

2021

“Computer Says No!”: The Impact of Automation on the Discretionary Power of Public Officers

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Doa A. Elyounes, “Computer Says No!”: The Impact of Automation on the Discretionary Power of Public Officers, 23 *Vanderbilt Journal of Entertainment and Technology Law* 451 ()
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“Computer Says No!”: The Impact of Automation on the Discretionary Power of Public Officers

*Doaa Abu Elyounes**

ABSTRACT

The goal of this Article is to unpack the “human in the loop” requirement in the process of automation. It will analyze the impact of automation on street-level bureaucrats and lay out the steps policy makers need to take into account to ensure that meaningful human discretion is maintained. This issue is examined by comparing two algorithms related to the use of automation to detect and investigate fraud in welfare benefits. The first algorithm is used by Michigan’s Unemployment Insurance Agency for detecting and investigating unemployment fraud. This is a draconian algorithm with the ability to automatically decide to cut an individual’s benefits and collect debts. The second algorithm is used in the Netherlands by the Ministry of Social Affairs and Employment to detect different types of welfare fraud. It aids human fraud examiners and it automates only the process of data collection and analysis.

This Article concludes that both algorithms could do more to maintain meaningful discretion. In Michigan, automation has left little room for street-level bureaucrats to apply discretion. Thus, this Article suggests that the algorithm be limited to a few segments of the unemployment fraud detection and investigation process. In contrast, the Netherlands’ algorithm allows street-level bureaucrats greater discretion. This discretion is also more meaningful because the human in the loop has a well-defined decision-making role. However, since the

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algorithm is the de facto authority on who will be investigated, more steps should be taken to ensure that key decisions are overseen by humans. It is important to note that the lack of human agency was only one reason for the failures of the algorithms. Poor technical design and the sociopolitical context that the algorithms operated in were also responsible. The failures stemming from all three reasons are further explored in this Article.

Although these cases demonstrate the importance of keeping a human in the loop in an automated process, questions such as what the role of the human should be and how to design the human-algorithm interaction have not received sufficient attention in academic literature. This Article sheds light on these issues.

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I. INTRODUCTION

Those who followed the comedy show “Little Britain” in the early 2000s probably remember the apathy in David Walliams’s voice and expression when, as a banker or hospital receptionist, he blindly relied on a computer output and communicated the outcome to his clients.¹ In today’s world of increased automation we might consider ourselves lucky if we got a chance to talk face to face with a public officer, even if their answer would be, “Computer says no.”

1. David Pereira, *Computer Says No*, TOWARDS DATA SCI. (Nov. 19, 2019), <https://towardsdatascience.com/computer-says-no-52a9c31cb8f2> [<https://perma.cc/LVS9-62MY>].

Automation is creating a complex relationship between the service seekers and the service providers by using computer systems as an intermediary entity instead of human decision makers. This change can lead to significant frustration among public servants, whose hands feel tied because of the technology, and among citizens, who feel blocked by unsatisfactory responses and heartless machines.² Although the biggest appeal of artificial intelligence (AI) was once the opportunity to create algorithms that could mimic the human brain and replace human decision-making, now there is a growing understanding that the most beneficial and effective algorithms are the ones that are designed to help humans and not replace them.³ In fact, among academics and practitioners alike, as well as in the internationally recognized documents for the use and development of AI, the need for human control of technology is well emphasized.⁴

Street-level bureaucrats are public officers who work directly with individuals, such as police officers, teachers, and social workers in public agencies.⁵ The goal of this Article is to analyze the impact of automation on street-level bureaucrats, to understand the role and the degree of freedom that should be given to the human in the loop (i.e., the public officers who work with the algorithms), and to lay out the steps that policy makers need to take into account to ensure that meaningful human discretion is maintained. Street-level bureaucrats who worked face to face with individuals before automation play an important role in delivering public services by increasing accessibility and bridging the gap between the higher administration and the citizens.⁶ This Article examines this issue through two case studies where the detection and investigation of fraud in welfare benefits was

2. See Thomas Claburn, *Fraud Detection System with 93% Failure Rate Gets IT Companies Sued*, REGISTER (Mar. 8, 2017, 6:29 AM), https://www.theregister.com/2017/03/08/fraud_detection_system_with_93_failure_rate_gets_it_companies_sued/ [https://perma.cc/SX2C-VKC3]; see also Hendrik Wagenaar, *Discretion and Street-Level Practice*, in DISCRETION AND THE QUEST FOR CONTROLLED FREEDOM 259, 270 (Tony Evans & Peter Hupe eds., 2020).

3. Clare McDonald, *Why AI Should Assist Humans, Not Replace Them*, COMPUT. WKLY. (Sept. 7, 2018, 4:45 PM), <https://www.computerweekly.com/news/252448295/Why-AI-should-assist-humans-not-replace-them> [https://perma.cc/4EG3-5NHN].

4. JESSICA FJELD, NELE ACHTEN, HANNAH HILLIGOSS, ADAM CHRISTOPHER NAGY & MADHULIKA SRIKUMAR, PRINCIPLED ARTIFICIAL INTELLIGENCE: MAPPING CONSENSUS IN ETHICAL AND RIGHTS-BASED APPROACHES TO PRINCIPLES FOR AI 8 (2020), https://dash.harvard.edu/bitstream/handle/1/42160420/HLS%20White%20Paper%20Final_v3.pdf?sequence=1&isAllowed=y [https://perma.cc/T7RY-C2E5].

5. Peter Hupe, Michael Hill & Aurélien Buffat, *Introduction: Defining and Understanding Street-Level Bureaucracy*, in UNDERSTANDING STREET-LEVEL BUREAUCRACY 3, 15 (Peter Hupe, Michael Hill & Aurélien Buffat eds., 2015).

6. Evelyn Z. Brodtkin, *The Inside Story: Street-Level Research in the U.S. and Beyond*, in UNDERSTANDING STREET-LEVEL BUREAUCRACY, *supra* note 5, at 25, 28–29.

wholly or partially automated. Although government officials and citizens both want welfare benefits to be allocated to those who really need them while catching and punishing those who are deceiving the government, the draconian way in which welfare-fraud detection algorithms operate is preventing vulnerable people from enjoying their basic rights and receiving access to vital aid. These algorithms have caused several false positives and unjustly cut benefits from people who need them.⁷ Unable to plead with a computer that cutting the benefits was a mistake, denied applicants are forced to confront walls of bureaucracy without help from intermediate public officials.⁸

The two case studies discussed in this Article deal with two different systems that attempted to automate the same task.⁹ The first case study involves an algorithm deployed by the Michigan Unemployment Insurance Agency (UIA). The UIA purchased an algorithm for detecting and investigating fraud in unemployment benefits, the Michigan Integrated Data Automated System (MiDAS), from a private vendor.¹⁰ MiDAS sifts through a large amount of data, looking for any discrepancies between data submitted by the claimant, information gathered from the employer, and other databases.¹¹ MiDAS is a decision-making algorithm because it has the authority to issue final decisions that have a significant financial impact on individuals. If any discrepancy is found, MiDAS attempts to communicate with the individual to investigate further.¹² If the response of the individual is deemed insufficient by MiDAS, it automatically flags the case as fraudulent.¹³ MiDAS can then automatically cut benefits, garnish wages, and seize tax refunds.¹⁴

The second case study takes place in the Netherlands, where the Dutch Ministry of Social Affairs and Employment implemented the

7. See, e.g., Claburn, *supra* note 2.

8. Jen Fifield, *What Happens When States Go Hunting for Welfare Fraud*, PEW CHARITABLE TRS. (May 24, 2017), <https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2017/05/24/what-happens-when-states-go-hunting-for-welfare-fraud> [https://perma.cc/DE34-MSR8].

9. Karen Yeung, *'Hypernudge': Big Data as a Mode of Regulation by Design*, 20 INFO., COMM'N & SOC'Y 118, 120–21 (2017).

10. RASHIDA RICHARDSON, JASON M. SCHULTZ & VINCENT M. SOUTHERLAND, LITIGATING ALGORITHMS 2019 US REPORT: NEW CHALLENGES TO GOVERNMENT USE OF ALGORITHMIC DECISION SYSTEMS 20 (2019), <https://ainowinstitute.org/litigatingalgorithms-2019-us.html> [https://perma.cc/XX3M-L94X].

11. Class Action Complaint & Jury Demand at ¶¶ 24–28, *Cahoo v. SAS Analytics Inc.*, No. 2:17-CV-10657-DML-RSW (E.D. Mich. Mar. 2, 2017) [hereinafter *Cahoo* Complaint].

12. *Id.* ¶¶ 31, 41.

13. *Id.* ¶ 28.

14. *Id.* ¶ 102.

System Risk Indication (SyRI) in order to help prevent all types of welfare fraud.¹⁵ Unlike MiDAS, SyRI only automated the data collection and analysis phase in order to assist fraud examiners in making final decisions, but it does not make or execute any decision on its own.¹⁶ SyRI collects and analyzes up to seventeen different data types, including data about employment, education, accommodation, and eligibility for benefits.¹⁷ If there is a discrepancy, a risk report is created and passed on to the relevant agency for further investigation and enforcement.¹⁸

The deployment of both algorithms failed spectacularly. There was significant public backlash against the algorithms which led to lawsuits against the agencies deploying them.¹⁹ Both algorithms had a very high rate of false positives, which led to numerous false accusations of fraud²⁰ that were neither detected nor solved promptly.²¹ The disastrous rollout of these algorithms exemplifies an alarming trend of using technology for undermining human rights, over-surveilling, and punishing the poor.²² In other words, lack of sufficient and meaningful human agency was not the only reason for the failure of the algorithms. Two additional causes—poor technical design and the sociopolitical context in which the algorithms operate—are later addressed and analyzed. Although incorporating meaningful human discretion is a very important step, that alone will not fix all failures of the examined algorithms.

The discretionary power of street-level bureaucrats and fair and transparent administrative procedures are the two primary tools that the law provides for balancing between legislating universal rules and adjudicating individual cases. Automation has the potential to jeopardize those mechanisms because automation reduces the room of discretion by nature. In addition, the secrecy and opaqueness of data-processing algorithms make their decisions difficult to review for

15. RICHARDSON ET AL., *supra* note 10, at 24.

16. Koen Vervloesem, *How Dutch Activists Got an Invasive Fraud Detection Algorithm Banned*, ALGORITHM WATCH (Apr. 6, 2020), <https://algorithmwatch.org/en/story/syri-netherlands-algorithm/> [https://perma.cc/7HHM-3LUE].

17. *Profiling and SyRI*, PUB. INT. LITIG. PROJECT (Nov. 12, 2015), <https://pilpnjcm.nl/en/dossiers/profiling-and-syri/> [https://perma.cc/386E-KLGW].

18. *See* RICHARDSON ET AL., *supra* note 10, at 24.

19. *See id.*

20. *See* Claburn, *supra* note 2; *see also* Amos Toh, *Welfare Surveillance on Trial in the Netherlands*, HUM. RTS. WATCH (Nov. 8, 2019, 10:28 AM), <https://www.hrw.org/news/2019/11/08/welfare-surveillance-trial-netherlands> [https://perma.cc/EWT9-4N9B].

21. *See* Toh, *supra* note 20.

22. Philip Alston (Special Rapporteur on Extreme Poverty and Human Rights), *Rep. of the Special Rapporteur on Extreme Poverty and Human Rights*, U.N. Doc. A/74/493 (Oct. 11, 2019).

errors.²³ Therefore, this Article analyzes how discretion can be maintained despite automation and contribute to the design of fair and transparent administrative procedures. First, Part II discusses the evolution of street-level bureaucracy, discretionary power, and the impact of different technological changes on street-level bureaucrats. Part III introduces the two cases and lays the groundwork for the rest of the discussion about street-level bureaucracy, discretion, and automation. Part IV discusses the sociopolitical context in which the algorithms are operating. Issues related to discretion are broken into two parts: Part V discusses whether there is still room for street-level bureaucrats to apply their discretion after automation by exploring which domains and tasks were automated in each algorithm, and what degree of discretion was transferred to the engineers and the technology itself. Part VI discusses whether the discretion left for street-level bureaucrats is meaningful by examining internal factors related to the human-algorithm interaction and external factors related to the interaction between the level of discretion, or lack thereof, and other safeguards, such as due process, accountability, and transparency.

This Article concludes that both algorithms failed in considering the impact of the automation on vulnerable groups. Michigan, which pays the fewest number of weeks of unemployment benefits in the nation and imposes a 400 percent penalty with interest for wrongly obtaining money, deployed MiDAS with an intent to minimize welfare payouts.²⁴ Meanwhile, SyRI was deployed only in poor municipalities without any indication that residents of these neighborhoods were involved in higher rates of welfare fraud.²⁵ In addition, the allocation and termination of welfare benefits is a sensitive domain that requires human oversight, which makes it unsuitable for full automation and decision-making algorithms. If technology is to be used, decision-aiding algorithms that are restricted and guided by street-level bureaucrats who are familiar with the domain and the population are the proper solution.

Both algorithms can do more to maintain meaningful discretion. For MiDAS, street-level bureaucrats have little to no discretion because the algorithm is the decision maker. Thus MiDAS should be restricted to collecting and analyzing data. Although the fact that MiDAS is limited to unemployment fraud is a plus, as the domain itself is quite

23. See Paul B. de Laat, *Algorithmic Decision-Making Based on Machine Learning from Big Data: Can Transparency Restore Accountability?*, 31 PHIL. & TECHN. 525, 526 (2018).

24. MICHIGAN UNEMPLOYMENT INSURANCE AGENCY'S UNJUST FRAUD CLAIMS 1, <https://waysandmeans.house.gov/sites/democrats.waysandmeans.house.gov/files/documents/Factsheet%20-%20MiDAS.pdf> [<https://perma.cc/LH7U-2GX8>] [hereinafter MIDAS FACTSHEET].

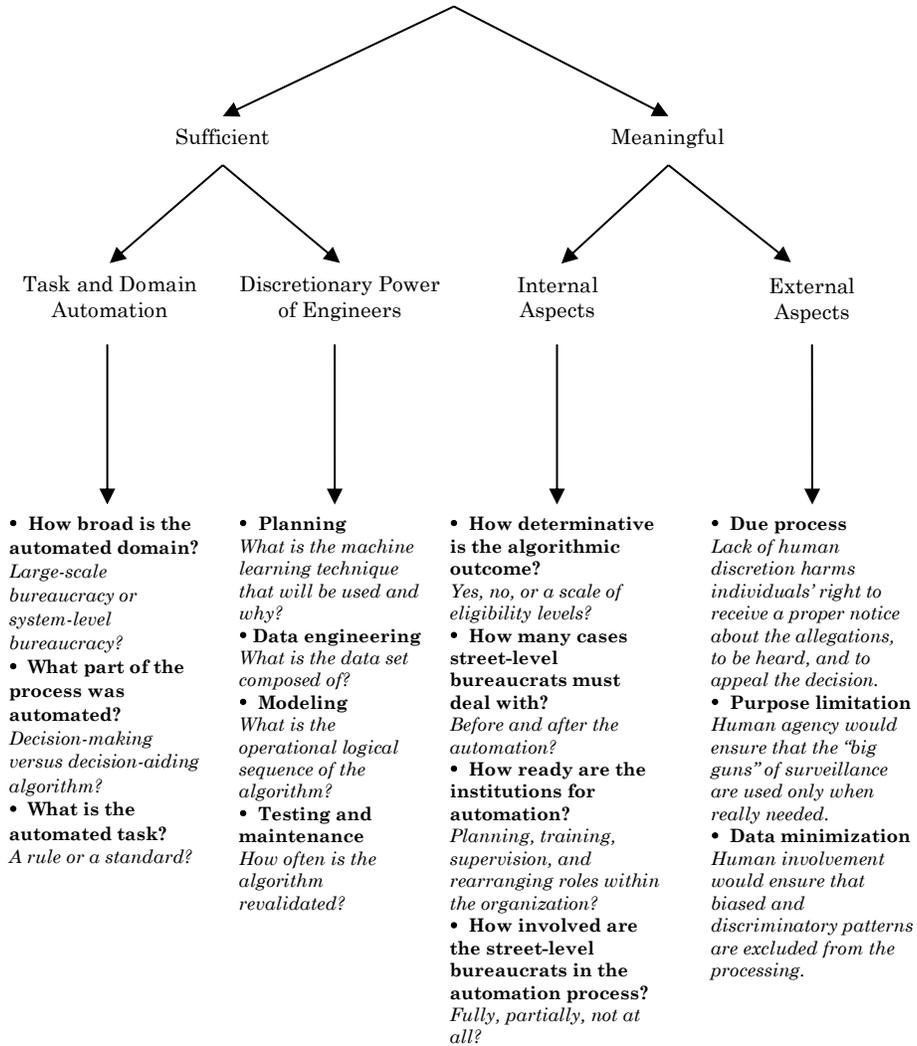
25. Toh, *supra* note 20.

narrow, more authority should be given to street-level bureaucrats to apply their discretion and expertise, and that authority needs to be clearly defined. Conversely, in SyRI street-level bureaucrats have more room to intervene. The discretion is also more well defined than in MiDAS, as it is clearer what the role of the human in the loop is—to look for false positives and to further investigate cases flagged by SyRI. However, since SyRI is *de facto* deciding who will be investigated and who will not, more steps should be taken to ensure that humans are involved in key decisions. For example, if SyRI flags a case as suspicious, the case could be put under surveillance for up to two years. Because SyRI operates so opaquely, it is unknown when there is any human involvement before deciding to place each case under surveillance and for how long. In addition to being a safeguard for automation, human discretion also plays an important role in complying with other safeguards. Both MiDAS and SyRI can do more to facilitate the interaction between the human in the loop and other important safeguards.

