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Bureaucracy is the original machinery of datafication. It is an organizational form made up of people, information, rules, and technologies. Bureaucracies are designed to gather, control, curate, and rely upon information.[1] But they are ineffective without people. As an organizational form, then, bureaucracy arranges authority among the people who work within it, distributing and delegating decision-making power to different tiers of civil servants and others. Bureaucracy thereby fulfills a critical legal function as it organizes and allocates state decision-making authority. Bureaucracy also structures legal relations between the state and the public. The actors, techniques, and systems comprising bureaucracy apply legal rules to real-life situations where most people experience government. Bureaucratic actors (from public officials to decision-making software) thus profoundly impact people's lives and create, reduce, or amplify structural inequalities.[2]

The term "bureaucracy" has also long been derogatory shorthand for inefficient, impenetrable government. Specific bureaucracies, and bureaucracy more broadly, are regular targets for transformation projects that aim for a government ruled by common sense rather than tied up in red tape.[3] For decades, state officials have eagerly adopted new technologies to change how their bureaucracies function.[4] By the early 1990s, digitalization was even proclaimed a means of "ending bureaucracy."[5] Today, new data-driven tools and methods continue to be deployed as an antidote to inefficient processes.[6] State datafication thus features governments adopting ever more advanced computational tools, techniques, and systems and automating many components of decision-making processes across bureaucracies.

1 Max Weber, "Bureaucracy," in *Economy and Society* Vol. 2, eds. Guenther Roth and Claus Wittich (Berkeley: University of California Press, 1978).

2 Ruha Benjamin, *Race After Technology* (Cambridge: Polity Press, 2019); Virginia Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor* (New York: St. Martin's Press, 2018); Rashida Richardson, "Racial Segregation and The Data-Driven Society: How Our Failure to Reckon with Root Causes Perpetuates Separate and Unequal Realities," *Berkeley Technology Law Journal* 36, no. 3 (October 2022): 1052–1090, https://doi.org/10.15779/Z38PN8XG3v.

3 On Ontario, Canada's "Common Sense Revolution," Ian Morrison, "Ontario Works: A Preliminary Assessment,"' *Journal of Law and Social Policy* 13, (January 1998): 1–46. Alberta, Canada, which is dominated by Conservative politicians, even has a Ministry of Red Tape Reduction (which, ironically, enlarges the Province's bureaucracy).

4 Peter Crooks, "Bureaucracy," in *Information: A Historical Companion*, eds. Ann Blair, Paul Duguid, Anja-Silva Goeing, and Anthony Grafton, (New Jersey: Princeton University Press, 2021), 343–348.

5 Gifford Pinchot and Elizabeth Pinchot, *The End of Bureaucracy and the Rise of the Intelligent Organization* (Oakland: Berrett-Koehler, 1994).

6 The OECD's Digital Government Policy Framework argues that "digital government" should "overcome bureaucratic legacies," provide services that are "less bureaucratic," and should aim at transformation and redesign as opposed to the mere digitization of existing Weberian bureaucracy. OECD, *The OECD Digital Government Policy Framework: Six dimensions of a Digital Government*, OECD Public Governance Policy Papers no. 02 (2020):7–8, 29.

But *do datafied state initiatives end or extend bureaucracy?* This keyword entry explores this question in two parts. First, it reflects on who and what constitutes bureaucracy as the state is datafied, and how datafied state initiatives displace and disperse, rather than replace, the people and systems that make up bureaucracy. Second, it examines how ongoing datafication initiatives affect bureaucracy's specific legal function, or how bureaucracy organizes and applies decision-making authority. In doing so, it explores how datafied state initiatives disperse decision-making and the implications for accountability mechanisms.

Reconstituting Bureaucracy in Datafied States

The use of information management technologies, and even the phenomenon of datafication, are long-standing features of bureaucratic operations. As an organizational form, bureaucracy collects, centralizes, systematizes, and processes information. For the administrative branch of government to organize itself and exert control, its agencies must simplify social realities to more easily govern them.[7] Datafication, or abstracting the natural and social world into information forms that enable state agencies to analyze and act on that information, has therefore been performed by bureaucracies for centuries. These processes were central to empire building and governance, with the systematization of information crucial to imperial powers' control from afar.[8] These have also been the central means through which state agencies come to know and manage populations and individuals, from census tracts to passport documents.[9] Neither the datafication of the state nor the centrality and necessity of bureaucracy as an information management system are themselves new.

