burdens on the administrative state, see generally Jack M. Beermann, *The Never-Ending Assault on the Administrative State*, 93 NOTRE DAME L. REV. 1599 (2018).

317 Jerry L. Mashaw, *Small Things Like Reasons Are Put in a Jar: Reason and Legitimacy in the Administrative State*, 70 FORDHAM L. REV. 17, 27 (2001).

conscious adoption of technology *to the extent* it furthers the rationales for delegating authority and power to agencies and not otherwise.

The pathologies of the automated administrative state—discussed in detail above[318]—have a common feature. When agencies displace human wisdom and expertise in favor of systems that automatically confer or deny benefits and rights, disaster has lurked around the corner. Innocent, everyday people are barred from travel. Disabled individuals receive no or fewer health services, falling well short of their needs. Teachers and other public employees lose their jobs or cannot advance in their careers. In the analogous criminal context, defendants—particularly racial minorities—spend longer in prison or jail due to a perceived (and unjustified) risk. Meanwhile, administrative officials charged by society to oversee these systems do not understand how they work, let alone feel empowered to second-guess or override them. And addressing the high prevalence of mistakes has so many costs that promised gains in efficiency are never realized.

This mismanagement and suffering are all the more perverse as they take place amidst the perception that we live in an age of technical wonders. Even as we write, techniques of artificial intelligence are transforming the way people live, work, and play. Two or more people who speak any of a hundred different languages can communicate with one another in real time through language translation systems.[319] Algorithms parse billions of financial transactions and emails to detect fraud and spam.[320] Machine learning helps doctors diagnose patients and weather forecasters develop faster, more accurate, and more detailed models.[321] Enormous, cross-disciplinary research initiatives—such as the eScience Institute anchored at the University of Washington—fuel data-driven discovery across an array of fields.[322]

The modern American administrative state is well over a hundred years old.[323] Although we decry the actual deployment of automated software systems by agencies to date, we would not deny our government the technological affordances of the twenty-first century. As a diverse set of scholars have begun

318 *See supra* text accompanying notes 1–24, 230–59.

319 Mariano-Florentino Cuéllar, *A Simpler World? On Pruning Risks and Harvesting Fruits in an Orchard of Whispering Algorithms*, 51 U.C. DAVIS L. REV. 27, 32 (2017).

320 Coglienese & Lehr, *supra* note 17, at 1164, 1166.

321 *Id.* at 1149, 1162, 1175.

322 *See* MOORE-SLOAN DATA SCI. ENV'TS: N.Y.U., UC BERKELEY, & UNIV. OF WASH., CREATING INSTITUTIONAL CHANGE IN DATA SCIENCE 1–3 (n.d.), http://msdse.org/files/Creating_Institutional_Change.pdf.

323 O. John Rogge, *An Overview of Administrative Due Process*, 19 VILL. L. REV. 1, 1 (1973) ("Over the past hundred years, we have become administratively managed with increasing frequency and regularity.").

to observe, agencies can and sometimes do bring advances in information technology constructively to bear on the incredibly complex task of regulation and governance. Writing for the journal *Nature* with Kate Crawford in 2016, one of us (Calo) highlighted the potential to deploy machine learning by law enforcement to help identify officers at risk of excessive force.[324] Just such a system was deployed by the Charlotte-Mecklenburg Police the same year in collaboration with a large, interdisciplinary team from seven major research universities, leading to greater predictive accuracy, more targeted interventions, and lower instances of misconduct.[325]

We are not alone in this position. British philosopher Helen Margetts and economist Cosmina Dorobantu point to the capacity of technology to help governments personalize information and services for constituents, offering examples in Queensland, Australia, and New Zealand.[326] California Supreme Court Justice and Stanford Law professor Mariano-Florentino Cuéllar imagines a role for machine translation services in discharging the obligation of federal and state courts to provide interpreters where, as often, a lack of available interpreters for defendants or witnesses can mean long delays of justice.[327] In their aforementioned defense of "regulating by robot," Coglianese and Lehr cite to the use of machine learning to predict chemical toxicities and sort the mail.[328] These are just a few examples.[329]

We do not mean to endorse all or any of these specific-use cases. Each could raise concerns; artificial intelligence systems have their inevitable flaws, and all

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[324] Kate Crawford & Ryan Calo, *There Is a Blind Spot in AI Research*, 538 NATURE 311, 313 (2016).