Discretion is a safeguard for maintaining unmediated communication between the individual applicant and the public agent making the final determination. The human factor is the element that connects the dots and makes sense of the process; it is what makes the final decision more humane. As Part II illustrates, in recent years, there have been significant changes in the way public officers were perceived and their expertise is valued much more under the new public management approach. The argument that this Article puts forward is that, if not governed properly, the rise of automated tools that are taking discretion away from street-level bureaucrats could move public administrations backward toward the traditional approach and degrade the quality of service that citizens are receiving.

Thus, the following diagram summarizes the steps that have to be taken in order to ensure sufficient and meaningful discretion, steps that will be discussed in more detail throughout this Article.

How to maintain sufficient and meaningful room for discretionary street-level bureaucracy?



II. THE IMPORTANCE OF DISCRETIONARY STREET-LEVEL BUREAUCRACY AND ITS IMPACT ON WELFARE SERVICES

The purpose of this Part is to provide a theoretical background for the discussion of the impact of automation on street-level bureaucrats and their discretion. This Part begins with a brief overview of the role of street-level bureaucrats in delivering public services and the importance of discretion in general. Then, it focuses on the characteristics of the discretion of welfare officers in particular. In addition, this Part discusses the impact of technology on street-level bureaucracy in general and on welfare in particular.

A. *Street-Level Bureaucracy and Discretion*

In his seminal 1980 work, *Street-Level Bureaucracy: Dilemmas of the Individual in Public Services*, Michael Lipsky coined the term “street-level bureaucracy.”²⁶ Street-level bureaucrats are public officers who work directly with individuals, such as police officers, teachers, and social workers in public agencies.²⁷ One of the important characteristics that allows street-level bureaucrats to perform their jobs is discretion: the authority to interpret the policies that they are tasked with implementing and apply them to individual cases. Although street-level bureaucrats range in experience from specialized expertise that requires higher degrees to very brief training, their discretionary power places them in a unique position as “policy co-makers.”²⁸ Administrative discretion is an inherent part of the work of any public officer. Detailing the policies for executing any law after it is enacted, designing the relevant mechanisms within the responsible agency, prioritizing assignments, and delivering the services are all tasks that involve a high degree of discretion.²⁹ Decisions such as whether to give someone a ticket for a traffic violation, to assign a student to a particular school or class, or to grant someone a loan are likewise all within the discretionary prerogative of street-level bureaucrats.³⁰

26. See generally MICHAEL LIPSKY, *STREET-LEVEL BUREAUCRACY: DILEMMAS OF THE INDIVIDUAL IN PUBLIC SERVICES* 3 (1980) (“Public service workers who interact directly with citizens in the course of their jobs, and who have substantial discretion in the execution of their work are called *street-level bureaucrats* in this study. Public service agencies that employ a significant number of street-level bureaucrats in proportion to their work force are called *street-level bureaucracies*.”).

27. See Hupe, Hill & Buffat, *supra* note 5.

28. See *id.* at 16.

29. Justin B. Bullock, *Artificial Intelligence, Discretion and Bureaucracy*, 49 AM. REV. PUB. ADMIN. 751, 752–53 (2019).

30. See LIPSKY, *supra* note 26, at 3–4.

Under the traditional public management approach, hierarchy was strictly maintained.³¹ Discretion was not allowed except with permission from higher officials; low-level administrators were expected to strictly follow the rules of their instructors.³² The power of street-level bureaucrats had to be strictly controlled, so several hierarchical rules were imposed and lengthy guidelines detailing their exact duties were formulated in order to keep the power with the high-level officers.³³ However, this approach was unsatisfactory. It created a bottleneck because street-level bureaucrats had limited power and could not meet the citizens' needs, as their hands were tied, and could not use creativity or think outside the box in order to help citizens in need to access social benefits.

Under the new public management approach, high-level officials recognized that low-level officials "on the ground" could aggregate substantial knowledge that made them better adjudicators.³⁴ Hence, more power was given to the street-level bureaucrats who serve as the intermediary between the citizens and the higher public management.³⁵ Under this new approach, the concept of street-level bureaucracy was expanded and street-level bureaucrats were no longer exclusively found inside the government. Reforms led to contracting with nonprofit and for-profit organizations with the purpose of stimulating competition and better meeting the needs of citizens.³⁶ It should be noted that the shift from the traditional public management approach to the new public management approach is an international phenomenon.³⁷

The traditional public management approach asserted by Max Weber has been recognized as suitable to the Industrial Revolution era where the role of policy making was attributed to politicians and the role of civil servants rested in their ability to execute the orders of politicians.³⁸ This model contributed to the rise of large organizations. In the early 1990s, however, due to economic, social, historical, and

31. James P. Pfiffner, *Traditional Public Administration Versus the New Public Management: Accountability Versus Efficiency*, in INSTITUTIONENBILDUNG IN REGIERUNG UND VERWALTUNG: FESTSCHRIFT FÜR KLAUS KONIG 443, 443–44 (A. Benz, H. Siedentopf & K.P. Sommermann eds., 2004).

32. *Id.* at 447–48.

33. See Steven Rathgeb Smith, *Street-Level Bureaucracy and Public Policy*, in THE SAGE HANDBOOK OF PUBLIC ADMINISTRATION 431, 435 (B. Guy Peters & Jon Pierre eds., 2d ed. 2012).

34. Cf. Tony Evans & Peter Hupe, *Conceptualizing Discretion*, in DISCRETION AND THE QUEST FOR CONTROLLED FREEDOM, *supra* note 2, at 1, 5.

35. See Smith, *supra* note 33, at 436.

36. *Id.* at 439–43.

37. See Yousif El-Ghalayini, *New Public Management: An Assessment of Impact and the Influence on Public Administration*, 6 PUB. POL'Y & ADMIN. RSCH. 18, 19–20 (2016).

38. See Pfiffner, *supra* note 31, at 444.

political factors, the need to reform public administration and improve public services emerged.³⁹ When organizations became too big and complex, the centralization created a massive delay in execution and did not allow civil servants to respond quickly to changes.⁴⁰ With more responsibilities for street-level bureaucrats, more mechanisms for holding them accountable were developed. Those mechanisms included stricter assessment of performance and empowering citizens to actively demand greater transparency.⁴¹ However, questions about how much discretionary power should be delegated to street-level bureaucrats and how they should be using it are the subject of a continuing and heated debate.

The most common justification for discretion stems from the nature of laws and policies, which are often written in a very general manner and in broad terms in order to cover a wide range of cases. Thus, discretion is applied in each individual case to close gaps within the law and ensure equitable results.⁴² This is especially important in sensitive domains such as welfare and health care, where legislators may provide additional guidance but otherwise leave street-level bureaucrats to solve complex situations.⁴³ And even if a law is specific and clear, it is not possible to anticipate all the potential implications of a specific law or policy, so discretion is needed for solving cases on which the law is silent. In these cases, the street-level bureaucrats use their reasoning abilities, acquired experience, and common sense.⁴⁴

However, discretion requires decision makers to diverge from the letter of the law on the books and create new and practical rules that fit individual cases. With this broad leeway, there is an increased risk that this power will be applied arbitrarily. Different officers might apply their discretionary power differently, and individual officers might handle similar cases inconsistently. This could lead to discrimination, interfere with individuals' right to receive equal treatment, and prevent them from developing reliable expectations about what benefits they are eligible for.⁴⁵ Additionally, delegating discretionary power to street-level bureaucrats could interfere with democratic governance. Unelected street-level bureaucrats might not apply policies as originally intended by the elected legislature. In

39. See El-Ghalayini, *supra* note 37, at 20.

40. See Pfiffner, *supra* note 31, at 444–45.

41. See Smith, *supra* note 33, at 439–40.

42. See Anders Molander, Harald Grimen & Erik Oddvar Eriksen, *Professional Discretion and Accountability in the Welfare State*, 29 J. APPLIED PHIL. 214, 214 (2012).

43. See *id.* at 223–25.

44. See *id.*

45. *Id.* at 217–18.

addition, discretion could undermine accountability; it is hard to hold street-level bureaucrats accountable for their actions because many fall within their prerogative power.⁴⁶ The impact of new technology on this debate over administrative discretion and the extent of public administrators' discretionary power, especially in the welfare context, are examined below.

B. From Street-Level Bureaucracy to System-Level Bureaucracy

The rapid deployment of advanced technology in the public sector starting in the 1990s and continuing now is significantly shaping administrative discretion and the degree of its influence. Governments are rapidly deploying advanced analytics and artificial intelligence algorithms in order to achieve two goals: (1) to improve the quality of services for their citizens, and (2) to deal with budget cuts and increasing workloads.⁴⁷ The deployment of information and communication technologies reduced the direct contact of public officers with individuals, put a screen between the two, and shifted the focus of the officers from handling individual cases to more administrative tasks. Street-level bureaucracy was replaced with “screen-level bureaucracy” and later on by “systems-level bureaucracy.”⁴⁸ In the screen-level bureaucracy era, caseworkers mainly fed data into standard electronic forms while the actual decision-making was done by the software.⁴⁹ Screen-level bureaucracies were not very successful due to a lack of unanimity among systems and the fact that different components inside one system required focusing on the interrelations between processes.⁵⁰ For example, consider the case of applying for a student grant: in the street-level bureaucracy era, an interview with an officer from the Ministry of Education determined whether the student would get the grant and what would be the amount. In the screen-level bureaucracy era, officers were tasked with detailing the criteria on which they based their decisions and they mainly feed data that students manually wrote into the computer. However, not all computer systems across all offices of the Ministry were consistent, and this led

46. Wagenaar, *supra* note 2, at 260–61.

47. See Michael Veale & Irina Brass, *Administration by Algorithm? Public Management Meets Public Sector Machine Learning*, in ALGORITHMIC REGULATION 121, 121 (Karen Yeung & Martin Lodge eds., 2019); Alston, *supra* note 22.

48. Mark Bovens & Stavros Zouridis, *From Street-Level to System-Level Bureaucracies: How Information and Communication Technology Is Transforming Administrative Discretion and Constitutional Control*, 62 PUB. ADMIN. REV. 174, 175, 177 (2002).

49. See *id.* at 177.

50. Pereira, *supra* note 1.

to certain fixes being implemented in one office but not another or to bugs related to the fact that the same people appeared in a different system with a different status.⁵¹ Later on, system-level bureaucracy arose. System-level bureaucrats mainly develop strategies for designing IT systems tasked with automation and creating links between existing IT systems in the organizations in order to smooth the automation process.⁵² In this era, officials interact with their citizens even less since more people have internet access and can thus fill out forms on their own.

This progression from street-level to system-level bureaucracy can be seen in the enforcement of traffic violations. Traditionally, police officers were responsible for enforcing speed limits and had the discretion of deciding which car to stop and whether to ticket the driver or just issue a warning.⁵³ In the screen-level bureaucracy era, the police kept on doing their jobs but since all the agencies involved (police, prosecutors, courts, etc.) computerized their records, the police officer had access to a wide range of information and could make a more informed decision.⁵⁴ Finally, by installing street cameras and delegating the task to a system-level bureaucrat, the discretionary power was eliminated.⁵⁵ After the camera catches a violation and the system verifies the person to whom the car is registered, a ticket is issued automatically.⁵⁶

On the one hand, eliminating the administrative discretion led to a positive outcome: more neutral and uniform law enforcement. Anyone who violated the traffic laws could expect to be punished, and the risk that the police would stop mainly people of a certain class based on their appearance or the car they drove was eliminated. On the other hand, the criminal law system, which in the past required an individual assessment by an experienced judge, is now being replaced by a standardized judgment under administrative law. Although it is efficient to reserve the precious time of judges for cases more severe than traffic violations, the way the change has been implemented has hindered easy resolution of marginal cases, such as where the ticketed person wishes to convince the authorities that the traffic sign was missing.⁵⁷

51. See Bovens & Zouridis, *supra* note 48, at 178.

52. See *id.* at 1748–79.

53. *Id.* at 179.

54. *Id.*

55. *Id.*

56. *Id.*

57. *Id.* at 179.

In modern system-level bureaucracies, public servants indeed have less discretionary power than they did before, and they are guided by more detailed and strict regulations on how to interpret standards.⁵⁸ In addition, physical interaction with citizens is significantly reduced, as public officers now work mainly behind the scenes on designing and operating the systems.⁵⁹ In other words, the “technostructure” is now the operating core of each organization; the system is most powerful and the humans who remain in the process support the structure dictated by the automatic system. However, discretion has not been completely eliminated; it has merely shifted to new actors—the IT engineers who build and design the system.⁶⁰ These data engineers are becoming the new street-level bureaucrats, but they are not focusing on individual cases. They approach the process with different skills, exporting data into mathematical formulas capable of identifying patterns and making predictions.⁶¹ The only cases processed by humans under the new regime are the “hard cases” that the machine is not able to deal with, although the machine still plays a role in flagging those cases.⁶²

There are several problems with this structure. First, engineers and data analysts are not public officers by training nor by definition (i.e., they do not interact with individuals and understand their needs, rather they are driven mainly by increasing efficiency), so the considerations that they take into account could lack governmental and democratic checks and balances. Second, since system-level bureaucracies are highly centralized and linked, other administrative agencies could be impacted as any error could create a chain reaction that would be hard to untangle.⁶³ Third, the use of algorithms and automated systems increases the number of blind spots in the process, and although this creates more opportunities to apply discretion, these blind spots are often hidden so it is difficult to control the use of discretion and prevent its abuse.⁶⁴

Research on discretion is highly contextual and interdisciplinary, so it often requires bridging the gap between different

58. *Id.* at 176.

59. See Stavros Zouridis, Marlies van Eck & Mark Bovens, *Automated Discretion*, in DISCRETION AND THE QUEST FOR CONTROLLED FREEDOM, *supra* note 2, at 313, 315–17.

60. See *id.* at 318–19.

61. See *id.* at 318–20.

62. *Id.* at 321, 326.

63. *Id.* at 322.

64. Frans Jorna & Pieter Wagenaar, *The “Iron Cage” Strengthened? Discretion and Digital Discipline*, 85 PUB. ADMIN. 189, 212 (2007).

conceptions of freedom and power.⁶⁵ Thus, the discussion about the proper governance mechanisms and the impact of automation has to be tailored to the domain at stake. The next Section discusses the evolution of street-level bureaucracy and administrative discretion in the context of welfare.

C. Street-Level Discretion and the Welfare State

Street-level agencies play a major role in the welfare system, where they serve as the mediators between individuals and the state and bridges between the official policy in the books and the policy in practice.⁶⁶ Street-level bureaucrats have a dual role: they are formal gatekeepers because they grant benefits and services according to the rules, and they are also informal gatekeepers because they can use their discretion to rule for or against certain individuals according to their own interpretation of the aforementioned rules.⁶⁷ And because informal gatekeeping is so difficult to trace, it is hard to hold bureaucrats accountable for it.

Two major trends have contributed to shaping the current form of welfare services. First, as mentioned in the previous Section, is the shift from the traditional to the new model of public management. Under the traditional model, the idea was to create large-scale bureaucracies that would help citizens exercise their rights in the modern industrialized world.⁶⁸ Welfare benefits were considered part of the social rights that the government ought to distribute, and welfare agencies were governmental agencies operating like large-scale bureaucracies and employing many street-level bureaucrats.⁶⁹ Although this was the general trend, there were differences between jurisdictions. While the European welfare states had more noticeable large-scale bureaucracies, the United States did not allocate the necessary resources for developing and maintaining such agencies.⁷⁰ The large-scale bureaucracies operated in a top-down manner, where the direction and tone were dictated by upper-level managers.⁷¹ Under this model, street-level bureaucrats were overloaded and were unable

65. See Evans & Hupe, *supra* note 34, at 7–8.

66. Evelyn Z. Brodtkin, *Discretion in the Welfare State*, in *DISCRETION AND THE QUEST FOR CONTROLLED FREEDOM*, *supra* note 2, at 63, 63.

67. *Id.* at 68–69.

68. See *id.* at 71.

69. Smith, *supra* note 33, at 432–33.

70. *Id.* at 433–44.