7 James Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998).

8 Katarzyna Cieslik and Dániel Margócsy, "Datafication, Power and Control in Development: A Historical Perspective on the Perils and Longevity of Data," *Progress in Development Studies* 22, no. 4 (October 2022): 352–373, https://doi.org/10.1177/14649934221076580.

9 Sara Dehm, "Passport" in *International Law's Objects*, ed. Jessie Hohmann and Daniel Joyce (Oxford: Oxford University Press, 2019), 342–356.

Because information collection and systematization are central to bureaucracies' work, bureaucratic actors have long adopted new methods and technologies.[10] Some of the earliest computers were themselves developed to facilitate bureaucratic information management. For instance, a device for performing statistical calculations was designed to speed up the US Census Bureau's process for tabulating statistics from the 1890 census.[11] The introduction of information and communications technology across governments starting in the 1970s thus extended this longer historical practice.

The Driving Role of Critique in Datafied State Projects

New technologies have been eagerly introduced by public administrators not only to facilitate information management but also to respond to bureaucracy's perceived shortcomings. Since the term was coined, "bureaucracy" has carried overwhelmingly negative connotations.[12] New technologies have long been promised to cure administrative inefficiencies. Indeed, the rise of computerization in the 1980s led to claims that technologies could "end bureaucracy."[13] Today, international organizations, ministerial offices, and consultancy firms still propose that governments overcome bureaucracy by further datafying and digitalizing their operations.[14] These approaches generally reify bureaucracy as a set of unnecessary processes within a bloated administration, rather than understanding it as a complex assemblage of systems, rules, and people. These accounts also conveniently overlook the fact that technologies have always been integral to bureaucracy and they may contribute to (rather than solve) the problem of inefficient processes.

10 Michael Adler and Paul Henman, "E-Justice: A Comparative Study of Computerization and Procedural Justice in Social Security," *International Review of Law, Computers & Technology* 15, no. 2 (July 2001): 195–212, https://doi.org/10.1080/13600860120070510.

11 Stan Augarten, *Bit by Bit: An Illustrated History of Computers* (Boston: Houghton Mifflin, 1984).

12 Anthony Grafton, Anja-Silvia Goeing, Paul Duguid, and Ann Blair, *Information: A Historical Companion* (New Jersey; Princeton University Press, 2021), 343.

13 Gifford Pinchot and Elizabeth Pinchot, *The End of Bureaucracy and the Rise of the Intelligent Organization* (San Francisco: Berrett-Koehler, 1994).

14 OECD, *Embracing Innovation in Government Global Trends* (OECD, 2017); Walt Bogdanich and Michael Forsythe, *When McKinsey Comes to Town: The Hidden Influence of the World's Most Powerful Consulting Firm* (New York: Doubleday, 2022); Mariana Mazzucato and Rosie Collington, *The Big Con: How the Consulting Industry Weakens Our Businesses, Infantilizes Our Governments, and Warps Our Economies* (New York: Penguin Press, 2023).

Attempts to overcome bureaucracy through digitalization rely heavily on critiques of the *people* animating bureaucracy. Officials are widely caricatured as stubbornly resisting change, sluggish, and capricious, particularly in frontline settings where their decisions affect high-stakes programs like welfare or immigration. Critics may also raise concerns about bias, corruption, and fraud. Such critiques often inspire the introduction of technologies to manage public officials, such as performance targets, workplace surveillance, and regular reporting to more senior officials. These tools continue pre-existing bureaucratic practices of governing officials through tools and techniques that hierarchically allocate and control decision-making power.