[325] Samuel Carton et al., *Identifying Police Officers at Risk of Adverse Event*s, KDD (Aug. 17, 2016), https://www.kdd.org/kdd2016/papers/files/adf0832-cartonAemb.pdf. When asked about the system, Frank Pasquale, among the staunchest critics of algorithmic decision-making, told NewScientist: "In many walks of life, I think this algorithmic ranking of workers has gone too far—it troubles me. But in the context of police, I think it could work." Hal Hodson, *US Police Use Machine Learning to Curb Their Own Violence*, NEWSCIENTIST (Aug. 1, 2016), https://www.newscientist.com/article/2099357-us-police-use-machine-learning-to-curb-their-own-violence/.

[326] Helen Margetts & Cosmina Dorobantu, *Rethink Government with AI*, 568 NATURE 163, 164 (2019).

[327] Cuéllar, *supra* note 319, at 35–36.

[328] Coglienese & Lehr, *supra* note 17, at 1162–63.

[329] Other examples in recent literature include (1) improving emergency response, (2) locating unregistered voters, (3) better targeting of inspections, (4) detecting judicial bias, and (5) improving international trade. *See, e.g.*, Marco Avvenuti, Stefano Cresci, Fabio del Vigna & Maurizio Tesconi, *Impromptu Crisis Mapping to Prioritize Emergency Response*, 49 COMPUTER 28, 29 (2016); Steve Lohr, *Another Use for A.I.: Finding Millions of Unregistered Voters*, N.Y. TIMES (Nov. 05, 2018), https://www.nytimes.com/2018/11/05/technology/unregistered-voter-rolls.html; M. Hino, E. Benami & N. Brooks, *Machine Learning for Environmental Monitoring*, 1 NATURE SUSTAINABILITY 583, 583 (2018); Daniel L. Chen, *Judicial Analytics and the Great Transformation of American Law*, 27 A.I. & L. 15, 16 (2018); Joshua P. Meltzer, *The Impact of Artificial Intelligence on International Trade*, BROOKINGS INST. (Dec. 13, 2018), https://www.brookings.edu/research/the-impact-of-artificial-intelligence-on-international-trade/.

technology is developed and deployed against a backdrop of long-standing social, economic, and political inequities.[330] In 2017, the social media giant Facebook's bespoke system mistranslated the phrase "good morning" in Arabic, posted by a Palestinian worker leaning against a bulldozer in a West Bank settlement, to "hurt them" in English and "attack them" in Hebrew.[331] The post led the man to be arrested and questioned by Israeli police—no doubt a deeply fraught experience in light of the context.[332] Similar concerns could arise in virtually any application of artificial intelligence by government or industry.

We nevertheless note a difference in the character and orientation of these interventions from the automated systems discussed in Part II. Specifically, these potential interventions are oriented toward the furthering of substantive commitments and values, such as *access*, *quality*, and *self-assessment*. They are not designed simply to save costs (and in the process undermine procedural commitments without garnering more efficiency), but rather to enhance the capabilities of the administrative state itself—both agencies and officials—to engage in more effective and fair governance. In general, they would not outsource agency functions requiring expertise and discretion to third parties whose software and hardware deliver neither. These efforts have potential to enhance the justification of the bureaucratic state by, ideally, generating knowledge, enhancing expertise, tailoring outcomes, and increasing responsiveness—the purported reasons Congress created agencies to carry out its will in the first place.