71. *Id.* at 439.

to meet the citizens' demands, so they had to ration services by slowing down processes—creating long queues and limiting access as a result.⁷²

Under the new public management model, welfare allocation became much more decentralized. In 1996 in the United States, Congress transferred much of the responsibility for welfare administration from the federal system to the states; thus, welfare services were subject to the financial capabilities of each state and the political willingness to support welfare initiatives.⁷³ In Europe, the idea behind decentralization was to give street-level bureaucrats more responsibilities and to increase their level of engagement so that they would support broader policies instead of sabotaging them.⁷⁴

The second trend was the move from universalistic to selective social policies. While under a universalistic approach welfare benefits are made available to everyone as a social right, a selective approach distributes benefits only to those who need them the most and determines eligibility with financial tests.⁷⁵ Supporters of the selective approach claim that if benefits are given on the basis of need, this will lead to better allocation of scarce public resources and enable the government to give more to the poor.⁷⁶ However, believers in the universalistic approach adhere to the idea that equal distribution of benefits promotes solidarity and prevents labeling the poor as a burden on society.⁷⁷ In addition, if benefits depend on income, this could encourage certain people not to work and instead rely on the benefits.⁷⁸ Traditionally, European countries, and in particular Scandinavian countries, have followed the universal model for the vast majority of benefits, while Anglo-American countries have adopted the selective model.⁷⁹ In recent years, there has been a worldwide convergence toward the selective approach and means testing as a condition for receiving benefits.⁸⁰ As part of this trend, street-level bureaucrats were instructed to “activate” clients by conducting training programs for job hunting, helping with job applications, and understanding the program

72. See *id.* at 434, 439–41.

73. Marcia K. Meyers, Norma M. Ricucci & Irene Lurie, *Achieving Goal Congruence in Complex Environments: The Case of Welfare Reform*, 11 J. PUB. ADMIN. RSCH. & THEORY 165, 165–66 (2001).

74. Deborah Rice, *Street-Level Bureaucrats and the Welfare State: Toward a Micro-Institutionalist Theory of Policy Implementation*, 45 ADMIN. & SOC'Y 1038, 1038–39 (2012).

75. NEIL GILBERT, TRANSFORMATION OF THE WELFARE STATE: THE SILENT SURRENDER OF PUBLIC RESPONSIBILITY 136 (2002).

76. *Id.*

77. *Id.*

78. *Id.*

79. *Id.*

80. See *id.* at 137–38.

or skills needed.⁸¹ The selective approach, combined with activation policies, increased the use of discretion by street-level bureaucrats since the eligibility for benefits, and sometimes the total payout, was conditioned on complying with either protocols developed by the street-level bureaucrats or their general impression of the individual's compliance.⁸² Distributing benefits on a selective basis can thus be a veiled but effective way to reduce the scope of coverage. While on its face the goal of the program remains the same—supporting those who are most vulnerable—creating subcategories of impairment increases the threshold for eligibility.⁸³ It becomes harder to apply, and the people who are eligible could be unaware of their eligibility.

D. The Impact of Technology on Street-Level Bureaucrats in the Context of Welfare

The advanced technology used, including online platforms for applying for benefits, coupled with big data and surveillance mechanisms, is catalyzing the shift to the selective approach and enabling means testing. The trends that were discussed above regarding the influence of technology on administrative discretion are specifically relevant to the automation of welfare officers' discretion. Surveillance technology significantly influences the degree of discretion street-level bureaucrats have in their decision-making. On the one hand, the vast amount of data generated by surveillance technology could increase the robustness of decision-making and enhance security since welfare officers have stronger grounds to base their decisions on.⁸⁴ In addition, automation could allow system-level bureaucrats to focus on the broader picture beyond individualized interactions, to identify patterns of discretion, and to engage with welfare issues that require a change.⁸⁵ On the other hand, the use of surveillance technologies has many drawbacks. In liberal democracies, the use of surveillance technologies is mainly associated with a threat to freedom and an attempt by the government to enforce social order and manage its population.⁸⁶ Surveillance technology can also contribute to the marginalization of certain communities by encouraging profiling and attaching labels to people, a particularly relevant issue for the cases

81. See Rice, *supra* note 74, at 1039.

82. See Molander, Grimen & Eriksen, *supra* note 42, at 215–16.

83. GILBERT, *supra* note 75, at 149.

84. Mark Hardy, *Discretion in the Surveillance State*, in DISCRETION AND THE QUEST FOR CONTROLLED FREEDOM, *supra* note 2, at 41, 41.

85. See, e.g., Brodtkin, *supra* note 66, at 73.

86. Hardy, *supra* note 84, at 44.

that will be discussed in this Article.⁸⁷ Finally, research shows that when governmental agencies opted for automated processes, it became harder to seek some welfare benefits because the assessment is not done by experts but by a machine, which can assess a massive amount of cases faster but pays less attention to individual circumstances.⁸⁸

System-level bureaucracies have narrowed the discretionary power of caseworkers, who now focus on building and shaping the systems, but they still retain some power as to the type of information that they feed the system. The fact that caseworkers are no longer able to communicate face to face with their clients and listen to their struggles has been a major source of frustration and criticism among both caseworkers and clients.⁸⁹ This element is particularly important because caseworkers are not only helping their clients understand their rights and apply for benefits but also serving as a bridge between what is often the “chaotic lifestyle” of the clients and the “ordered world” of bureaucracy, the latter of which requires the submission of extensive documents, keeping up with some payments, and other onerous requirements.⁹⁰ In the era of system-level bureaucracy, the relationship between the caseworker and the individual is no longer central because faces and stories are turning into risk factors and variables in equations.⁹¹ These conflicts between the roles of caseworkers as social workers versus data analysts, and between efficiency, effectiveness, and scientific robustness versus individual needs in welfare, are at the core of the discussions in both the Michigan and the Netherlands case studies.

III. AUTOMATION OF FRAUD DETECTION IN WELFARE BENEFITS IN MICHIGAN AND IN THE NETHERLANDS

In this Part, two case studies about the automation of welfare fraud investigations will be discussed. The first involves an algorithm that automated the detection and investigation of fraud in unemployment benefits in Michigan, and the second involves an algorithm that automated the detection of welfare fraud in the Netherlands. The goal of this Part is to lay the groundwork for a more

87. *Id.* at 47.

88. Brodtkin, *supra* note 66, at 69.

89. See, e.g., Virginia Eubanks, *The Policy Machine: The Dangers of Letting Algorithms Make Decisions in Law Enforcement, Welfare, and Child Protection*, SLATE (Apr. 30, 2015, 1:55 PM), <https://slate.com/technology/2015/04/the-dangers-of-letting-algorithms-enforce-policy.html> [<https://perma.cc/ZB8M-RL43>].

90. See Wagenaar, *supra* note 2, at 269–70.

91. Hardy, *supra* note 84, at 45.

detailed discussion of the different aspects of discretion that were automated and their impact on street-level bureaucracy.

A. The Michigan Case: Detecting Fraud in Unemployment Benefits

The Michigan Unemployment Insurance Agency (UIA) deployed the Michigan Integrated Data Automated System (MiDAS) in October 2013.⁹² MiDAS superseded a thirty-year-old IBM program whose operation cost \$10 million.⁹³ The old program consisted of several systems and platforms, each responsible for a certain task.⁹⁴ MiDAS attempted to gather all of UIA's operational systems under one roof.⁹⁵ The goal of MiDAS was to provide real-time data sharing across functions in the UIA, enhance productivity, improve customer services, and ease compliance with changing regulations.⁹⁶ MiDAS was developed by FAST Enterprises, which configured its GenTax commercial-off-the-shelf (COTS) application to the needs and characteristics of the UIA.⁹⁷ CSG Government Solutions, another private vendor, was tasked with overseeing and managing the project.⁹⁸ On the government side, the UIA and the Department of Technology, Management, and Budget oversaw the production and implementation of MiDAS.⁹⁹ The design and implementation of MiDAS began in 2011 and took approximately two years, after which additional components were gradually added.¹⁰⁰ One of the major functions of MiDAS was to reduce the costs associated with the detection and adjudication of

92. DOUG A. RINGLER, MICH. OFF. OF THE AUDITOR GEN., REPORT NO. 641-0593-15, PERFORMANCE AUDIT REPORT: MICHIGAN INTEGRATED DATA AUTOMATED SYSTEM (MiDAS) 1 (2016), <https://audgen.michigan.gov/wp-content/uploads/2016/07/r641059315.pdf> [<https://perma.cc/A7WT-ENDA>].

93. MICH. UNEMPLOYMENT INS. AGENCY, MICHIGAN INTEGRATED DATA AUTOMATED SYSTEM & UNEMPLOYMENT INSURANCE MODERNIZATION PROJECT 2 (2013).

94. See TALENT INV. AGENCY & UNEMPLOYMENT INS. AGENCY, MICH. DEPT OF TALENT AND ECON. DEV., INTEGRATED SYSTEM PROJECT QUARTERLY REPORT (2016) [hereinafter MiDAS REPORT], https://www.michigan.gov/documents/td/Quarterly_Report_-_UIA_-_April_2016_003_526924_7.docx [<https://perma.cc/U5Z2-ATZ5>].

95. See *id.*

96. MiDAS REPORT, *supra* note 94.

97. *Id.*

98. See Paul Egan, *Michigan Integrated Data Automated System Experiences 93 Percent Error Rate During Nearly Two Years of Operation*, GOV'T TECH. (July 31, 2017), <https://www.govtech.com/data/Michigan-Integrated-Data-Automated-System-Experiences-93-Percent-Error-Rate-During-Nearly-Two-Years-of-Operation.html> [<https://perma.cc/DY3K-GEKP>].

99. Cahoo Complaint, *supra* note 11, ¶¶ 11–13.

100. MiDAS REPORT, *supra* note 94.

alleged fraud in unemployment benefits.¹⁰¹ SAS, Inc. was brought in to implement the fraud detection project, which started in 2013 and was implemented in 2015.¹⁰² Its goals were reducing fraud in unemployment benefits distribution, identifying violations by linking data from different agencies, and recognizing patterns of fraudulent activity.¹⁰³ Unfortunately, MiDAS proved to be a shockingly ineffective algorithm that did not fulfill its promise. It generated mainly false positives, and approximately 93 percent of cases were wrongly flagged.¹⁰⁴ MiDAS replaced approximately four hundred employees at the UIA who had been reviewing individual cases and potential discrepancies; this also reduced the number of public officers working with individuals from 260 to 184.¹⁰⁵ Before MiDAS was implemented, the caseworkers conducted interviews with individuals, dealt with any questions that were unclear, and used their discretion to determine why the individual was suspected of committing fraud, when fraud occurred, and how many weeks of benefits should be returned (if any).¹⁰⁶

MiDAS sifts through a large amount of data, looking for any discrepancies in the records of individuals who are currently receiving or have previously received UIA benefits.¹⁰⁷ If any discrepancy is found, for example, between documents submitted by the employer and the information reported by the beneficiary, MiDAS automatically flagged the case for potential “claimant misrepresentation.”¹⁰⁸ A common discrepancy is a mismatch between the reported reason for applying for the benefits by the employer and the employee. If the employee selected being fired and the employer selected termination of the employment, MiDAS did not understand that those are synonyms, and it flagged the case.¹⁰⁹ Once the case has been flagged, MiDAS began the process of determining if the discrepancy constitutes fraud. MiDAS automatically issued a letter to the individual that questioned her eligibility, and it asked her to answer two questions: (1) “Did you intentionally provide false information to obtain benefits you were not entitled to receive?”

101. *Id.* This Article focuses only on the fraud detection component aspect and not any other UIA functions.

102. *Id.*

103. *Id.*

104. Claburn, *supra* note 2.

105. MiDAS FACTSHEET, *supra* note 24.

106. Telephone Interview with Tony Paris, Lead Att’y, Sugar L. Ctr. for Econ. & Soc. Just. (Feb. 7, 2020).

107. Cahoo Complaint, *supra* note 11, ¶¶ 24–28.

108. *Id.* ¶¶ 27–28.

109. Telephone Interview with Jennifer Lord, Partner, Pitt, McGehee, Palmer, Bonanni & Rivers (Jan. 1, 2020).

and (2) “Why did you believe you were entitled to benefits?”¹¹⁰ Eight possible answers were listed, for example, “I needed the money,” “I did not understand how to report my earnings or separation reason,” and “Someone else certified (reported) for me.”¹¹¹ The letter did not include individual explanations of why the case was flagged, and it did not give the individual an option to report that they were legitimately entitled to the benefits and that the information was reported in good faith.¹¹² This is one of the most troubling problems with MiDAS or any other algorithmic system that lacks meaningful overview. There is no room for the individual to explain the situation because even the most advanced language processing techniques would struggle to understand the meaning of any open statement that the individual provides.¹¹³ If the individual did not respond within ten days, or if MiDAS deemed the response unsatisfactory, it automatically determined the case as fraud.¹¹⁴ In 2016, the Michigan Office of the Auditor General conducted an audit of MiDAS and identified critical failures in its operation. The number of appeals of fraud determinations had increased exponentially from 2,280 to 22,473 after the deployment of MiDAS, and the state had to employ new judges to handle the flood of appeals, 92 percent of which were successful.¹¹⁵ In addition, the Auditor General criticized the lack of security measures in MiDAS that could cause losses or compromises of data.¹¹⁶

The draconian way in which MiDAS operated led to the seizure of tax refunds, garnishment of wages, and imposition of high penalties.¹¹⁷ Thousands of individuals were falsely accused of committing fraud.¹¹⁸ At least a thousand of them had to file for bankruptcy and many are still suffering from the negative ramifications of a bad credit report that can limit their ability to conduct daily tasks such as renting an apartment, seeking employment, or obtaining

110. Cahoo Complaint, *supra* note 11, ¶ 37.

111. *Id.*

112. *See id.* ¶¶ 31–36.

113. Telephone Interview with Jennifer Lord, *supra* note 109; Telephone Interview with Tony Paris, *supra* note 106.

114. Cahoo Complaint, *supra* note 11, ¶ 41.

115. RINGLER, *supra* note 92, at 22; *see* Eric Katz, *Feds Rarely Win Before MSPB. Board Says That's Not a Problem*, GOV'T EXEC. (May 16, 2019), <https://www.govexec.com/management/2019/05/feds-rarely-win-mspb-board-says-s-not-problem/157021/> [<https://perma.cc/5MLA-RE84>] (“The federal court that hears appeals following a board decision has affirmed MSPB’s decisions 92% to 96% of the time.”).

116. *See* RINGLER, *supra* note 92, at 1–2.

117. RICHARDSON ET AL., *supra* note 10, at 20–21.

118. *Id.*

loans.¹¹⁹ Others pled guilty to fraudulent activity they did not commit, hoping to end the misery as fast as possible without considering consequences, such as being barred from certain professions like teaching and financial advising because of the moral turpitude associated with fraud.¹²⁰ At least two individuals committed suicide because of the financial penalties imposed by MiDAS.¹²¹ After the news about MiDAS broke, legislation was passed that prohibited the UIA from making fraud determinations solely by computer program and mandated improved notice requirements.¹²² However, the UIA did not reveal information about what the oversight included.¹²³

Two class action lawsuits filed in 2015 attempted to challenge different aspects of MiDAS. The first was a class action lawsuit brought before the State of Michigan Court of Claims by Grant Bauserman and two others on behalf of a class of similarly situated individuals, against the Michigan UIA, alleging due process violations.¹²⁴ The second case was a federal class-action lawsuit brought before the US District Court for the Eastern District of Michigan by five individuals and other similarly situated persons against the private companies that UIA contracted with for developing MiDAS and six decision makers at UIA in their individual capacity.¹²⁵ Both cases are still in their early stages due to several attempts to move for dismissal on administrative grounds.

B. The Netherlands Case: Detecting Welfare and Tax Fraud

The algorithmic fraud detection system that operates in the Netherlands (SyRI) is different from MiDAS. On the one hand, it has fewer capabilities because it only automates data collection and analysis—it does not automatically determine any violation—and there is a considerable amount of human oversight included in the system.¹²⁶ On the other hand, SyRI is a large-scale system that is exposed to significantly much more data that comes from a broad range of

119. *Id.* at 23.

120. *Id.*

121. Claburn, *supra* note 2.

122. MiDAS FACTSHEET, *supra* note 24, at 2.

123. RICHARDSON ET AL., *supra* note 10.

124. Bauserman v. Unemployment Ins. Agency, No. 15-000202-MM (Mich. Ct. Cl. filed Sept. 9, 2015).

125. Cahoo v. SAS Inst. Inc., 322 F. Supp. 3d 772, 784 (E.D. Mich. 2018).

126. See Anton Ekker, *Profiling the Poor: Automated Decision Systems (ADS) in the Digital Welfare State*, DATA, CYBERSECURITY & PRIV., Sept. 2019, at 34, 36.

governmental agencies.¹²⁷ It also simultaneously investigates different types of fraud in welfare benefits, and it has surveillance capabilities.¹²⁸

SyRI is an algorithmic system implemented by the Netherlands' Ministry of Social Affairs and Employment with the goal of preventing social security, employment, and tax fraud.¹²⁹ SyRI is an optional national project used only at the request of a municipality that wants to work together with other administrations.¹³⁰ Five projects have been initiated throughout the lifetime of the algorithm but three of them were canceled in the early stages due to capacity problems, product delays, and because of doubts related to the privacy impact assessment.¹³¹ Two projects were eventually conducted in notably poor municipalities or poor neighborhoods in certain municipalities, which is one of the main criticisms of the system's deployment.¹³² The system operates using a "neighborhood-centered approach risk model," a model that is based on multidisciplinary intervention that ensures compliance with the law and fighting fraud while helping residents improve the quality of their lives and notifying them about benefits for which they might be eligible.¹³³

SyRI compiled and analyzed data from several governmental agencies, such as the municipality, the tax office, the employee insurance provider, the social security bank responsible for child benefit and pensions, the immigration authority, and the department responsible for the prosecution of labor law violations.¹³⁴ The algorithm searched for discrepancies in the data and flagged the cases that posed a high risk of illegitimate conduct or noncompliance with the laws, which are put under surveillance for up to two years.¹³⁵ At the end, if the case was still suspicious, a risk report was created and sent to the relevant agency for further investigation and debt collection if necessary.¹³⁶ One example of a discrepancy would be if someone was receiving housing benefits without being registered at the address that is given on the forms. After a discrepancy was detected, an employee

127. *See id.*

128. *See* RICHARDSON ET AL., *supra* note 10, at 24.