More recently, critiques have driven government agencies to adopt digitalized systems and data-driven tools to explicitly perform some decision-making tasks previously performed by human officials. Bureaucracy prioritizes the consistent application of rules, and data-driven algorithmic systems are perceived as better able to reliably implement decision-making criteria and deliver objective outputs, representing "the electronic equivalent of Weber's objective and impartial professional."[15]

This narrative is particularly pronounced in India, a crucial first mover in pioneering datafied initiatives across the administrative state and a key proponent of digital government on the international stage. Enthusiasts from across India's technology industry and government promote digitalization as a way to achieve Modi's vision of an India free from middlemen who obstruct public service delivery.[16] Leakage from welfare budgets and concerns about corruption among bureaucrats dominated early arguments in favor of a nationwide digital identification system.[17] The resulting digital ID system, Aadhaar, promised to eliminate middlemen by using technologies rather than local bureaucrats to deliver government services. Here and

15 Frank Bannister, "In Defence of Bureaucracy: Governance and Public Values in a Digital Age," *Beyond Bureaucracy: Towards Sustainable Governance Informatisation*, eds. Alois A. Paulin, Leonidas G. Anthopoulos, and Christopher G. Reddick, (Springer: Public Administration and Information Technology Vol. 25, 2017).

16 Bidisha Chaudhuri and Lion König, "The Aadhaar scheme: a cornerstone of a new citizenship regime in India?" *Contemporary South Asia* 26, no. 2 (2018): 127–142, https://doi.org/10.1080/09584935.2017.1369934.

17 Nandan Nilekani, *Imagining India: The Idea of a Renewed Nation* (New York: Penguin, 2009). For a critique of this narrative, see Reetika Khera, "Impact of Aadhaar in Welfare Programmes," in *Dissent on Aadhaar: Big Data Meets Big Brother*, ed. Reetika Khera (Telangana: Orient BlackSwan, 2019).

elsewhere, data-driven systems are presented as a means of replacing human administrators.

But datafication fails to eliminate bureaucratic problems and replace human decision-makers. Instead, it expands bureaucracy beyond conventional civil servants and government offices and across a wider range of sites and actors. In the process, datafication may exacerbate old bureaucratic problems as well as introduce new ones.[18]

Displacement, Not Replacement

Technologies have long been portrayed as replacing human officials. When personal computers were introduced across governments 50 years ago, officials no longer had to rely on clerks and librarians physically searching for and retrieving information. However, the task of managing and maintaining informational infrastructures did not disappear; rather, it was dispersed to other actors — from those tasked with data entry to those maintaining software.

Today, technologies may appear to complete most tasks previously performed by frontline officials. For instance, software may automatically determine applicants' eligibility for some public programs. People might apply for government services online. But even when systems offer a "digital-only" experience, datafied state initiatives *displace* rather than replace the human labor needed to keep bureaucracies functioning. Critical work is spread out among a multitude of actors, as frontline workers are joined by program users, librarians, nonprofit and charity workers, tech designers, programmers, and many others. Each of these actors performs vital data entry, system maintenance, and even decision-making tasks, and administrative burdens

18 Anumeha Yadav, "Reporting the World's Largest Biometric Project," *Lives of Data: Essays on Computational Cultures from India* (Amsterdam: Institute of Networked Cultures, 2020); Marion Fourcade and Jeffrey Gordon, "Learning Like a State: Statecraft in the Digital Age," *Journal of Law and Political Economy* 1, no.1 (2020): 78–108, https://doi.org/10.5070/LP61150258.

move around with crushing and freeing effects.[19] This dispersal requires a wider lens to examine bureaucracy in a datafied state, one that encompasses the many new entities that act as data providers, co-deciders, and system designers.

For example, the digital "self-service" model of the Universal Credit welfare program in the United Kingdom relies heavily on the labor of data providers. These actors include benefits claimants, as well as employers, software applications, and caseworkers. In the process, the administrative burdens on claimants and other data providers may increase. To file a claim, for example, an applicant must enter personal information into an online form and verify her identity online. Her digital account will then be activated with a to-do list requiring her to book a caseworker interview: only then will she meet with an official in person. The claimant will send and receive messages through an online journal as her primary communication channel. Many of the messages she receives will be automated, others will be created by staff in service centers across the country, and some will be written by her caseworker.[20] Universal Credit software will use employer-provided data held by the tax office to calculate her monthly benefit eligibility and payments. This digital avenue almost entirely replaces alternative methods of interacting with the welfare system: it is "certainly not possible to make such a claim by turning up at a [welfare] office … and handing in a paper claim form."[21] This scenario, of course, may generate exclusion and exacerbate social inequalities. While digital systems work well for some, those who are most likely to face difficulties in filing and managing claims through online systems are also more likely to need access to welfare programs.[22] Some marginalized individuals, for instance, may find online claims and communication through an online journal to be far more challenging than paper forms and in-person channels, particularly if their experiences fail to