One of the areas ripe for change is in understanding the effects of policy interventions in complex environments; new technological affordances may open the door to less muddling and more modeling. In a classic 1959 article, *The Science of 'Muddling Through'*,[333] political economist Charles Lindblom develops the argument that administrators cannot and do not arrive at the "best" policy prescription in any given context for several reasons. Notably, human beings are incapable of ascertaining and processing all of the information they

330 *See* Hoffmann, *supra* note 93, at 900.

331 Alex Hern, *Facebook Translates 'Good Morning' into 'Attack Them,' Leading to Arrest*, GUARDIAN (Oct. 24, 2017, 7:24 PM), https://www.theguardian.com/technology/2017/oct/24/facebook-palestine-israel-translates-good-morning-attack-them-arrest. See also Danielle Keats Citron & Quinta Jurecic, *Platform Justice: Content Moderation at an Inflection Point* (2018), https://www.hoover.org/sites/default/files/research/docs/citron-jurecic_webreadypdf.pdf (exploring the pathologies of algorithmic content moderation of hate speech by tech companies).

332 *Id.*

333 Lindblom, *supra* note 51, at 81–82. It is hard to overstate the influence of Lindblom's paper. It has among the most citations of any article on the topic of policy, let alone public administration, in the English language.

would need to calibrate an optimal policy intervention, even assuming unlimited time.[334]

What Lindblom calls the "root" method of policymaking, whereby policymakers ascertain and maximize values in a single exercise, is impossible for real people.[335] In his words:

> Although such an approach can be described, it cannot be practiced except for relatively simple problems and even then only in a somewhat modified form. It assumes intellectual capabilities and sources of information that men simply do not possess, and it is even more absurd an approach to policy when the time and money that can be allocated to a policy problem is limited, as is always the case.[336]

Although the overwhelming majority of public administration literature contemplates the root method, no public administrator deploys it in practice.[337] Rather, public administrators follow a "branch" method instead.[338] According to the branch method, the administrator sets a specific goal and then attempts to ascertain how to advance it step by step with each step assessed in isolation.[339] Having deployed a particular intervention, the administrator then monitors its effects, adjusting with new interventions each time the target or another value is compromised in the real world.

Lindblom recognized the inevitability of the branch method and formalized its application.[340] Rather than exclude important factors haphazardly through ignorance, as the root method inevitably does, the branch method focuses on a single value at a time and then iterates.[341] Throughout his important piece, Lindblom relies again and again on the affordances of his contemporaries. The root method is a futile attempt at "superhuman comprehensiveness."[342] It calls for an analysis "beyond human capacity."[343] Administrators, being people, must muddle through.

The intervening decades have not resulted, as even some of Lindblom's contemporaries predicted, in the creation of an artificial superintelligence. Yet

334 *Id.* at 80.
335 *Id.*
336 *Id.*
337 *See id.* at 81.
338 *Id.*
339 *Id.*
340 *Id.* at 80–81.
341 *Id.* at 85.
342 *Id.* at 88.
343 *Id.* at 85.

it cannot be gainsaid that the machines—and therefore, the humans—of today are dramatically better at modeling multifaceted behaviors and effects than in the late 1950s. This capacity to parse extreme complexity through a combination of advances in statistical methods and greater computational processing power has been further enhanced in recent years by techniques of artificial intelligence.[344] The upshot is that contemporary institutions, including state and federal agencies, have access to far greater means by which to simulate a given regulatory context. Some units of government, such as the CDC, NOAA, and the U.S. military, have long capitalized on this new affordance.[345] Many other units have largely ignored it.[346]