129. *Id.*

130. *See* Vervloesem, *supra* note 16.

131. Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.105 (Neth.).

132. *See Profiling and SyRI, supra* note 17.

133. Ilja Braun, *High-Risk Citizens*, ALGORITHM WATCH (July 4, 2018), <https://algorithmwatch.org/en/story/high-risk-citizens/> [<https://perma.cc/6EV9-HKEM>].

134. *Id.*

135. *See* Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶¶ 4.15, 6.105 (Neth.).

136. Braun, *supra* note 133.

from the Ministry of Social Affairs was tasked with examining the case and making sure that there were no false signals,¹³⁷ for example, the individual lived in a retirement home where many people shared the same address. The data analyst would report such errors in order to adjust the model and prevent it from happening again.¹³⁸

On the technical front, the creation of the risk report was divided into two steps: data processing and data analysis.¹³⁹ In the processing stage, the Benefits Intelligence Agency Foundation (Stichting Inlichtingenbureau [hereinafter IB]), a special foundation created to coordinate the SyRI project and the collaboration between the Ministry of Social Affairs and Employment and the municipalities, encrypted all identifying personal information, a risk classification was applied to the encrypted data, and the files of those who are flagged by the algorithm as high risk cases were decrypted.¹⁴⁰ The foundation then passed the report to the Ministry of Social Affairs and Employment for further investigation and was supposed to delete the data within four weeks.¹⁴¹ The task of the Ministry was to investigate the report for research worthiness and discover issues like the retirement home, as in the example above.¹⁴²

The use of SyRI was authorized by Parliament in 2014 as part of a broader welfare reform.¹⁴³ Its legality is anchored in Articles 64–65 of the *Wet structuur uitvoeringsorganisatie werk en inkomen* (SUWI).¹⁴⁴ According to Article 64, the purpose of cooperation between governmental agencies is to facilitate “integral government action with regard to the prevention and combating of unlawful use of government funds and government provisions in the field of social security and income-related arrangements.”¹⁴⁵ Article 64 also emphasizes that the

137. *Id.*

138. *Id.*

139. *See id.*

140. Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 4.28 (Neth.).

141. Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶¶ 4.29, 4.30 (Neth.).

142. *See id.* ¶ 4.30.

143. Toh, *supra* note 20.

144. *Wet structuur uitvoeringsorganisatie werk en inkomen* [SUWI] 29 november 2001, Stb. 2001, art. 65. “*Wet structuur uitvoeringsorganisatie werk en inkomen*” is the Act concerning the Structure of the Implementation of the Labor and Income in the Netherlands. *See* Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 2.3 (Neth.). SUWI, the abbreviation of the name as it was used by the court and in the subpoena, will be used throughout this Article. *Id.*

145. *See id.* ¶ 4.4. Please note that the quotation is taken from an unofficial translation of the judgment in Dutch and therefore there might be minimal inaccuracies in the translation. *See generally id.*

processing of the collected data should be in accordance with the General Data Protection Regulation (GDPR).¹⁴⁶ Article 65 provides the legal basis for processing the data and outlines the seventeen types of data that can be processed, including work data, data about administrative sanctions such as fines, tax data, trade data, accommodation data, data about benefits including exclusion from benefits, education data, and more.¹⁴⁷ Article 65 also sets the conditions for creating “risk reports” by SyRI: it must be “a finding of an increased risk of unlawful use of government funds or government facilities in the area of social security and income-related schemes”; aligned with the purpose stated in Article 64; and processed by designated personnel within the agency.¹⁴⁸

According to the authorities, €496,000 were saved as a result of discontinuation or recovery of state benefits and allowances due to SyRI.¹⁴⁹ However, similar to MiDAS, SyRI had many technical flaws and it generated too many false positives. For example, one of the projects conducted in Capelle aan den IJssel resulted in 62 violations out of 113 issued risk reports and tens of thousands of cases investigated.¹⁵⁰ In the Netherlands, as in many other places, if people are marked in a governmental database as fraudsters, they will suffer severe consequences that are not easy to reverse even if the determination was the result of a mistake or computer error. People could lose their mortgages, social benefits could be blocked, and the information will be shared automatically with many governmental organizations, thus making the process of undoing the error much longer and more complicated.¹⁵¹

Although SyRI did not execute automatic decisions to cut social benefits like MiDAS, there was a significant public backlash against the system, and the consequences of the government surveillance led nonprofit organizations and several individuals to file a lawsuit in the District Court of The Hague.¹⁵² The plaintiffs requested that the court declare the use of SyRI illegal on the basis of privacy violation, unlawful

146. Wet structuur uitvoeringsorganisatie werk en inkomen [SUWI] 29 november 2001, Stb. 2001, art. 64.

147. See *Rechtbank den Haag* [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 4.17 (Neth.).

148. *Id.* ¶¶ 4.18–4.15.

149. Braun, *supra* note 133.

150. *Id.*

151. NORBERT JANSEN, CALL FOR SUBMISSIONS: ON DIGITAL TECHNOLOGY, SOCIAL PROTECTION, AND HUMAN RIGHTS. 5–6 (2019), <https://www.ohchr.org/Documents/Issues/Poverty/DigitalTechnology/ITCU.pdf> [<https://perma.cc/2DMR-S63Z>].

152. RICHARDSON ET AL., *supra* note 10.

profiling of innocent citizens, the potential discriminatory effect of the system that was deployed mainly in poor cities, and the extent of the data sharing between entities.¹⁵³ On February 5, 2020, the District Court of The Hague ruled in favor of the plaintiffs and declared Article 65 of SUWI illegal.¹⁵⁴ The court viewed the purpose of fighting fraud as legitimate and it encouraged the government to take advantage of new technology to combat unlawful use of public money.¹⁵⁵ This is because social security is one of the pillars of Dutch society, since it is funded by public money, and it is crucial to fight against fraud in order to maintain the solidarity and trust that the Dutch people have in their government.¹⁵⁶ However, the court ruled that the operation's implementation violated basic human rights norms and that there was a lack of sufficient safeguards for the automation.¹⁵⁷

IV. SITUATING THE CASE STUDIES WITHIN THE SOCIOPOLITICAL CONTEXT

Technical tools do not operate in a vacuum. They are developed in a specific context, often to fulfill a certain agenda, and they are shaped by the sociopolitical framework in which they operate.¹⁵⁸ As mentioned earlier, the degree of autonomy of street-level bureaucrats was always in question, both under the traditional public management approach when they were controlled and later on when they were given more autonomy. This debate continues because street-level bureaucrats are perceived as representatives of the higher administration and carry out their agendas, thus exposing that their work is prone to political influence. This Part demonstrates how the failures and problems created by both MiDAS and SyRI cannot be attributed only to the inevitable consequences of automation—they are also a result of intentional policy choices. However, the question of whether welfare

153. See *Proceedings Against Risk Profiling Dutch Citizens Through SyRI*, PUB. INT. LITIG. PROJECT (Oct. 16, 2019), <https://pilpnjcm.nl/en/proceedings-risk-profiling-dutch-citizens-syri/> [https://perma.cc/H86Q-C555].

154. Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.7 (Neth.).

155. See *id.* ¶ 6.4.

156. See *id.* ¶ 6.3.

157. Jon Henley & Robert Booth, *Welfare Surveillance System Violates Human Rights, Dutch Court Rules*, GUARDIAN (Feb. 5, 2020, 8:18 AM), https://www.theguardian.com/technology/2020/feb/05/welfare-surveillance-system-violates-human-rights-dutch-court-rules?CMP=share_btn_link [https://perma.cc/NY52-KXUP].

158. See Yochai Benkler, *The Role of Technology in Political Economy: Part 2*, LAW & POL. ECON. (July 26, 2018), <https://lpeblog.org/2018/07/26/the-role-of-technology-in-political-economy-part-2/> [https://perma.cc/364C-24JG].

fraud is a domain that should be automated in the first place must be addressed before diving into the specific claims related to the impact of automation on street-level bureaucrats and their discretion.

Governmental reforms that are aimed at improving efficiency and accountability often shift, limit, or expand patterns of discretion, and those changes can hurt certain populations more than others. Thus, automation often leads to minimizing the discretion of street-level bureaucrats who work in welfare agencies, which in turn disproportionately impacts the poor and the vulnerable by limiting their rights and access to benefits.¹⁵⁹ Virginia Eubanks, in her book *Automating Inequality*, discusses several examples of how welfare systems are designed to punish the poor and the disadvantaged and how automation has been used for decades for tracking, surveilling, and infringing on people's rights.¹⁶⁰ The Scientific Charity movement that arose in the United States as early as the 1870s focused on creating databases using the presumed characteristics of poverty (low intelligence, criminality, and unrestricted sexuality).¹⁶¹ Race played a major role in the analysis, and white poverty was treated differently than Black poverty.¹⁶² Later on, the deployment of technology led to a decrease in the number of people receiving benefits because few could deal with the resulting bureaucratic burden.¹⁶³ Thus, the physical poorhouses of the nineteenth century were replaced with twentieth-century digital poorhouses—systems in which computers collected, analyzed, and stored a huge amount of data about families receiving public benefits. Instead of rationalizing the benefit distribution, the digital poorhouses profiled, policed, and punished the poor.¹⁶⁴ On the international level, many researchers have highlighted the fact that although the right to social security has been recognized internationally and ratified in the United States and in the Netherlands, receivers of social benefits are treated as second-class citizens.¹⁶⁵ They are looked at with suspicion and are subjected to infringement of their basic rights, including the right to privacy.¹⁶⁶

159. Brodtkin, *supra* note 66, at 64.

160. VIRGINIA EUBANKS, *AUTOMATING INEQUALITY: HOW HIGH-TECH TOOLS PROFILE, POLICE, AND PUNISH THE POOR* 21–22 (2018).

161. *Id.*

162. *Id.* at 27.

163. *Id.* at 33.

164. *See id.* at 33–34.

165. *See* Brief by the United Nations Special Rapporteur on Extreme Poverty and Human Rights as Amicus Curiae at 6, *Rechtbank den Haag* [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) (Neth.) [hereinafter U.N. Amicus Brief].

166. *Id.* at 6–7.

Thus, cracking down on welfare fraud is part of a general trend of undermining the human right to social security and framing it instead as a rationed property right. Another phenomenon is the use of the media for alienating poverty and increasing racial polarization. Although Black poverty decreased dramatically during the 1960s, media stories about poverty continued to emphasize Black persons. Specifically, the representation of Black faces in poverty-related stories increased from 27 percent to 72 percent in a period of three years in the 1960s.¹⁶⁷

The technological capabilities of tools used by governments, coupled with the risk of stigmatizing welfare recipients, have recently received special attention from the UN Special Rapporteur on extreme poverty and human rights, Philip Alston. Alston warns in a report of “a grave risk of stumbling zombie-like into a digital welfare dystopia.”¹⁶⁸ In the “digital welfare state,” technology is used for automating, predicting, surveilling, targeting, and punishing the poor.¹⁶⁹ Alston highlights this move as a dangerous slippery slope, since technology is often presented as “an altruistic and noble enterprise designed to ensure that citizens benefit from new technologies, experience more efficient government, and enjoy higher levels of well-being.”¹⁷⁰ But in fact, automation also leads to significant reductions in the welfare budget, imposes heavier sanctions on minor violations, narrows the number of people who get the benefits by scaring potential applicants away with new and complex procedures, and, most importantly for welfare recipients, eliminates human interaction with public officers.¹⁷¹ As it will be explained below, the motives behind adopting both MiDAS and SyRI are quite complex and influenced by a convenient sociopolitical environment.

A. The Sociopolitical Context Surrounding MiDAS

In Michigan, civil rights organizations have pointed out various attempts by the governor at the time, Republican Rick Snyder, to minimize welfare support and deploy technology to cut costs and prioritize financial efficiency. Before getting elected as governor, Snyder worked in the private sector in different positions, including at

167. EUBANKS, *supra* note 160, at 33.

168. Alston, *supra* note 22.

169. *See id.*

170. *Id.*

171. *Id.*

Gateway, a computer company.¹⁷² In Michigan, Snyder teamed up with state legislators to reform the budget plan and eliminate the state deficit.¹⁷³ He restructured the Department of Licensing and Regulatory Affairs (LARA), whose mission was to reinvent government as customer driven and business minded.¹⁷⁴ In terms of unemployment benefits, in 2011, Snyder cut the number of weeks that Michigan citizens were eligible for unemployment benefits from twenty-six weeks to twenty weeks, the lowest in the nation at the time.¹⁷⁵ In addition, the state of Michigan charges those who wrongly obtain unemployment benefits a penalty of 400 percent plus interest, the highest penalty rate charged by any state.¹⁷⁶

This policy is reflected in the way MiDAS operates. MiDAS is designed to declare fraud regardless of whether the claimant has in fact committed fraud. MiDAS was driven by the UIA's desire to find fraud, and therefore almost every investigation was flagged as fraudulent for misconduct.¹⁷⁷ Unsurprisingly, a major criticism of MiDAS was the number of false accusations. In fact, 93 percent of the cases flagged by MiDAS were incorrect.¹⁷⁸ Hence, even if the purpose of adopting MiDAS was justifiable, the way it was implemented was not.

In addition to the MiDAS case, another lawsuit was brought against the Michigan Department of Health and Human Services (MDHHS) because of a similar, draconian automation program. The algorithm in that case automatically disqualified individuals from receiving food assistance if they had any outstanding felony warrants.¹⁷⁹ The Freedom of Information Act requests conducted in preparation for the lawsuit have revealed that MDHHS is planning to

172. See Nathan Bomey, *Did Rick Snyder Ship Jobs Overseas While at Gateway?*, ANN ARBOR NEWS (June 24, 2010, 6:10 AM), <http://www.annarbor.com/business-review/did-rick-snyder-ship-jobs-overseas-at-gateway/> [<https://perma.cc/55YR-EBH7>].

173. See MICH. STATE BUDGET OFF., DEPT. OF TECH., MGMT. & BUDGET, FISCAL YEARS 2018 AND 2019 EXECUTIVE BUDGET RECOMMENDATION (2017), https://www.michigan.gov/documents/budget/FY18_Exec_Budget_550967_7.pdf [<https://perma.cc/P83U-2YL9>].

174. *Core Values*, MICH. DEP'T OF LICENSING & REGUL. AFFS., <https://www.michigan.gov/lara/0,4601,7-154-10573-352890--,00.html> [<https://perma.cc/52YY-DV58>] (last visited Feb. 4, 2020).

175. MiDAS FACTSHEET, *supra* note 24, at 2.

176. *Id.*

177. See Ryan Felton, *Michigan Unemployment Agency Made 20,000 False Fraud Accusations – Report*, GUARDIAN (Dec. 18, 2016, 6:00 AM), <https://www.theguardian.com/us-news/2016/dec/18/michigan-unemployment-agency-fraud-accusations> [<https://perma.cc/4LA7-BLBE>].

178. *Id.*

179. RICHARDSON ET AL., *supra* note 10, at 19.

use the findings of the algorithm as part of a media campaign that bullies poor individuals who rely on government benefits.¹⁸⁰

B. The Sociopolitical Context Surrounding SyRI

In the Netherlands, the political backlash has been milder than in Michigan, and criticism centers on disappointment about what has happened to the welfare state.¹⁸¹ However, during the trial, the plaintiffs claimed that SyRI is not a standalone project but rather part of a governmental attempt to apply risk profiling in all sectors of society.¹⁸² In fact, several legislative proposals aim to ease data sharing between agencies.¹⁸³ There has been a notable change in recent years in the fight against fraud. Imposing sanctions on fraudsters used to be rare; the starting point now is that citizens are guilty until proven innocent. If there is a suspicion that fraud is being committed, benefits are cut and will not be restored unless the claimants have the time, resources, and ability to appeal the decision and prove that they were entitled to the money.¹⁸⁴ This is part of a broader issue with automation, which increases the power gap between the individual and the government by shifting the burden of tracking, identifying, and detecting the source of the error to the individual.¹⁸⁵

The main claim that received attention in the final judgment was the fact that all the projects involving SyRI took place in neighborhoods that are predominantly poor. Hence, SyRI might be targeting only the poorest and most vulnerable communities. The court ruled that the fact that SyRI has only been used in “problematic districts” is not illegal.¹⁸⁶ However, given the large amount of data that is being processed, there is a risk that SyRI could unintentionally come

180. *Id.*

181. See Christiaan Van Veen, *Profiling the Poor in the Dutch Welfare State*, N.Y.U. L. CTR. FOR HUM. RTS. & GLOB. JUST. (Nov. 1, 2019), <https://chrgj.org/2019/11/01/profiling-the-poor-in-the-dutch-welfare-state/> [<https://perma.cc/68TQ-VP8A>].

182. See Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.98 (Neth.).

183. *Id.* ¶ 6.26.