19 Pamela Herd and Daniel Moynihan, *Administrative Burden: Policymaking by Other Means* (New York: Russell Sage, 2019); Michael Lipsky, "Bureaucratic Disentitlement in Social Welfare Programs," *Social Service Review* 58, no. 1(March 1984): 3–27, https://doi.org/10.1086/644161.

20 Richard Pope Consulting Ltd. "Universal Credit: Digital Welfare." London: Part Two Digital, April 2020. https://pt2.works/files/universal-credit.pdf.

21 *GDC v Secretary of State for Work and Pensions (UC)* [2020] UKUT 108 (AAC), 8.

22 Sophie Howes and Kelly-Marie Jones, "Computer Says 'No!' Stage Two: Challenging decisions," *Child Poverty Action Group*, (July 2019), https://cpag.org.uk/sites/default/files/files/policypost/Computer%20says%20no%21%202%20-%20for%20web.pdf.

correspond to preset options in digital forms. Administrative burdens can intensify for these individuals.

Digital systems also *disperse* administrative burdens. Not only are claimants, as data providers, tasked with completing and continually updating digital forms, but the burden also spreads outward to others who must also submit data. Employers, for example, are responsible for providing data about claimants' wages — a responsibility with serious consequences, as erroneous or incomplete data can lead to claimants' benefits being suspended.

In other settings, data-providing tasks are spread so widely that frontline bureaucrats appear to vanish entirely. In Norway, for example, child benefits are distributed automatically: rather than claimants completing a form and caseworkers receiving and approving the application, software uses information in government databases to identify recipients and disburse child benefits without any role for caseworkers (or claimants) at all.[23] Likewise, the US and Australian governments have drawn on tax and benefits data to automatically generate debt notices, many of which are erroneous.[24] Similar initiatives are being introduced by immigration and border security agencies. While these initiatives may shift burdens away from frontline officials and members of the public at the moment when a benefit is granted or a debt is created, they also defer administrative burden into the future wherever a data provider — such as an employer, landlord, doctor, etc., — generates suspect data (i.e., data that challenges one's eligibility for a particular benefit or status or suggests that a debt may be owed). In these situations, procedural justice inverts. Members of the public whose data suggests that they have received higher benefits payments than they were eligible for or are at risk of overstaying a visitor visa, for instance, must then prove the opposite, often with insufficient information about why they have been flagged as debtors or risky subjects in the first place.

23 Karl Kristian Larsson, "Digitization or Equality: When Government Automation Covers Some, but Not All Citizens," *Government Information Quarterly* 38, no. 1 (January 2021): 1–10, https://doi.org/10.1016/j.giq.2020.101547; Hendrik Scholta et al., "From One-Stop Shop to No-Stop Shop: An E-government Stage Model," *Government Information Quarterly* 36, no. 1 (January 2019): 11–26, https://doi.org/10.1016/j.giq.2018.11.010.

24 Terry Carney, "Bringing Robo-debts Before the Law: Why It's Time to Right a Legal Wrong," *Law Society NSW Journal*, (August 2019), https://lsj.com.au/articles/why-robo-debt-bringing-robo-debts-before-the-law-why-its-time-to-right-a-legal-wrong/; Doaa Abu Elyounes, "'Computer Says No!': The Impact of Automation on the Discretionary Power of Public Officers," *Vanderbilt Journal of Entertainment & Technology Law* 23, no. 3 (2021): 451–516.

The work of co-deciders is also dispersed and transformed, rather than eliminated. Digital tools may automate some of the processes for which public officials were previously responsible, assume part of their role, and change how decisions are produced. As drones, risk assessments, and biometric data collection and processing tools become integral to border administration, fingerprint and iris scans strongly influence (and even co-create) border agency decisions. Border officials may conceptualize these tools as sources of evidence, though the tools and officials together decide which fingerprints and scans are acceptable and whether they are more reliable than the statements of travelers seeking to cross the border.[25] As for welfare programs, software may calculate benefits and generate decision letters, but these outputs depend on how caseworkers characterize their data inputs about benefits applicants.[26] Bureaucratic decision-making tasks are thus more widely distributed between tools and people.