We do not predict that technology will somehow overcome all of the limitations of the root method that Lindblom identifies. For example, machines may be no better than officials at ascertaining unregistered citizens' preferences. And machines rely upon people to choose their inputs and goals.[347] Computer models can enshrine deeply problematic assumptions into policy while harboring pretensions of impartiality. Science, technology, and society scholar Kevin Baker offers the example of SimCity, a software-based game that came to inform urban planning.[348] SimCity looked open-ended but in fact embedded the assumptions of the libertarian Jay Forrester in *Urban Dynamics* that growth should come at all costs and nearly all government interventions in the market backfire.[349]

Over time, however, administrators may increasingly learn to *model through* instead of muddling forward. Meanwhile, unlike the reflexive automation of benefits through software, the generation of complex models of specific industries and spheres of life continues to require expertise in those contexts. Agency officials that model through are still making the ultimate decision about whether and when to intervene in humans' lives and environments.

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344 Interestingly, many of these techniques were already outlined in theory at the time of Lindblom's paper. It took decades, however, for neural networks and other approaches to artificial intelligence to become applicable in practice. Other techniques such as reinforcement learning were developed subsequent to 1959. Bobby Chesney & Danielle Citron, *Deep Fakes: A Looming Challenge for Privacy, Democracy, and National Security*, 107 CALIF. L. REV. 1753, 1759–60, 1763 (2019); *see also Imposter Syndrome*, OCTAVIAN REP. (2019), https://octavianreport.com/article/hany-farid-fight-threat-deepfakes/ (interview with Hany Farid discussing "data-driven machine learning technologies called deep neural networks").

345 *See supra* notes 17, 229 and accompanying text.

346 *Cf.* RYAN CALO, THE CASE FOR A FEDERAL ROBOTICS COMMISSION 4 (2014), https://www.brookings.edu/wp-content/uploads/2014/09/RoboticsCommissionR2_Calo.pdf.

347 Ari Ezra Waldman, *Power, Process, and Automated Decision-Making*, 88 FORDHAM L. REV. 613 (2019).

348 Kevin T. Baker, *Model Metropolis*, 6 LOGIC (Jan. 1, 2019), https://logicmag.io/play/model-metropolis/.

349 *Id.* (citing JAY FORRESTER, URBAN DYNAMICS (1969)).

Alternatively, we might conceive of an interdisciplinary body to act as a repository for knowledge about modeling itself that can lend technical assistance across government.[350]

In endorsing agency deployment of new technological affordances to meet a more stringent standard of public administration and service, we acknowledge various limitations. Most notably, it seems non-trivial to draw defensible lines between offensive and inefficient automation on the one hand, and other, beneficial uses of new affordances that further legitimacy on the other. Although an inaccurate model of the world is not self-executing in the same way as a benefits algorithm, agencies could succumb to well-evidenced automation bias and over-rely on faulty computer conclusions in predicting the effects of intervention.[351]

We are keenly aware of the limitations of the affordances we explore, limitations that have often inured to the detriment of the most vulnerable. As agencies turn algorithmic tools inward to gain awareness of concerning practices by police or other officials, there is a danger they will disproportionately identify people of color as candidates for intervention just as the use of "heat maps" leads disproportionately to police encounters with innocent people of color.[352] As Charles Reich warned more than fifty years ago, systematization of data collection and surveillance in the administrative state inevitably exacted profound costs to the poor and marginalized.[353]

We are also aware that even mere automation can have benefits. In theory, by automating menial tasks, agencies could free up resources and personnel to deal with the needs of the public on a more individualized basis. There is a reason that administrative, civil, criminal, and even constitutional procedure places an emphasis on efficiency. Governments could create a perfect system for the lucky few that never made any errors.[354] But then justice would be delayed for, and hence denied, to many others.[355] In a world of constrained resources, greater efficiency translates into greater access.

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350 *See* Mulligan & Bamberger, *supra* note 25, at 830–33.

351 Kate Goddard, Abdul Roudsari & Jeremy C. Wyatt, *Automation Bias: A Systematic Review of Frequency, Effect Mediators, and Mitigators*, 19 J. AM. MED. INFO. ASS'N 121, 121 (2019).