184. See Toh, *supra* note 20.

185. Arjan Widlak, Marlies van Eck & Rik Peeters, *Towards Principles of Good Digital Administration: Fairness, Accountability and Proportionality in Automated Decision-Making*, in *THE ALGORITHMIC SOCIETY: TECHNOLOGY, POWER, AND KNOWLEDGE* 67, 78–79 (Marc Schuilenburg & Rik Peeters eds., 2020).

186. See Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.93 (Neth.).

up with biased links, such as that between socioeconomic status and a likelihood of being involved in fraudulent activity.¹⁸⁷

Philip Alston submitted an amicus brief in support of the plaintiffs in the SyRI case that shed some light on the possible impact of SyRI on the poor and shows how this was a systematic approach that had been taking place in different forms for many years.¹⁸⁸ Alston explained how the practice of targeting the poor started in the early 2000s.¹⁸⁹ Typically, the people targeted by SyRI are those less likely to be able to defend themselves against intrusions of their privacy. Various authorities, including the welfare ministries, tax authorities, police, and prosecutors started to collaborate on data sharing to detect fraud and illegal activities.¹⁹⁰ In addition to mainly targeting poor and vulnerable communities, the government often settled for an algorithm with significantly high error rates. For example, a project called “Weatherproof” investigated sixty-three thousand individuals who received benefits intended for people who have no other form of income or assets.¹⁹¹ The fear was that people were reporting that they lived alone to receive higher benefits when they in fact were living with a companion.¹⁹² The goal of the data sharing was to examine water usage.¹⁹³ If it was found to be too low at a certain address, that was considered an indication that the individual was committing fraud by living at another address with someone else while listing an unoccupied home.¹⁹⁴ The algorithm investigated sixty-three thousand individuals and flagged four hundred cases for further investigation, but by the end of the process, only forty-two individuals committed fraud (0.07 percent of cases).¹⁹⁵ In another project, while 119,000 welfare beneficiaries were examined, fraud was established in only 117 cases (0.1 percent of the cases), and benefits were ultimately terminated in only ten cases.¹⁹⁶ As for SyRI, one project flagged forty-one cases as fraudulent, but the contribution was minimal since the relevant ministry was already aware of those cases from their ongoing, unassisted investigations.¹⁹⁷

187. *See id.*

188. U.N. Amicus Brief, *supra* note 165, at 3–4.

189. *Id.* at 3.

190. *Id.*

191. *Id.* at 4.

192. *Id.*

193. *Id.*

194. *Id.*

195. *Id.*

196. *Id.* at 4–5.

197. Telephone Interview with Anton Ekker, Attorney, Ekker Advocatuur (Feb. 9, 2020).

One interesting comparison that Alston makes in his amicus brief is between governmental attempts to crack down on fraudulent crimes committed by the poorest class and fraud crimes committed by upper-middle class citizens.¹⁹⁸ A pilot project conducted by the tax authority attempted to examine whether individuals who were driving company cars were also using them for private purposes without paying the relevant tax.¹⁹⁹ The project failed because the tax authority concluded that relying on the algorithm that assessed street camera footage would be considered a clear violation of the privacy of people who drive company cars.²⁰⁰ Hence, the value of the privacy right changes based on the class of the individual who is being investigated. In addition, the Dutch government is known for the big subsidies that it provides to international corporations.²⁰¹ Thus, the government is more willing to turn a blind eye to potentially big fraudulent activities while it spends significant resources on expensive systems like SyRI for minimal returns.

In summary, the sociopolitical context significantly impacts the types of algorithms that are adopted, how they work, and who they target. The attempts to magnify the scale of welfare fraud in order to gather more support for automation and further polarize society is especially troubling. These issues must be taken into account before deciding to automate a certain domain. It is evident that the money spent on poorly designed algorithms such as MiDAS and SyRI would be better used on improving welfare services and easing the application process either algorithmically or otherwise. Still, fighting welfare fraud is a legitimate governmental goal and using cutting-edge technology to do so is valid; this was recognized even by the SyRI court.²⁰² Hence, the discussion in the next Parts centers on how to fulfill this goal with proper safeguards in place. More specifically, it will address how to fight welfare fraud while ensuring that street-level bureaucrats can intervene when needed.

V. AFTER THE AUTOMATION, IS THERE SUFFICIENT ROOM FOR STREET-LEVEL BUREAUCRATS TO APPLY THEIR DISCRETION?

This Part deals with the first question related to modeling discretion: whether there is still sufficient room for street-level

198. U.N. Amicus Brief, *supra* note 165, at 12.

199. *Id.*

200. *Id.*

201. *Id.* at 4, 12.

202. Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.3 (Neth.).

bureaucrats to apply discretion after implementing the algorithm. The answer to this question will be divided into two Sections. The first Section analyzes what exactly the algorithm automates, defined as how broad the automated domain is and which parts of the decision-making process are automated. The second Section discusses how much discretionary power is shifted to the algorithm itself or to the engineers developing it. After determining whether any room for discretion is left, the following Part analyzes whether the discretion is meaningful.

A. *What Exactly Does the Algorithm Automate?*

1. Large-Scale Bureaucracy Versus System-Level Bureaucracy

Understanding the domain that an algorithm has automated and how broad it is requires understanding the different ways in which MiDAS and SyRI operate. The move from screen-level bureaucracy to system-level bureaucracy was previously discussed, but as automation technology advances, more links between different system-level bureaucracies are established and large-scale bureaucracies are created.²⁰³ There is no conclusive evidence in the literature answering the question of which type of bureaucracy is more favorable. Both system-level bureaucracies and large-scale bureaucracies have pros and cons that impact their efficiency as well as the work of the street-level bureaucrats.

On the one hand, in large scale bureaucracies, data is often shared between systems, and without further verification, it is combined to reach a certain decision that can cause many errors and chain reactions. The idea is that the very large size of the large-scale bureaucracies poses a risk from the governance perspective: they are very hard to manage, their maintenance is very costly, and it is hard to quickly adapt them to the rapid changes in policy.²⁰⁴ In fact, the size of the automated bureaucracy is considered a significant reason for the failure of e-government projects.²⁰⁵ Large-scale bureaucracies are very organizationally complex, and they lack the flexibility of system-level bureaucracies that could be adapted more easily to the needs of automation.²⁰⁶ From the organizational perspective, large-scale

203. Zouridis, van Eck & Bovens, *supra* note 59, at 313, 319–20.

204. *Id.* at 322–23.

205. *Id.*

206. See Dag Ingvar Jacobsen, *Adopting and Refining E-Services — The Role of Organization Size*, 18 PUB. ORG. REV. 111, 118–20 (2018); Thomas E. Sprimont, *Challenges to Bureaucratic Organizations in the Modern Business World*, 1 INT'L J. APPLIED MGMT. CHANGE, no. 1, at 1, 3.

bureaucracies implemented in big governmental organizations are complex because decision-making is divided between many stakeholders with different political motives and goals.²⁰⁷ The high level of technical expertise needed for deploying large-scale bureaucracies requires governments to move from “organizational capacity to organized expertise,” and good technical knowledge has never been a strength of governmental organizations.²⁰⁸ Large-scale bureaucracies are also characterized with lack of coordination between the macro implementation and the micro-level day-to-day work. There is a significant focus on the technicalities of the system without paying much attention to the interaction of the worker with the technology and how the technology is being used to achieve the task.²⁰⁹

On the other hand, large-scale bureaucracies have more capacity to lead change. They are often implemented in large organizations that would have more financial and organizational capabilities to support change, especially when compared with system-level bureaucracies that are often implemented in smaller organizations.²¹⁰ Large-scale bureaucracies also have unique advantages, such as enabling information sharing and collaboration between different entities within the government and outside of it. These collaborations can help entities provide better services, avoiding redundancy of information, reducing costs, improving accountability, and tackling complex problems.²¹¹

In terms of discretion, if implemented correctly and not just for the sole purpose of increasing efficiency, both types of bureaucracy could potentially improve discretionary street-level bureaucracy. System-level bureaucracy could “free” street-level bureaucrats from the repetitive administrative tasks and dedicate more time for frontline customer service and support. If large-scale bureaucracy is transparent and explainable, it could help street-level bureaucrats understand why a certain decision about an individual was taken and communicate it to the individual. Street-level bureaucrats would have access to more data and decisions taken by other agencies because of the links between the

207. See Julia Klier, Mathias Klier & Sebastian Muschter, *How to Manage IS Requirements in Complex Public Sector Structures: Toward an Action Design Research Approach*, 22 REQUIREMENTS ENG'G 419, 421–22 (2017).

208. Helen Margetts, *Electronic Government: A Revolution in Public Administration?*, in THE SAGE HANDBOOK OF PUBLIC ADMINISTRATION, *supra* note 33, at 447, 452–53.

209. Tino Schuppan, *Service Workers on the Electronic Leash? Street-Level Bureaucrats in Emerging Information and Communication Technology Work Context*, in UNDERSTANDING STREET-LEVEL BUREAUCRACY, *supra* note 5, at 243, 244–45.

210. Jacobsen, *supra* note 206, at 113.

211. Hussain Alenezi, *Investigating the Strategic Relationship Between Information Quality and E-Government Benefits* (2013) (Ph.D. thesis, Brunel University) (on file with Brunel University Research Archive).

systems, so they could also explain the situation better to their customers.²¹² It should be emphasized that as mentioned, this will only be possible if governmental agencies realize the potential of automation to improve customer services. This would require keeping caseworkers at their jobs, not distancing them from individuals who need their help by putting walls of technology between the two.²¹³

MiDAS can be defined as a system-level bureaucracy because it automated a relatively narrow domain—fraud in unemployment benefits. Thus, if the factors that the algorithm considered were publicly available, it would have been possible to understand and, if necessary, to argue whether the connections that the algorithm made between the specific factors and unemployment fraud were right or wrong.

In contrast, SyRI automated a broader domain—all types of fraud in welfare benefits—which makes it a large-scale bureaucracy. Because little is known about this type of bureaucracy, a parliamentary inquiry was launched to investigate the deployment of IT in governmental services. The inquiry criticized the complexity of large-scale projects because they are composed of a chain of systems, making it difficult to track down problems that arose from the system, understand their sources, and solve them.²¹⁴ Thus, the legislators recommended minimizing the use of large-scale bureaucracies in the Netherlands.²¹⁵ However, this would reduce the benefits of interagency collaboration. Despite the aforementioned failures, the municipalities that adopted SyRI emphasized in their final reports that they benefited immensely from the collaboration between the different entities, including those outside of the core mission of the project, because the participants in the project developed a network and gained understanding of each member's expertise, thus allowing them to better care for their citizens.²¹⁶

It is also worth mentioning that, in the past, SyRI used to operate as an ordinary system-level bureaucracy, but the outcome was

212. Christine Bellamy, *From Automation to Knowledge Management: Modernizing British Government with ICTs*, 68 INT'L REV. ADMIN. SCIS. 213, 218–19 (2002).

213. See Aurélien Buffat, *Street-Level Bureaucracy and E-Government*, 17 PUB. MGMT. REV. 149, 150–53 (2015).

214. TEMP. COMM. ON GOV'T ICT PROJECTS, HOUSE OF REPRESENTATIVES OF THE NETH., CONCLUSIONS AND RECOMMENDATIONS OF THE DUTCH TEMPORARY COMMITTEE ON GOVERNMENT ICT PROJECTS (2014) (Neth.).

215. *Cf. id.* (recommending the implementation of more oversight over these large-scale bureaucratic systems).

216. See VNG KENNISCENTRUM HANDHAVING & NALEVING, EINDRAPPORT WLJKGERICHTE AANPAK KWETSBARE BUURTEN IN CAPELLE AAN DEN IJSSEL (2018) (Neth.); VNG KENNISCENTRUM HANDHAVING EN NALEVING ADVIES BV, EINDRAPPORT GALOP II EINDHOVEN (2018) (Neth.).

not necessarily better. SyRI is actually the third version of an algorithm that has been used by the government since 2003.²¹⁷ The first version of the algorithm was Project Waterproof, in which the government linked data about the water usage of individuals and data about welfare benefits in order to find potential fraudulent activities by comparing the reported number of inhabitants living in a unit versus what was happening in practice.²¹⁸ The second version of the algorithm was called Black Box, which consisted of three types of projects: phenomenon-driven projects (projects that attempted to crack down on a specific phenomenon, such as residential fraud or asset fraud); business-oriented projects (projects that attempted to crack down on the types of sectors known to be violating labor laws, such as the hotel industry, catering, and cleaning services); and neighborhood-oriented projects (projects that analyzed certain neighborhoods and attempted to provide social support, combat crime, and detect fraud).²¹⁹ After legal changes, Black Box became SyRI, which adopted the neighborhood-oriented approach and abandoned the other two types of projects.²²⁰ It should be mentioned that Waterproof and Black Box both had significant flaws, so it is hard to conclude that a system-level bureaucracy was necessarily better than a large-scale bureaucracy. Their flaws can partially be attributed to faulty data anonymization, legal hurdles, and poor technical design, so it is difficult to predict whether a system-level bureaucracy would have been more successful in the absence of these hurdles. Nevertheless, it would be beneficial to consider the issue of scale when designing the next phase of SyRI and assessing the costs and benefits of the two types of systems.

Some researchers recommend staying away from large-scale bureaucracies and focusing on ad hoc system-level bureaucracies.²²¹ System-level bureaucracies are easier to implement overall, especially in government, and it is easier to track their performance and avoid errors, thus they should be favored when possible, but this conclusion cannot be absolute.²²² Determining which type of system to adopt would depend on many factors including the goal that the automation aims to achieve, the potential added value of collaborations between agencies, and the possible risks that might arise because of the link between systems. The governmental entity considering such deployment should

217. Maranke Wieringa, *A Brief History of Social Security: SyRI and the State Being Sued* (dissertation, Utrecht University) (on file with author).

218. *Id.*

219. *Id.*

220. *Id.*

221. Zouridis, van Eck & Bovens, *supra* note 59, at 313, 322–23.

222. *See supra* pp. 483–485.

assess the impact of each type of system and the feasibility of achieving the goals of the project using a system-level bureaucracy.

2. Decision-Making Versus Decision-Aiding Algorithms

In addition to determining an algorithm's domain, understanding the decision-making process that it automates is key. The difference between decision-making algorithms and decision-aiding algorithms is the finality of the algorithm's determination and the level of human involvement. Decision-making algorithms automatically issue a coercive decision based mainly on links between data without any human input.²²³ The decision, which is usually final, results in a significant impact on applicants, such as the termination of benefits.²²⁴ Decision-aiding algorithms, on the other hand, attempt to help the relevant individual make his or her final decision.²²⁵ The underlying software often provides recommendations based on the analyzed data.²²⁶ The higher degree of human intervention makes this type of algorithm less risky than decision-making algorithms.²²⁷

MiDAS and SyRI are very different in terms of their decision-making capabilities and are in fact on opposite ends of the spectrum. MiDAS is a full-on decision-making algorithm: it automates all processes from beginning to end, including data collection, analysis, fraud determination, and debt collection.²²⁸ SyRI only automates data collection and analysis, with street-level bureaucrats from relevant agencies completing the investigations and making final determinations.²²⁹ Thus, it is clearly a decision-aiding algorithm. As mentioned previously, eliminating discretion in welfare distribution is impossible because even clear and specific rules will not be able to capture the complexities of each individual case.²³⁰ In other words,

223. Yeung, *supra* note 9, at 121.

224. See Lydia X. Z. Brown, Michelle Richardson, Ridhi Shetty & Andrew Crawford, *Report: Challenging the Use of Algorithm-Driven Decision-Making in Benefits Determinations Affecting People with Disabilities*, CTR. FOR DEMOCRACY & TECH. (Oct. 21, 2020), <https://cdt.org/insights/report-challenging-the-use-of-algorithm-driven-decision-making-in-benefits-determinations-affecting-people-with-disabilities/> [<https://perma.cc/BW26-BDHS>].

225. Yeung, *supra* note 9, at 121.

226. *Id.* at 130.

227. See *id.* at 122.

228. See Stephanie Wykstra, *Government's Use of Algorithm Serves Up False Fraud Charges*, UNDARK MAG. (June 1, 2020), <https://undark.org/2020/06/01/michigan-unemployment-fraud-algorithm/> [<https://perma.cc/E48Z-8RAW>].

229. Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.48 (Neth.).

230. Molander, Grimen & Eriksen, *supra* note 42, at 215–16.

human discretion will always have to be part of the equation; governments must draw the boundaries of discretion because they cannot eradicate it.²³¹ Therefore, any changes to MiDAS should include giving more responsibilities to street-level bureaucrats and making sure that it becomes a decision-aiding algorithm.

3. Automating Rules Versus Automating Standards

In governing a certain domain, legislators and policy makers have to determine the optimal specificity of law that on the one hand would provide certainty and precision for individuals, lawyers, and judges, and on the other hand would leave room for flexibility to deal with conflicts and ambiguities that could arise.²³² In other words, they should choose between legal rules and standards. Overall, rules are more “expensive” to deploy because of the need to foresee and detail all possible scenarios and determine their outcome, but they are easier for individuals to follow. Standards are more suitable for areas of law that change frequently, such as technology, because rules would need to be adjusted often, a hard task to achieve.²³³ The debate between rules and standards is known as the Hart and Dworkin debate. According to Dworkin’s theory, “[r]ules are applicable in an all-or-nothing fashion,” in the sense that when “two rules conflict, one of them cannot be a valid rule.”²³⁴ Principles on the other hand are more flexible, they can intersect and overlap, and when resolving a conflict the judge can take both into account and weigh them accordingly.²³⁵ Hart perceives rules in a broader sense, “a legal rule is a standard that has been identified and selected as binding by some social act, be it an individual directive, a legislative enactment, a judicial decision, an administrative ruling, or a social custom.”²³⁶ Thus, they can all be taken into account in resolving an argument.