Access to a human co-decider may be an advantage in some settings and a disadvantage in others. In the Universal Credit program, reaching a human official is a sought-after privilege because of the infrastructural barriers to claimants directly connecting with officials, such as their online journal and overwhelmed call centers. In immigration, by contrast, the apparent absence of human officials may signal privilege. For example, in Canada's automated visa approval program, an algorithmic tool sorts through tourist visa applications from Chinese and Indian citizens and automatically approves applicants with "low-risk" characteristics. Only those applications the tool flags as suspect are reviewed by a human official.[27] Here, the datafied state may be frictionless for low-risk applicants but onerous for higher-risk applicants who may puzzle over why algorithmic and human co-deciders denied their visa application.

25 Petra Molnar, "Territorial and Digital Borders and Migrant Vulnerability Under a Pandemic Crisis," in *Migration and Pandemics: Spaces of Solidarity and Spaces of Exception*, ed. Anna Triandafyllidou, (Springer: IMISCOE Research Series, 2022), 45–64.

26 Jennifer Raso, "Displacement as Regulation: New Regulatory Technologies and Front-Line Decision-Making in Ontario Works," *Canadian Journal of Law & Society* 32, no.1 (June 2017): 75–95.

27 Canada, Immigration Refugees and Citizenship Canada, *Algorithmic Impact Assessment – Advanced Analytics Triage of Visitor Records Applications* (2022) https://open.canada.ca/data/en/dataset/01396e33-2c69-47e5-9381-32e717943b96.

Finally, datafied state initiatives more clearly distribute bureaucratic tasks to system designers. Just as archival tasks have shifted to the creators and maintainers of digital databases, datafied state projects rely on system designers' expertise. In 2001, Jane Fountain documented "the growth in the number of technical analyst positions required to develop, program, maintain, and service increasingly information-based federal bureaucracies" and noted these analysts' growing dominance.[28] As bureaucracies become ever more datafied, different actors and forms of knowledge — "user designers," coders, and data analysts — become more central to bureaucratic functioning.[29] As a result, funds are spent on a broader set of actors to build and operate digital government, which also (re)directs resources from government officials and program beneficiaries toward engineers, designers, and consultants.

Thus, the people and systems that constitute bureaucracy stretch far beyond conventional civil servants and government offices. Decision-making power has always been diffused by bureaucratic arrangements, but datafied state initiatives spread it out even more widely. For example, when software co-creates eligibility decisions, its designers (plus the many others identified above) become crucial bureaucratic actors. Because these designers shape how a software's digital interface operates, they influence how administrative agencies are accessed and experienced.[30] It then becomes vital for us to explore how decision-making power operates among these distinct, diffuse components of bureaucracy in the datafied state.

28 Jane Fountain, *Building the Virtual State: Information Technology and Institutional Change* (Washington D.C.: Brookings Institution Press, 2001), 62.

29 Adelmant, Victoria, and Joe Tomlinson. "Who Builds Digital Government?: Accountability in the Private Sector's 'Agile' Reconstruction of the Administrative Justice System." *Public Law*, no. 2 (April 2023): 196–206, https://doi.org/10.3316/agispt.20230721091866.

30 Adelmant and Tomlinson, "Who Builds Digital Government?"

Changes to the Legal Function(s) of Bureaucracy

As they reconfigure frontline work and spread decision-making authority, datafied state initiatives disrupt bureaucratic hierarchies and practices. These features do more than simply streamline data collection and storage; they are also crucial for conventional legal accountability mechanisms. Disrupting them creates two related challenges for bureaucracy's legal operations. First, functionally speaking, it becomes even more difficult for people within and outside of the bureaucracy to understand how decisions are produced and who (or what) is responsible. Second, these functional issues make it exceptionally tricky to ensure that decision-making institutions meet minimum accountability standards.