352 WALTER L. PERRY, BRIAN MCINNIS, CARTER C. PRICE, SUSAN C. SMITH & JOHN S. HOLLYWOOD, PREDICTIVE POLICING: THE ROLE OF CRIME FORECASTING IN LAW ENFORCEMENT OPERATIONS 46 (2013); Andrew Selbst, *Disparate Impact in Big Data Policing*, 52 GA. L. REV. 109, 130 (2017).

353 For a discussion, see Danielle Keats Citron, *A Poor Mother's Right to Privacy: A Review*, 98 B.U. L. REV. 1139, 1142 (2018).

354 *See* Brooke Coleman, *The Efficiency Norm*, 56 B.C. L. REV. 1777, 1778 (2015) (critiquing the conflation of efficiency with lower costs).

355 Rev. Dr. Martin Luther King, Jr., *Letter from a Birmingham Jail*, UNIV. OF PA. AFRICAN STUD. CTR.

Our point is more basic. The American administrative state has, to date, systemically eroded its legitimacy by adopting technological systems that undermine the very qualities that justify agencies to begin with. The proper lodestar for adopting new technical tools is not merely that they come with a failsafe against trammeling civil liberties. Agencies should look for technical ways to *enhance* the expertise, discretion, and capacity for individualization that justifies committing such significant public power to bureaucratic entities in the first place. Even apart from justification, the literature should consider whether the new software and algorithms available to agencies should ratchet up societal expectations. Today's agencies today should be doing more with more, not less.

CONCLUSION

At various points in American history, scholars, lawmakers, and courts have debated the legitimacy of the administrative state. Arguably at odds with the tripartite structure of the Constitution, the agencies regulating our daily lives have nevertheless been on firm footing for a long time—in reverence to their critical role in governing a complex, evolving society. More specifically, agencies are said to be repositories of expertise in the contexts and people they regulate. They promise more rapid and individualized responses to evolving conditions. And, in any event, they are limited and channeled by safeguards, from their organic statute, to the APA, to the courts.

Many state and federal agencies have in recent decades embraced a novel mode of operation: automation. Were the present trend to hold, we should expect more and more reliance on software and algorithms by agencies in carrying out their delegated responsibilities. Already, this automated administrative state has been shown to be riddled with concerns. In particular, legal challenges in state and federal court regarding the denial of benefits and rights—from travel to disability—have revealed a pernicious pattern of cruel, sometimes bizarre outcomes.

The legal academy has been attentive to these developments, but in a particular way. A literature dating back many years explores the pitfalls of automation from the perspective of due process and other denials of rights and values. There have been wise suggestions to intervene through changes to law

(Apr. 16, 1963), http://www.africa.upenn.edu/Articles_Gen/Letter_Birmingham.html ("We must come to see . . . that 'justice too long delayed is justice denied.'" (quoting "one of our distinguished jurists" (likely William Gladstone))).

and the design of systems in order to restore the status quo, displaced and disrupted by the introduction of software and algorithms.

Largely missing from this conversation, however, are broader, structural critiques of the legitimacy of agencies. As unfolding litigation across the country shows, automated systems in the administrative state highlight the extent to which agency officials have re-delegated their responsibilities to third-party systems that are little understood even by their creators. As agencies throw away the very qualities that justify their authority, it is fair to begin to question whether and why they retain legitimacy to carry out the will of the legislature.

Our answer is not to dismantle the administrative state. Instead, we urge critical thinking about why agencies find themselves in this position—for example, the chronic lack of resources best laid at the feet of the legislature or executive. Nor should agencies abandon tools of the twenty-first century. Rather, the proper response to a pending legitimacy crisis within the administrative state is to furnish a better lodestar for when to develop and deploy technology. Agencies should procure new tools if and only if they enhance, rather than undermine, agency claims of being better situated than the legislature to govern daily life.