Applying this debate to the realm of automation, on one end of the spectrum, there are researchers who are strong believers in the ability of technology to transform the law to a rule-based system in a

231. *Id.* at 215–17.

232. Vincy Fon & Francesco Parisi, *On the Optimal Specificity of Legal Rules*, 3 J. INSTITUTIONAL ECON. 147, 147–48 (2007).

233. *See id.* at 147, 150–51, 154.

234. Ronald M. Dworkin, *The Model of Rules*, 35 U. CHI. L. REV. 14, 25, 27 (1967).

235. Tommaso Pavone, A Critical Adjudication of the Hart-Dworkin Debate 2–3 (Oct. 9, 2014), <https://static1.squarespace.com/static/5d653034873abb0001dd9df5/t/5d6ee0ec43eb7f0001965547/1567547628828/Hart-Dworkin+Debate+%28Critical+Review%29.pdf> [<https://perma.cc/9VC2-5AFK>].

236. Scott J. Shapiro, *The “Hart-Dworkin” Debate: A Short Guide for the Perplexed* 16–17 (Univ. Mich. L. Sch. Pub. L. & Legal Theory Working Paper Series, Working Paper No. 77, 2007).

Dworkinian sense; the technology would help foresee all possible conflicts and outcomes, thus rules can be created in advance, applied when needed, and the rules would not conflict because the outcome has been pre-predicted.²³⁷ The algorithm will be trained using the law, other related regulation, and the reach set of case law that accompany them.²³⁸ On the other end of the spectrum, opponents of automation claim that it is too difficult to foresee all the legal combinations of a given set of rules and facts, let alone translate them into lines of code that a computer can understand.²³⁹

In practice, both legal rules and standards are prone to multiple interpretations, courts often have to apply broad standards such as reasonableness and proportionality to solve a conflict between different rules or rules and standards. The language of the text alone cannot always determine the solution to every future case.²⁴⁰ Therefore, the debate among researchers centers on the type of cases that can be automated and cases where human input is crucial. The most common distinction in this regard is between cases that grant the judge or policy maker weak or strong discretion. According to Dworkin, judges and policy makers can only use weak discretion, where it is necessary to bridge between principles.²⁴¹ According to Hart, using strong discretion is inevitable because of natural ambiguities between rules, so no matter how thorough the guidance provided is, questions that require deep intervention will remain open and judges and policy makers will need to use strong discretion to resolve them.²⁴² In terms of automation, strong discretion cannot be automated because by design the regulator meant to keep the decision in the hands of the administrator.²⁴³ Cases that limit the discretion of the administrator to a narrow set of alternatives are weak discretion cases, and they could be considered for

237. Anthony Casey & Anthony Niblett, *The Death of Rules and Standards* 2–3 (Univ. Chi. L. Sch. Coase-Sandor Working Paper Series in L. & Econ., Working Paper No. 738, 2015).

238. Edmund Mokhtarian, *The Bot Legal Code: Developing a Legally Compliant Artificial Intelligence*, 21 VAND. J. ENT. & TECH. L. 145, 152 (2018).

239. See Reuben Binns, *Human Judgement in Algorithmic Loops; Individual Justice and Automated Decision-Making* 5 (Sept. 11, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3452030 [<https://perma.cc/K27M-XVA7>].

240. See Hans-Bernd Schäfer, *Rules Versus Standards in Developing Countries: The Case for Clear and Precise Legal Norms on Eminent Domain Power*, 12 LAW & DEV. REV. 425, 427–28 (2019).

241. Pavone, *supra* note 235, at 4.

242. Shapiro, *supra* note 236, at 17–19.

243. See Michele Taruffo, *Judicial Decisions and Artificial Intelligence*, 6 A.I. & L. 311, 320 (1998).

automation.²⁴⁴ Nevertheless, both Hart and Dworkin seem to agree that discretion is necessary to resolve situations where rules are conflicting or where rules and standards are at stake. The argument is centered on the degree of discretion and its origin. While according to Hart judges use their strong discretion because social guidance is central to determining the content of legal rules, according to Dworkin judges are bound by the principle that their origin is political morality.²⁴⁵ Even if the legitimacy to use discretion comes from social guidance or political morality, in the process of automation it is important to acknowledge that room for discretion to weigh in should be kept, and even in weak discretion cases Dworkin acknowledges that seeking the ultimate answer is a hard task for a judge, let alone for an algorithm.

As mentioned above, MiDAS automated a narrow domain—unemployment benefit fraud—but it automated all the tasks that were previously conducted by street-level bureaucrats.²⁴⁶ MiDAS could be considered as automating rules since the law theoretically defined the actions constituting unemployment fraud very clearly. However, examining the regulation as well as the relevant case law reveals a more complicated picture. According to instructions provided by the US Department of Labor (DOL), “fraud determinations generally ‘require the state agency to make determinations of credibility and intent.’”²⁴⁷ In addition, according to Michigan’s Court Rules Section 2.112(b)(1), “the circumstances constituting fraud or mistake must be stated with particularity” when alleging fraud or mistake.²⁴⁸ The courts interpreted this requirement to include a “heightened pleading standard” which means that fraud “is not to be presumed lightly, but must be clearly proved” with satisfactory and convincing evidence.²⁴⁹ To meet this enhanced burden, fraud allegations typically include facts showing the time, place, contents of the misrepresentation, and

244. Ruth Kannai, Uri Schild & John Zeleznikow, *Modeling the Evolution of Legal Discretion. An Artificial Intelligence Approach*, 20 *RATIO JURIS* 530, 534–35 (2007).

245. Shapiro, *supra* note 236, at 17–19.

246. See Paul Egan, *After MiDAS Fiasco, Unemployment Fraud Bills Getting Speedy Passage*, *DETROIT FREE PRESS* (Dec. 1, 2017, 6:00 AM), <https://eu.freep.com/story/news/local/michigan/2017/12/01/after-midas-false-fraud-fiasco-jobless-reform-bills-getting-speedy-passage-michigan-unemployment/908315001/> [<https://perma.cc/W53P-P5TK>].

247. U.S. DEP’T OF LAB., ATTACHMENT TO UIPL NO. 01-16, FEDERAL REQUIREMENTS TO PROTECT CLAIMANT RIGHTS IN STATE UNEMPLOYMENT COMPENSATION OVERPAYMENT PREVENTION AND RECOVERY PROCEDURES - QUESTIONS AND ANSWERS 4 (2015), https://wdr.doleta.gov/directives/attach/UIPL/UIPL_01-16-Change-1-Attachment_Acc.pdf [<https://perma.cc/Z9K5-24KZ>].

248. MICH. CT. R. 2.112(B)(1).

249. *Cooper v. Auto Club Ins. Ass’n*, 751 N.W.2d 443, 451 (Mich. 2008); see *State ex rel. Gurganus v. CVS Caremark Corp.*, 852 N.W.2d 103, 112 (Mich. 2014).

identification of what was obtained.²⁵⁰ If designed correctly, an algorithm should be able to identify the factual basis, but particularity, credibility, and intent are not easy terms to compute and applying them to each case requires the involvement of street-level bureaucrats—agents who were fired after the deployment of MiDAS. Since details of the operation of MiDAS have not been revealed for proprietary reasons, it is hard to understand how particularity, credibility, and intent were translated into MiDAS.

SyRI was a decision-aiding large-scale bureaucracy. In contrast to MiDAS, SyRI automated a relatively broad domain—fraud in all types of welfare benefits—but a narrower set of tasks: data collection and analysis for fraud investigations.²⁵¹ Because large-scale bureaucracies by definition combine different systems, they do not deal exclusively with rules or standards. Thus, tying the algorithm to a specific definition of fraud is impossible because every fraud violation requires proving different legal elements that are not always internally consistent. In any case, determining if a certain activity constitutes fraud would certainly involve issues of morality and contradicting rules and standards, so discretion is inevitable. In addition, SyRI dictated to the street-level bureaucrats which cases to examine and which to leave out.²⁵² Therefore, it was important to ensure that the flagged cases were the high-risk cases and to minimize false positives, a rate that was very high in SyRI. In addition, human officials intervened only after SyRI decided to place an individual under government surveillance, which can last up to two years.²⁵³ This is far too late to remedy SyRI's false positives, as some evidence for wrongdoing will inevitably be found after two years of surveillance. Instead, the new version of SyRI must include human intervention prior to deciding whether to surveil an individual and for how long. This ensures that SyRI only automates the rule: whether the facts constitute potential fraud. The standard—whether fraud was committed and whether to open an investigation—will be left to human decision makers.

B. The Discretionary Power Delegated to the Engineers and the Technology

Besides asking whether automation has left room for street-level bureaucrats to apply their discretion, it is important to ask how much

250. RONALD S. LONGHOFER, COURTROOM HANDBOOK ON MICHIGAN CIVIL PROCEDURE: MICHIGAN COURT RULES PRACTICE § 2112.3 (2013).

251. See Vervloesem, *supra* note 16.

252. *Id.*

253. Toh, *supra* note 20.

discretionary power has shifted to the engineers who built the technology or to the technology itself. As mentioned in Section II.B, this has become a significant issue after the wide expansion of automation in general, and AI and machine learning in particular, although it is hard to detect.²⁵⁴ Often the IT engineers and data analysts lack sufficient knowledge and nuanced understanding of policy considerations, which can lead to them approaching the automation process with misguided assumptions about what tasks to automate and how. The automation process requires interpreting complex sets of laws and regulations that are not meant to be conclusive and deciding how to code them. Thus, software engineers and data analysts could end up explicitly or implicitly converting legal rules into binding algorithms.²⁵⁵ Even the way information is organized and displayed in the algorithm reflects a discretionary choice, which, if not specified by the government agency, will be dictated by the developer.²⁵⁶

The life cycle of an algorithm can be divided into four stages as described below, and each one involves important discretionary decisions.²⁵⁷

1. Planning

In the planning stage, the developers learn the policies that should be embedded in the algorithm and the desired outcomes in order to decide what is the most suitable type of algorithm. The IT manager's first discretionary decision might be which technique to use, such as traditional statistical techniques versus more advanced machine-learning and AI tools.²⁵⁸ One important difference is that more traditional statistical techniques tend to explain the relationship

254. See CHARLES E. HARRIS, JR., MICHAEL S. PRITCHARD & MICHAEL J. RABINS, *ENGINEERING ETHICS: CONCEPTS AND CASES* 25 (4th ed. 2009).

255. Peter André Busch, *Conceptualizing Digital Discretion Acceptance in Public Service Provision: A Policy Maker Perspective*, 22ND PAC. ASIA CONF. ON INFO. SYS. 39, 41 (2018).

256. Deven R. Desai & Joshua A. Kroll, *Trust but Verify: A Guide to Algorithms and the Law*, 31 HARV. J.L. & TECH. 1, 20 (2017).

257. See discussion *infra* Sections V.B.1, V.B.2, V.B.3, V.B.4. Each one of the following sources introduces a different classification for the life cycle of the algorithm, and for the purposes of this Article, different elements were gathered from each one of the sources. Andrew Ferlitsch, *Making the Machine: The Machine Learning Lifecycle*, GOOGLE CLOUD: A.I. & MACH. LEARNING (Feb. 6, 2019), <https://cloud.google.com/blog/products/ai-machine-learning/making-the-machine-the-machine-learning-lifecycle> [https://perma.cc/U45M-RMG7]; *The Development Life Cycle*, TECHNOLOGYUK (Mar. 1, 2018), <http://www.technologyuk.net/computing/software-development/software-design/software-development-life-cycle.shtml> [https://perma.cc/A5KH-SKAK].

258. See Momin M. Malik, *Can Algorithms Themselves be Biased?*, MEDIUM: BERKMAN KLEIN CTR. COLLECTION (Apr. 25, 2019), <https://medium.com/berkman-klein-center/can-algorithms-themselves-be-biased-ffe2302e> [https://perma.cc/TX9K-UTY8].

between a certain variable and the final outcome in greater detail.²⁵⁹ On the contrary, the underlying goal of machine learning is enhanced prediction and minimizing the model's error rate.²⁶⁰ The developers examine the accuracy rate under different types of algorithms, anticipate the types of cases that are likely to result in erroneous outcomes, and predict the differences to be expected when moving from the testing to the performance phase.²⁶¹

2. Data Engineering

In this stage, the developers collect the data for training the algorithm. However, the choice of data set, which is what the algorithm is built on, significantly impacts its performance. The process of deciding what data to include or exclude from the data set is often unclear and rarely documented.²⁶² The data may contain explicit and implicit biases and may be either under- or overinclusive. While the developer might be in favor of including as much data as possible, this is not necessarily desirable from a policy perspective because of potential privacy bridges and other issues.²⁶³

3. Modeling

This is the stage where the developers put all the aggregated knowledge that they gathered about the policy and the system into practice and design the algorithm. The developers have to define the logical sequence for putting all the pieces of the puzzle together. This task often includes taking the problem that the algorithm intends to solve and breaking it into small tasks that each segment of the algorithm is responsible for.²⁶⁴ Very important discretionary decisions are taken in this stage, such as defining what constitutes a discrepancy, deciding what factors will be considered by the algorithm and their

259. See *id.*

260. See Momin M. Malik, A Hierarchy of Limitations in Machine Learning 21 (Feb. 29, 2020) (unpublished manuscript), <https://arxiv.org/pdf/2002.05193.pdf> [<https://perma.cc/Y3AL-638F>].

261. See Jeremy Jordan, *Evaluating a Machine Learning Model*, JEREMY JORDAN (July 21, 2017), <https://www.jeremyjordan.me/evaluating-a-machine-learning-model/> [<https://perma.cc/CC2R-WFJZ>].

262. Timnit Gebru, Jamie Morgenstern, Briana Vecchione, Jennifer Wortman Vaughan, Hanna Wallach, Hal Daumé III & Kate Crawford, Datasheets for Datasets 2 (Mar. 19, 2020), <https://arxiv.org/pdf/1803.09010.pdf> [<https://perma.cc/22A2-M8P2>].

263. See *Rethinking Privacy for the AI Era*, FORBES INSIGHTS (Mar. 27, 2019, 1:16 PM), <https://www.forbes.com/sites/insights-intelai/2019/03/27/rethinking-privacy-for-the-ai-era/?sh=3f6095c7f0a7> [<https://perma.cc/8GBN-LPX7>].

264. *The Development Life Cycle*, *supra* note 257.

relative weight, and defining the possible outcomes. If not tuned correctly, the algorithm learns how to maximize its decision-making performance at all costs, even if this means excluding certain populations.²⁶⁵

4. Testing and Maintenance

A machine-learning algorithm, which constantly learns and produces outputs that determine significant aspects of people's lives, has to be regularly tested and maintained. Auditing should continue both during the algorithm's development and afterward to ensure alignment with the policies it is meant to enforce.²⁶⁶

It is important to mention that the different stages in the life cycle of the algorithm are often inseparable and operate consecutively. Thus, planning is not over after the developer has some idea about the policy and the needed change, and data engineering should always be updated in light of the testing and maintenance processes.

C. Application to MiDAS and SyRI

Determining the proportion of discretionary power that is shifted to the engineers or the technology is perhaps the hardest challenge in these case studies. Both the UIA in Michigan and the Ministry of Social Affairs and Employment in the Netherlands fought hard in courts not to reveal their algorithms. In Michigan, the cases are still in the discovery phase, and thus far the plaintiffs have not been able to obtain access to the code or to publicly reveal any significant information about the operation of the algorithm.²⁶⁷ As for SyRI, the court's final judgement recognized the fact that the state refused to reveal the algorithm.²⁶⁸ However, revealing the whole code to the public is not the only way to learn about the development process. Many algorithms that operate in sensitive, public-sector domains have manuals that are easily accessible, and sometimes even technical documents with details about error rates are available.²⁶⁹ Another

265. Andrew D. Selbst, Danah Boyd, Sorelle A. Friedler, Suresh Venkatasubramanian & Janet Vertesi, *Fairness and Abstraction in Sociotechnical Systems*, FAT* '19: PROCS. CONF. ON FAIRNESS, ACCOUNTABILITY & TRANSPARENCY, Jan. 2019, at 59, 60.

266. *The Development Life Cycle*, *supra* note 257.

267. Telephone Interview with Jennifer Lord, *supra* note 109; Telephone Interview with Tony Paris, *supra* note 106.

268. Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.49 (Neth.).

269. See Doaa Abu Elyounes, *Bail or Jail? Judicial Versus Algorithmic Decision-Making in the Pretrial System*, 21 COLUM. SCI. & TECH. L. REV. 376, 408, 411, 413 (2020) (discussing risk

solution would be to strengthen the procurement rules and to require certain guarantees, such as technical accountability and sufficient disclosures of the vendor's intended development process.²⁷⁰ The fact that MiDAS delegated an unknown amount of discretion to the algorithms and their engineers while providing so little information about their inner workings proves that the issue was not given enough attention.