Practical Opacity

The architects of government digitalization initiatives often intend to disrupt bureaucratic hierarchies as they overcome bureaucracy. But because digitalization disperses decision-making authority, it creates substantial practical challenges. For instance, technical glitches often lead to widespread bureaucratic errors affecting tens of thousands of people. These people may be affected by an incorrect decision. A routine software update incompatible with Apple's operating system might spur a border crossing app to erroneously order thousands of travelers to quarantine, for example.[31] When such errors arise, officials may be infrastructurally barred from fixing the issue themselves.

Distributed decision-making power also makes it exceedingly difficult for people affected by a decision that seems blatantly wrong to know who, or what, is responsible for that decision and where to seek further clarification.

31 Matt Malone, "Lessons from ArriveCAN: Access to Information and Justice During a Glitch," *Intellectual Property Journal* 35, no. 2 (April 2023): 99–139.

Indeed, in the Universal Credit program, welfare agency staff generally do not understand the workings of the automated system that calculates monthly benefit payments. They describe themselves as permanently on the back foot and inadequately trained for the digital service.[32] Crucially, the data that determines auto-generated payments come from employers' reports to the tax office, which precludes staff in the welfare agency from correcting errors.

This opacity and resulting confusion are distinct from the black box dilemma that scholars often scrutinize.[33] Here, algorithmic opacity is dwarfed by the sheer complexity of the spread-out, circuitous bureaucratic system. This design feature means that those who are impacted by administrative decisions, and decision co-producers themselves, cannot easily understand why errors exist nor identify who might be able to remedy problems.

This situation also layers and concentrates administrative burdens because the practical challenges of digital government are distributed unequally and compound with each individual-state interaction. People whose lives are deeply and regularly impacted by bureaucratic institutions are often marginalized: sole-support parents, people with disabilities, people living in poverty, individuals with unsettled immigration status, and members of racialized communities. They may be targeted by state agencies (child protection, for instance), and they may require a privilege or benefit that only a state agency can grant, such as disability benefits or regularized immigration status. Individual administrative burdens may coalesce and multiply, so that these individuals experience the datafied state as oppressive, unpredictable, and impenetrable.[34] Though a "user-friendly" web portal may provide seamless interactions for those for whom the datafied state works relatively well, marginalized individuals seeking to understand or challenge an error may experience the same portal as an incomprehensibly opaque wall.

32 Kayleigh Garthwaite, Jo Ingold, and Mark Monaghan, "Universal Credit and the Perspectives of Ex-Jobcentre Plus Staff," *British Politics and Policy* at LSE (blog), January 15, 2019, https://blogs.lse.ac.uk/politicsandpolicy/ex-jobcentre-plus-staff/.

33 Frank Pasquale, *Black Box Society: The Secret Algorithms that Control Money and Information* (Cambridge: Harvard University Press, 2016); Sandra Wachter, Brent Mittelstadt, and Chris Russell, "Counterfactual Explanations Without Opening the Black Box: Automated Decisions and the GDPR," *Harvard Journal of Law & Technology* 31, no. 2 (Spring 2018): 841–888.

34 Wendy Hui Kyong Chun, *Discriminating Data: Correlation, Neighborhoods, and the New Politics of Recognition* (Cambridge: MIT Press, 2021); see also the accounts of migrants in Petra Molnar, "Territorial and Digital Borders and Migrant Vulnerability Under a Pandemic Crisis," in *Migration and Pandemics: Spaces of Solidarity and Spaces of Exception*, ed. Anna Triandafyllidou (Springer: IMISCOE Research Series, 2022), 45–64.

The diffusion of decision-making authority across and beyond conventional bureaucratic institutions also allows public officials to pass the buck, pointing to the many other actors (managers, technicians, software, databases) that are responsible for an outcome. This practice may be a bureaucratic tradition.[35] Datafied state initiatives, however, allow blame to be shifted further afield to even more responsible others, deflecting officials' own contributions as data providers and co-deciders.

Disrupted Legal Accountability

These practical challenges disrupt legal accountability mechanisms. As an institutional form, bureaucracy uses a hierarchical and traceable accountability structure. Conventional legal tools rely upon this structure, but common accountability mechanisms — internal review procedures, external court challenges, and rights claims — are ill-suited to dispersed forms of public administration.