1. The Development of MiDAS

a. Planning

Fast Enterprises, LLC is known to have been selected through a competitive process, and representatives from the UIA and the Department of Technology, Management, and Budget oversaw the production and implementation of MiDAS.²⁷¹ Why the Gentax product was selected, what other types of algorithms were considered, what the degree of collaboration between the government and the developers was, and the extent of actual caseworker involvement are all unknown.

b. Data Engineering

MiDAS analyzes data coming from the claimants, employers, and other participating agencies, such as the Department of Health and Human Services.²⁷² Information is lacking about the types of data that are analyzed and what other agencies are participating. In addition, it is not clear how the data was tested, what the results of the testing were, and whether the data was modified at all before testing.

c. Modeling

UIA identified 1,558 functional requirements and 6,979 business rules to be incorporated in the system.²⁷³ In addition, a guide provided by the UIA has revealed that "MiDAS has the ability to look at fact-finding responses and come up with legally appropriate

assessment tools used in the criminal justice system and showing that many tools come with a detailed manual).

270. Desai & Kroll, *supra* note 256, at 43.

271. MIDAS REPORT, *supra* note 94.

272. *See id.*

273. MICH. UNEMPLOYMENT INS. AGENCY, *supra* note 93, at 4.

decisions automatically.”²⁷⁴ Although revealing all the rules might be unnecessary and even open the door to exploitation, crucial information about the factors that the algorithm takes into account and how it operates is nevertheless missing. Before MiDAS, four hundred employees were conducting interviews and making determinations;²⁷⁵ it is unknown how the algorithm replicates this process, assuming it even tried to do so, who was responsible for coding its logic, and what error rate the developers found acceptable.

d. Testing and Maintenance

Despite being forced to fix all the errors caused by MiDAS, Michigan renewed the contract with MiDAS's developers and several laws were passed in 2015 and 2017 in order to avoid similar errors in the future.²⁷⁶ However, the laws mainly addressed procedural fixes that were not directly related to the technology itself, such as making sure that the notice was sent to the correct address.²⁷⁷ It is not clear whether MiDAS's error rates are still monitored and when, if ever, it will be validated again.

2. The Development of SyRI

Because SyRI was developed internally by the government, the risk that private interests interfered with its development is less substantial, so there are fewer potential pitfalls to address. However, information about many aspects related to the development of the algorithm is lacking, which is especially troubling since there are no third-party interests in confidentiality like in the case of MiDAS. The IB, the special entity created to coordinate the SyRI project and the collaboration between the Ministry of Social Affairs and Employment and the municipalities, is responsible for the operation of SyRI.²⁷⁸ Yet,

274. Plaintiffs' Supplemental Response to Defendant's Motion to Dismiss & Supplemental Motion to Dismiss at 6, *Bauserman v. Unemployment Ins. Agency*, No. 15-000202-MM (Mich. Ct. Cl. filed Sept. 9, 2015).

275. Robert N. Charette, *Michigan's MiDAS Unemployment System: Algorithm Alchemy Created Lead, Not Gold*, IEEE SPECTRUM (Jan. 24, 2018, 12:00 PM), <https://spectrum.ieee.org/risk-factor/computing/software/michigans-midas-unemployment-system-algorithm-alchemy-that-created-lead-not-gold> [<https://perma.cc/YLK6-CM4H>].

276. MIDAS REPORT, *supra* note 94; *see also* Egan, *supra* note 246.

277. *See* Egan, *supra* note 246.

278. STEVEN VAN DALEN, ALEXANDER GILDER, ERIC HOOYDONK & MARC PONSEN, SYSTEM RISK INDICATION: AN ASSESSMENT OF THE DUTCH ANTI-FRAUD SYSTEM IN THE CONTEXT OF DATA PROTECTION AND PROFILING 11–12 (2016), https://pilpnjem.nl/wp-content/uploads/2016/06/memorandum_1_-_system_risk_indication_an_assessment_of_the_dutch_anti-fraud_system_in_the_context_of_data_protection_and_profiling-1.pdf [<https://perma.cc/S8BT-RAPB>].

it is not clear to what extent the IB was involved in the technical development of SyRI and what ability it had to impact the design.

a. Planning

The court judgment starts by discussing the machine-learning technique used and whether SyRI is based on deep-learning or self-learning methods.²⁷⁹ The plaintiffs argued that SyRI was based on a deep-learning or self-learning technique because the algorithm freely investigated discrepancies on a large scale with no human guidance and without identifying what the discrepancy meant, and the public officers receiving the analysis could not tell why SyRI concluded that there was a discrepancy.²⁸⁰ The state argued that SyRI only compared data within designated governmental agencies for each project that was planned, and the comparison itself was a simple decision tree.²⁸¹ Thus, SyRI was not a self-learning or deep-learning algorithm because it was only programmed to find factual discrepancies.²⁸² The court concluded that some projects involved large-scale data collection, so given what was known about SyRI's operation and the fact that SyRI's implementing legislation allowed it to adapt based on its internal learning, it was possible that predictive analysis and deep learning were involved.²⁸³ However, it is not clear if this ruling implies that deep learning is problematic by default. If appropriately designed, deep learning can help the human in the loop identify patterns and reveal issues that were under explored before.²⁸⁴

b. Data Engineering

As mentioned before, SyRI processes seventeen types of data and some are relevant for identifying welfare fraud, such as employment and accommodation.²⁸⁵ However, the court and other governmental entities criticized the fact that not all of the data types were relevant, particularly health records and police data which are considered a special category of data according to the GDPR and require special

279. See *Rechtbank den Haag* [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.46 (Neth.).

280. See *id.* ¶¶ 6.45–46.

281. *Id.* ¶ 6.47.

282. *Id.* ¶¶ 6.46–6.52.

283. *Id.* ¶ 6.51.

284. *Id.* ¶ 3.3.

285. *Id.* ¶ 6.50.

protection.²⁸⁶ It is not clear what their contribution is to welfare fraud detection.

c. Modeling

During the hearing, the Ministry was criticized for not revealing much information about the system, which was especially suspicious since even the intelligence services in the Netherlands are required to reveal more details about the technology that they are using.²⁸⁷ However, the court was not clear about what information should have been revealed, in other words, if the Ministry needed to expose the whole code or publish a detailed manual.

d. Testing and Maintenance

The Ministry did not demonstrate any attempts to deal with the false positives identified by SyRI.²⁸⁸ However, the fact that SyRI was not delivering accurate predictions was one of the reasons the Ministry decided to develop a second version of SyRI instead of appealing the court's decision.²⁸⁹

As the cases of MiDAS and SyRI demonstrate, it is hard to determine how much discretion is shifted to the engineers and the technology itself with so little information about the design and operation of these algorithms. One thing is clear, however: the power of the software engineers and data analysts has increased since system-level bureaucracies were introduced and human discretion has been reduced. As more caseworkers are replaced with engineers, the focus shifts to technological improvements to the algorithm, implementing new links between different components, and incorporating new patterns identified by the system.²⁹⁰

286. See Bij Voorbaat Verdacht, *Aboutaleb over SyRI: "Een moloch van een bureaucratisch ding."* YOUTUBE (July 5, 2019), <https://www.youtube.com/watch?v=47HyBjSQK78> [<https://perma.cc/Q8VJ-4HN7>].

287. Telephone Interview with Professor Marlies Van Arc (June 5, 2020).

288. Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.57 (Neth).

289. See Letter from Tamara Van Ark, State Sec'y for Soc. Affs. & Emp., Dutch Ministry of Soc. Affs. & Emp., to President, House of Representatives of the Neth. (Apr. 23, 2020).

290. Zouridis, van Eck & Bovens, *supra* note 59, at 323–24.

VI. AFTER THE AUTOMATION, IS THE DISCRETION LEFT IN THE HANDS OF STREET-LEVEL BUREAUCRATS MEANINGFUL?

The discretion given to street-level bureaucrats has clearly been reduced by automation, but it has not vanished completely. This is easier to see in SyRI's case, but even in MiDAS's case, where the reduction was more severe, the public backlash led to a legislative amendment requiring UIA officials to review cases before a fraud determination.²⁹¹ Thus, having sufficient room for discretion is an important aspect but not the only one. The discretion of street-level bureaucrats should also be meaningful; this is in order to bridge between the general requirements of the law and the facts of individual cases and close narrow gaps in the law. This Part will examine what would make discretion meaningful in two components: (1) the impact of street-level bureaucrats on individual welfare decisions and (2) the impact of street-level bureaucrats on external policy considerations, such as privacy, transparency, and accountability.

A. The Human-Algorithm Interaction: Impact on Individual Welfare Decisions

Street-level bureaucrats cannot be forced to rubber-stamp the algorithm's decisions. Rather, they should be given the necessary tools and knowledge for assessing the algorithmic output and challenging it if needed. There are four aspects related to the algorithmic design and the structure of the bureaucratic system that should be taken into account in determining whether discretion is meaningful.

First is the finality of the decision, what is the algorithmic outcome and how are street-level bureaucrats expected to act upon it. Part V argued that if the algorithm is a decision-making algorithm, there will be no room for street-level bureaucrats to apply their discretion. However, even if the algorithm is a decision-aiding algorithm, the decisiveness of the outcome will determine how meaningful the discretion is. If the outcome of the algorithm is just a binary "fraudulent" or "nonfraudulent," the street-level bureaucrats have little meaningful discretion. Thus, it is more likely that they will blindly follow the recommendation of the algorithm.²⁹² Alternatively, the algorithm can be instructed to rank each applicant on a risk scale, such as from most to least likely to be eligible for benefits, along with a

291. See MICH. COMP. LAWS § 421.62(f) (2020).

292. Cf. Peter André Busch & Helle Zinner Henriksen, *Digital Discretion: A Systematic Literature Review of ICT and Street-Level Discretion*, 23 INFO. POLITY 3, 10 (2018).

confidence scale, such as from most to least certain regarding eligibility.²⁹³ The scale of five eligibility levels could ensure meaningful human intervention, and ineligibility will not be the default outcome.²⁹⁴ The street-level bureaucrats would be able to use their discretionary power and distinguish between nuances that characterize each category.²⁹⁵

The next consideration is how each street-level bureaucrat's caseload has been affected along with how much time they are given to review cases post-automation. Although cases differ in their complexity, thus making it hard to predict how much time will be needed for any given case, many metrics are available for tracking the performance of street-level bureaucrats, and, in fact, this was one of the goals in moving from the traditional to the new public management approach.²⁹⁶ Thus, comparing the number of cases handled before and after automation could give a hint as to how discretion is applied and if it is meaningful. It is highly likely that the number of cases that each street-level bureaucrat will deal with will increase after the automation because of time saved on data collection and analysis. But if the increase is so great that the street-level bureaucrats do not have enough time to closely examine each case, the discretion will not be meaningful.

The third aspect is the readiness of the institution for the automation. Ensuring that the public, the officers, and the institution benefit from the automation is an expensive process that entails planning, training, supervision, and rearranging roles within the organization. Without taking care of those tasks, it would be hard to ensure that the discretion remaining in the hands of the street-level bureaucrats is meaningful.

The fourth element, the involvement of the street-level bureaucrats in the automation process, is critical. The more involved street-level bureaucrats are, the better the implementation will be. Street-level bureaucrats know the relevant administrative processes better than anyone else and will be able to indicate which parts of the process will most likely benefit from automation. This is particularly

293. See A.R. Lange & Natasha Duarte, *Understanding Bias in Algorithmic Design*, MEDIUM (Sept. 6, 2017), <https://medium.com/impact-engineered/understanding-bias-in-algorithmic-design-db9847103b6e> [<https://perma.cc/J3RF-5ZJG>].

294. Cf. John Villasenor, *Artificial Intelligence and Bias: Four Key Challenges*, BROOKINGS INST. (Jan. 3, 2019), <https://www.brookings.edu/blog/techtank/2019/01/03/artificial-intelligence-and-bias-four-key-challenges/> [<https://perma.cc/6DG7-F9MH>] (explaining that imposing additional constraints and parameters on these algorithms could help mitigate inequities in their outcomes).

295. See *id.*

296. See Smith, *supra* note 33, at 439.

important when trying to automate welfare-related tasks where the one-on-one interaction with the claimants has a unique added value.²⁹⁷ Without input from street-level bureaucrats, developers would lack contextual knowledge that is important to the smooth operation of the algorithm. In addition, when street-level bureaucrats are not involved in the process, they are often reluctant to accept the technology because they see it as a threat to their profession.²⁹⁸

1. MiDAS

Michigan Code of Legislation Section 421.32a(1) states, in relevant part, that “the unemployment agency shall in its discretion issue a redetermination affirming, modifying, or reversing the prior determination and stating the reasons for the redetermination.”²⁹⁹ After the MiDAS scandal broke and news of several innocent job seekers who were falsely flagged by MiDAS permeated the media, there was strong pressure on the legislature to end its reliance on MiDAS as the only determining mechanism.³⁰⁰ The efforts yielded fruit, and as of now, the UIA:

shall not make a determination that a claimant made an intentional false statement, misrepresentation, or concealment of material information that is subject to sanctions under this section based solely on a computer-identified discrepancy in information supplied by the claimant or employer. An unemployment agency employee or agent must examine the facts and independently determine that the claimant or the employer is responsible for a willful or intentional violation before the agency makes a determination under this section.³⁰¹

The requirement to keep fraud determination in the hands of human agents goes beyond the Michigan legislature. A directive issued by the DOL to all unemployment agencies asserts that states are required by federal law to independently verify computer-identified fraud cases.³⁰² In addition, the directive repeats and strengthens the requirements of the Computer Matching and Privacy Protection Act to “independently verify information received from a computer cross-match with a Federal database or other automatic processes or

297. See Hardy, *supra* note 84, at 46.

298. Busch & Henriksen, *supra* note 292, at 13–14.

299. MICH. COMP. LAWS § 421.32a(1) (2020).

300. See, e.g., Sarah Cwiek, *Rep. Levin: State Must Fix “Lawless” Unemployment System*, MICH. RADIO (May 6, 2016), <https://www.michiganradio.org/post/rep-levin-state-must-fix-lawless-unemployment-system> [<https://perma.cc/E6TD-QGMM>].

301. MICH. COMP. LAWS § 421.62(f) (2020).

302. Letter from Portia Wu, Assistant Sec’y, Emp. & Training Admin. Advisory Sys., U.S. Dep’t of Lab., to State Workforce Agencies 5 (Oct. 1, 2015), https://wdr.doleta.gov/directives/attach/UIPL/UIPL_01-16.pdf [<https://perma.cc/FXH5-Q88D>].

matches before suspending, terminating, reducing, or making a final denial of unemployment compensation.”³⁰³

Although not federal law, the DOL’s guidelines and local Michigan laws highlight the importance of keeping the final determination of fraud in the hands of a human agent, it is not clear if MiDAS is satisfying that. The room for intervention that is left for street-level bureaucrats remains less meaningful since MiDAS still just outputs a yes or no answer. It is not clear how many street-level bureaucrats are reviewing how many cases and what exactly the review entails, nor is it clear whether street-level bureaucrats were involved in the automation process. UIA mostly adopted minor changes after the fiasco, including the following: focusing on improving customer services, working with community groups, and clarifying the letters sent to claimants.³⁰⁴ UIA completed a review of all false allegations MiDAS made between 2013 and 2015 and made efforts to improve the process of identification and verification of information.³⁰⁵ On the organizational front, the UIA established an investigations division that would improve policy, monitor performance, and enhance technological support.³⁰⁶ Although those changes are beneficial, more has to be done to ensure meaningful discretion and guarantee that wages will not be garnished and tax returns will not be seized for minor input errors.

2. SyRI

In the Netherlands, as in all EU countries, the prohibition on relying solely on automated decision-making is anchored in Article 22 of the GDPR, which states the following: “The data subject shall have the right not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her.”³⁰⁷ Thus, three questions have to be examined: whether SyRI is profiling individuals; whether the decision will have or potentially have a “legal effect” on the

303. *Id.* at 2; 5 U.S.C. § 552a(p).

304. *Michigan’s Unemployment Agency Completes Review of Fraud Determination Cases; Comprehensive Changes Underway to Improve Customer Service and Operations*, MICHIGAN.GOV, <https://www.michigan.gov/som/0,4669,7-192-47796-428651—,00.html> [https://perma.cc/7X8T-JRTA] (last visited Feb. 5, 2021).

305. *Id.*

306. *Id.*

307. Regulation (EU) 2016/679 of the European Parliament and the Council of 27 April 2016 on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC (General Data Protection Regulation), 2016 O.J. (L 119) 1, 46 [hereinafter GDPR].

individual; and whether the decision is truly “solely automated,” which is to say whether the human intervention is meaningful. It was undisputed between the parties that the links that SyRI created between files constituted profiling as it is defined by Article 4 of the GDPR.³⁰⁸ However, the latter two questions required more analysis.