For example, an important component of bureaucratic accountability is civil servants' express commitment to serve the public interest. This commitment is reinforced when public officials are hired, through internal training, and within office culture. It includes an obligation of responsiveness to members of the public who engage with the bureaucratic agency in question, which centers on listening to individuals' concerns. It aims to get decisions right the first time and to provide review opportunities when things go wrong.[36] From a legal perspective, slower bureaucratic processes are necessary to ensure that officials have time to hear those who will be impacted by their decision, consult with expert colleagues, and make informed decisions that serve the public interest.[37] The bureaucratic practice of internal review, where higher-level officials revisit and amend the decisions of lower-level

35 Matthew S. Hull, *Government of Paper: The Materiality of Bureaucracy in Urban Pakistan* (Berkeley: University of California Press, 2012).

36 Michael Adler, "The Future of Administrative Justice," in *The Oxford Handbook of Administrative Justice*, eds. Marc Hertogh, Richard Kirkham, Robert Thomas, and Joe Tomlinson (New York: Oxford University Press, 2022), 623–646.

37 Amanda Clarke, "Digital Government Units: Origins, Orthodoxy and Critical Considerations for Public Management Theory and Practice," SSRN Scholarly Paper, (July 2017), https://doi.org/10.2139/ssrn.3001188.

colleagues, contributes to this internally-facing accountability mechanism. This administrative justice ideal, and its commitment to getting complex decisions right early on, clashes with a developer ideal that prioritizes speedy decision-making and "accurate" (rather than procedurally fair) results. System designers working in digital government units are not subject to the same accountability techniques. Many serve the public on short-term contracts, which impair an in-office accountability culture. Unlike civil servants, contractors who design, maintain, and repair datafied state tools are not bound by an oath to serve the public good.[38] They are also too far removed from the core of a bureaucratic agency for their decisions to be evaluated through internal review procedures, even if they materially shape a matter that is being internally reviewed.[39] Similar issues arise with the widespread web of data providers and co-deciders that contribute to digital government operations.

Datafied state initiatives also upset legal accountability mechanisms that rely upon external review primarily because they diffuse practical responsibility so widely. External review by courts, specialized tribunals, and other institutions (auditor generals, ombuds offices) is a well-established mechanism for subjecting bureaucracies to legal standards. In this process, an outside body reviews bureaucratic operations to determine whether they meet specific legal standards. For instance, a court might evaluate whether a decision was made by an open-minded decision-maker, whether the decision-maker relied on relevant information, whether the decision-making process raised corruption or substantive injustice issues, and so on.[40] To successfully launch an external review process, however, people must know who to "name." Typically, this requires that individuals name a responsible government ministry or department or a high-level public official, such as a program director. This naming matters because it establishes the scope

38 Robert Thomas, "Investigating Administration and Administrative Law: Research Questions from Immigration Administration," in *Research Agenda for Administrative Law*, ed. Carol Harlow (United Kingdom: Edward Elgar Publishing, 2023), 52.

39 Adelmant and Tomlinson, "Who Builds Digital Government?"

40 Hertogh, Kirkham, Thomas, and Tomlinson, *Oxford Handbook of Administrative Justice* (New York: Oxford University Press, 2021).

of the external review process. It is also fundamentally important to ensure that any remedies ordered at the end of the review (monetary damages, legislative or policy changes) are legally enforceable against an actor who can implement them effectively.

Though decision-making power has long been diffused by bureaucracy, datafied state initiatives disperse decision-making authority much more broadly, making it nearly impossible for members of the public and even lawyers to name appropriate entities. When many actors provide data and co-produce decisions affecting individuals' entitlements and rights, and when technicians translate legal rules into software and databases that shape how decisions are generated, arguably the whole network ought to be reviewed. But both practical opacity and the legal technicalities of external review combined prevent people from easily naming the entities responsible for a particular decision and from holding the operations of those entities to account. The decision-making system itself shields these actors from view, and the legal claiming process often prohibits naming entities situated outside of the core of government. Neither challenge is new, but the practical and legal barriers to accountability can no longer be ignored by anyone concerned with justice in the datafied state.