In terms of legal effects, the District Court of The Hague concluded that the deployment of SyRI did not have a legal consequence on the individual, yet it did have a significant effect on the private life of the person to whom the report related because it could be stored for up to two years and could be passed on to other agencies such as the police and used along with other evidence as the bases for enforcement.³⁰⁹

The court then discussed whether the human intervention as outlined in SyRI is meaningful or whether the decision that SyRI generates is “solely automated” as defined by the GDPR.³¹⁰ The state claimed that the decision-making was not solely automated because there were two human safeguards in the process: the agents in the IB who checked for false positives, and the agents at the relevant agency who would make an independent assessment of whether a risk report raised serious claims worth further investigation.³¹¹ The plaintiffs claimed that the former was not a sufficient human intervention because removing false positives, practically speaking, only means removing incorrect evidence.³¹² As for the latter, the intervention by the relevant agents could not be considered meaningful since the agent had no way of understanding exactly how the risk report was generated and what combination of information led to the final determination.³¹³ In addition, the individual who was the subject of the report could not provide additional information or object to anything written in it before the decision is taken.³¹⁴

Ultimately, the court did not determine whether the human intervention was meaningful as classified by Article 22.³¹⁵ However, considering the factors discussed earlier, street-level bureaucrats

308. Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.56 (Neth). Profiling is defined in Article 4.4 of the GDPR as “any form of automated processing of personal data consisting of the use of personal data to evaluate certain personal aspects relating to a natural person,” so it is clear that SyRI includes profiling. *Id.* ¶ 6.35.

309. *Id.* ¶ 6.59.

310. *Id.* ¶ 6.60

311. *Id.* ¶¶ 6.58, 6.94.

312. *Id.* ¶ 6.57

313. *See id.* ¶¶ 6.57, 6.94.

314. *Id.* ¶ 5.1(h).

315. *Id.* ¶ 6.60.

working with SyRI had significant room to apply their discretion, and it may well have been meaningful. First, SyRI only automated data collection and analysis, with human agents required to investigate further before making the final determination.³¹⁶ Second, a special agency was tasked with coordinating between the Ministry and the municipalities.³¹⁷ And finally, although the impacts on caseworker workloads are unknown, no one was laid off post-automation.³¹⁸ However, as with MiDAS, SyRI's algorithmic output is a yes-or-no determination that leaves less room for discretion.³¹⁹ Changing to the scale system discussed above could help direct the street-level bureaucrats in their decision-making and might also encourage them to investigate more before applying their discretionary power.

The degree to which street-level bureaucrats were involved in the development of SyRI is not known. However, SyRI was a national project, its development was overseen by high-level Ministry officials, and its deployment was very decentralized in local municipalities.³²⁰ In the period in which SyRI was operational, collaborations between workers from different agencies were reported at the project level but not in the algorithmic-design stage.³²¹

Interestingly, street-level bureaucrats were incorporated into the development of a welfare fraud-detection algorithm deployed elsewhere in the Netherlands. Lekstroom, Nissewaard, and several other municipalities implemented a fraud-detection algorithm developed by a private company named Totta Data Lab.³²² The algorithm operated similarly to SyRI but was exposed to less data.³²³ There is a technical document that sheds some light on the algorithm's operation, and the code has been revealed to three ministries: the Ministry of Social Affairs and Employment, the Ministry of the Interior, and the Ministry of Justice and Security.³²⁴ Early empirical findings reveal that since the development of the algorithm was more local,

316. *Id.* ¶ 6.94.

317. *Id.* ¶ 3.3.

318. Telephone Interview with Anton Ekker, *supra* note 197.

319. *See* Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶¶ 3.1–3.2 (Neth).

320. *See* Wieringa, *supra* note 217.

321. *See* Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.94 (Neth).

322. Adriaan de Jonge, 'Rookgordijn' Rondom Fraudesysteem Nissewaard [Nisseward's Fraud Detection System Remains "Opaque"] BINNENLANDS BESTUUR (Apr. 24, 2020), <https://www.binnenlandsbestuur.nl/sociaal/nieuws/rookgordijn-rondom-fraudesysteem-nissewaard.13026523.lynkx> [<https://perma.cc/3Z75-X9L8>].

323. *Id.*

324. *Id.*

street-level bureaucrats who conducted those investigations were closely involved in the process, leading to better consideration of local needs and incorporation of more knowledge about the local community in which the algorithm was operating.³²⁵

Training an algorithm on data coming from the population that it will be examining and incorporating local knowledge are important factors in the development of any system. In addition, if local street-level bureaucrats are more involved in the development they will be more inclined to incorporate it into their daily work. However, a national system has the advantage of better coordination and accountability. Because SyRI was a national project, it had the potential to impact all citizens of the Netherlands, which likely played a role in why so many civil rights organizations joined forces and challenged the algorithm in court. There is no one definitive answer as to whether a national implementation is more favorable than a local, decentralized system; however, the pros and cons should be considered in designing the next phase of SyRI. Regardless, it would still be beneficial for the national government to provide guidance on how to develop fraud-detection algorithms. And even if the project is developed nationally, it is essential to solicit input from local agencies and their street-level bureaucrats. All this being said, SyRI clearly allowed room for street-level bureaucrats to apply their discretion, and although some fixes could be implemented, this discretion was generally meaningful.

B. Discretion as a Means for Enhancing Other Safeguards

Keeping street-level bureaucrats engaged and giving them the ability to apply meaningful human intervention in individual cases is a safeguard against the risks of full automation.³²⁶ Humans complement the work of the algorithms, applying their creativity to correct erroneous assumptions or decisions by the algorithm. Section VI.A focused on one aspect of meaningfulness: how to make sure that the human in the loop is not a rubber-stamp of the algorithm. Yet meaningfulness has a second aspect; discretion is meaningful if it helps support other safeguards on automation, and this is the focus of this Section. Humans in the loop are one of eight safeguards that algorithm-based systems should comply with:³²⁷ privacy,

325. Telephone Interview with Maranke Wieringa, Ph.D. Candidate, Utrecht Univ.

326. See Ravi Sawhney, *Human in the Loop: Why We Will Be Needed to Complement Artificial Intelligence*, LSE BUS. REV. (Oct. 24, 2018), <https://blogs.lse.ac.uk/businessreview/2018/10/24/human-in-the-loop-why-we-will-be-needed-to-complement-artificial-intelligence/> [<https://perma.cc/B4LS-MK2M>].

327. FJELD ET AL., *supra* note 4, at 7–9.

accountability, safety and security, transparency and explainability, fairness and nondiscrimination, human control of technology, professional responsibility, and promotion of human values.³²⁸

All of these safeguards are intended to ensure that automated systems are benefiting society as a whole and to guide the use and design of AI.³²⁹ The implementation of these principles in specific policy domains is not an easy task. On the one hand, they are very general and open to several interpretations. On the other hand, they sometimes oversimplify complex technical questions by providing rigid, concrete guidance on how to design algorithms without accounting for the uncertainty that those requirements create.³³⁰

1. Implications of the Case Studies

The lawsuits in both the Michigan and the Netherlands cases did not focus on the lack of human discretion because that was not the primary issue.³³¹ The focus was on noncompliance with other safeguards that are better anchored in the law and grant wider protections.³³² This Section discusses how discretion—or lack thereof—impacts other safeguards.

a. MiDAS

In both the state and the federal class action lawsuits, the main claim that the plaintiffs rely on is a due process violation.³³³ As is illustrated in this Section, lack of meaningful human intervention harms individuals' right to due process because the role of the human is to ensure that the algorithm operates as expected, to guarantee that the particular circumstances of each case are fairly considered, and to

328. *Id.* It should be mentioned that this is only one study comparing algorithmic principles and different studies use slightly different terminology but the core agreement remains the same. See, e.g., Anna Jobin, Marcello Ienca & Effy Vayena, *The Global Landscape of AI Ethics Guidelines*, 1 NATURE MACH. INTEL. 389–390–91 (2019).

329. See Jobin, *supra* note 328, at 389; FJELD ET AL., *supra* note 4, at 3, 60.

330. See Antonio Davola, Emily Black, Kalervo Gulson, Geoffrey Rockwell, Evan Selinger & Elana Zeide, *Shortcut or Sleight of Hand? Why the Checklist Approach in the EU Guidelines Does Not Work*, A.I. PULSE (Sept. 26, 2019), <https://aipulse.org/from-shortcut-to-sleight-of-hand-why-the-checklist-approach-in-the-eu-guidelines-does-not-work/> [https://perma.cc/SD43-8EZW].

331. See *Cahoo v. SAS Inst. Inc.*, 322 F. Supp. 3d 772, 789 (E.D. Mich. 2018); *Bauserman v. Unemployment Ins. Agency*, 931 N.W.2d 539, 540–41 (Mich. 2019); Vervloesem, *supra* note 16.

332. See *Cahoo*, 322 F. Supp. 3d at 789; *Bauserman*, 931 N.W.2d at 540–41; Vervloesem, *supra* note 16.

333. *Cahoo*, 322 F. Supp. 3d at 789; *Bauserman*, 931 N.W.2d at 540–41.

ensure that each individual is given an opportunity to respond to any allegations.

The right to due process is anchored in the Fourteenth Amendment to the US Constitution and in the Michigan Constitution.³³⁴ The plaintiffs in the federal and state class action lawsuits claim that the UIA violated their right to due process by relying on MiDAS to detect and adjudicate suspected instances of unemployment fraud and by determining guilt without sufficient notice or an opportunity to be heard.³³⁵ In addition to general due process requirements, there are specific clauses in both federal and state law that detail the meaning of due process in the context of an unemployment fraud investigation. The fraud determination itself has to be done by a human, and there are mandatory procedural requirements for UIA agents after a determination is made.³³⁶ For example, UIA agents have to review any case of suspected fraud within thirty days and notify the individual about the determination and the reason behind it.³³⁷ If the agent suspects that the individual committed fraud, the agent must verify the current address of the individual with the Department of State, the Department of the Treasury, and the US Postal Service.³³⁸ In addition, there are limitations on the ways to collect the debts once fraudulent activity is verified. The individual must have the opportunity to present evidence regarding his or her ability to pay the debt and the impact of future deductions of benefits on the individual's financial stability.³³⁹ These safeguards are meant to provide several opportunities for verifying or objecting to the action and establish a hierarchy of personnel that will respond to applicant appeals and take action if needed. The ongoing court cases over MiDAS demonstrate how difficult it is to undo the damage of an erroneous fraud determination and the subsequent need for these safeguards, and the examples below illustrate this.

In the state case, lead plaintiff Grant Bauserman had received unemployment benefits for approximately five months.³⁴⁰ After the last installment of benefits, he received a bonus from his employer for prior work that had been deferred until later.³⁴¹ MiDAS detected the bonus

334. U.S. CONST. amend. XIV; MICH. CONST. art. I, § 17.

335. *Bauserman*, 931 N.W.2d at 542–43; *Cahoo*, 322 F. Supp. 3d at 797.

336. See MICH. COMP. LAWS § 421.32a(1) (2020).

337. *Id.*

338. *Id.* § 421.32a(5).

339. 42 U.S.C. § 503(g)(1); 26 U.S.C. § 6402(f)(3).

340. *Bauserman*, 931 N.W.2d at 541.

341. *Bauserman v. Unemployment Ins. Agency*, No. 333181, 2017 WL 3044120, at *1 (Mich. Ct. App. July 18, 2017).

as a discrepancy and seven months after Bauserman stopped receiving unemployment benefits he received a request for clarification in his online account on the UIA's website.³⁴² Since Bauserman had no reason to check his online account after he stopped receiving money, he only became aware of the letter two months later, at which point he responded.³⁴³ Despite sending several letters and explanations to the UIA, he was notified automatically by MiDAS that he had been overpaid benefits and that he had to pay a penalty of \$15,928.00.³⁴⁴ Four months later, Bauserman was notified by the US Department of Treasury and the Michigan Department of Treasury that his income tax refund had been seized to pay the debt to UIA.³⁴⁵ Three months later, the UIA notified Bauserman that the earlier fraud determination was "null and void."³⁴⁶ Similarly, plaintiffs in the federal lawsuits also experienced false accusations without sufficient notice. Kristen Mendyk received unemployment benefits between 2009 and 2010 and was not notified about pending fraud accusations until 2016, which ultimately led to her filing for bankruptcy because she was not able to return the amount.³⁴⁷ Later on, it was clarified that the accusations were false.³⁴⁸ Similarly, Michelle Davison was notified about her alleged fraud only when the IRS seized her federal and state refunds for 2015 and 2016.³⁴⁹

Due process, in this case, required giving the plaintiffs a proper opportunity to be heard by a UIA agent or a judge with sufficient discretion to identify the error and stop the snowball before MiDAS could push it downhill. Had MiDAS been designed to include sufficient human intervention, many of these mistakes could have been avoided entirely.

b. SyRI

EU regulations enforce more safeguards regarding automation.³⁵⁰ However, SyRI failed to comply with other safeguards despite maintaining meaningful human intervenors. The court

342. *Bauserman*, 931 N.W.2d at 541.

343. *See id.*; *Bauserman*, 2017 WL 3044120, at *1.

344. *Bauserman*, 931 N.W.2d at 541–42; Jonathan Oosting, *Michigan False Fraud Case Heads Back to Court*, DETROIT NEWS (July 6, 2017, 5:23 PM), <https://www.detroitnews.com/story/business/2017/07/06/unemployment-insurance-agency-lawsuit/103482478/> [https://perma.cc/2E7A-PNRA].

345. *Bauserman*, 931 N.W.2d at 541.

346. *Id.* at 342.

347. *Cahoo v. SAS Analytics Inc.*, 912 F.3d 887, 895 (6th Cir. 2019).

348. *Id.*

349. *Id.*

350. *See Vervloesem, supra* note 16.

ultimately banned the use of SyRI because it violated Article 8 of the European Convention on Human Rights (ECHR), which protects the right to privacy.³⁵¹ Although the court recognized fighting fraud with advanced technology as a legitimate goal, SyRI's design did not sufficiently address potential invasions of privacy.³⁵² Although the Secretary for Social Affairs and Employment decided not to appeal the final judgment, she mentioned that the department's focus will be on building a new algorithmic system that addresses the concerns raised by the court and includes better safeguards for privacy and transparency.³⁵³ Therefore, it is particularly important to assess how humans in the loop can support other safeguards.

Several scholars criticized the court's decision to limit its analysis of the case only through the lens of ECHR Article 8 and argued that each regulatory provision should have been addressed separately because analyzing the GDPR and ECHR require different frameworks.³⁵⁴ Although both include common provisions such as complying with purpose limitations and data minimization, the GDPR protects privacy through many specific standards while the ECHR's focus is on legality, legitimate purpose, and a balance of interests.³⁵⁵ By mixing the two regulations, the court left out important provisions of the GDPR, such as the test of proprietary, storage limitation, and lawful processing of personal data.³⁵⁶ Put simply, by conducting a more thorough analysis of the GDPR, the court could have assisted the Ministry in identifying the changes that needed to be done in the next version of SyRI in order to comply with the GDPR.

If SyRI was analyzed through the lens of the GDPR, it would have been subjected to the following seven principles for processing data laid out in Article 5 of GDPR: lawfulness, fairness and transparency; purpose limitation; data minimization; accuracy; storage limitation; integrity and confidentiality; and accountability. Although the safeguards that are most connected to discretion are purpose limitation, data minimization, and accountability, all seven principles

351. *Id.*

352. *Id.*

353. See Letter from Tamara Van Ark, *supra* note 289.

354. See Michiel Duchateau & Trix Mulder, *Geautomatiseerde opsporing van fraude moet van de rechter. Maar mag het ook? [Automated Fraud Detection Must Be Done by the Courts, But Is It Also Allowed?]*, EUROPA NU: ONAFHANKELIJK & ACTUEEL (Mar. 13, 2020), https://www.europa-nu.nl/id/vl6xcolow6uq/nieuws/geautomatiseerde_opsporing_van_fraude?ctx=vkmacfk8kojh&tab=0 [<https://perma.cc/D8ZK-WZTG>].

355. *Id.*

356. Cf. Noot R.H.T. Jansen & M.D. Reijneveld, *SyRI-wetgeving in strijd met het Europees Verdrag voor de Rechten van de Mens (SyRI Legislation Contrary to the European Convention on Human Rights)*, 63 JURISPRUDENTIE BESTUURSRECHT 371, 402 (Feb. 5, 2020).

are discussed below with a brief explanation of how they can be used to improve SyRI in the next iteration. This Article focuses on the GDPR since it is the most recent regulation specifically aimed at advanced algorithms like SyRI. These checks and balances do not just cover individual administrative decisions, but rather, ultimately shape the interactions between citizens, administrators, and agencies.³⁵⁷

The first safeguards are lawfulness, fairness, and transparency. The goal of the first section in Article 5 is to ensure that there is a legal ground for the processing of data and that it is being handled in a fair and predictable way.³⁵⁸ Furthermore, data must be processed transparently, meaning that individuals have a right to know who is using their data, for what purpose, and whether they can opt out.³⁵⁹ SyRI was enacted through legislation in order to avoid legal debates over processing data.³⁶⁰ As for fairness and transparency, the court concluded that SyRI was not sufficiently transparent or verifiable.³⁶¹ It is critical that subjects are informed about their rights and can act upon them, especially because a huge amount of data is processed and it comes from many entities. With so little publicly available information about SyRI's operation, welfare recipients had no one to explain their rights to them. If caseworkers are told what data the algorithm processes and how it operates, they will be able to better notify the data subjects and thereby improve data transparency.

The next safeguard is purpose limitation. This was the main principle on which the court relied in declaring SyRI to be unlawful.³⁶² The principle states that data processing should be for the narrowest possible purpose, with specific, explicitly defined goals to be followed rigidly.³⁶³ Specifically, the processing has to be "necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country."³⁶⁴ The court concluded that

357. Eyal Benvenisti, *Toward Algorithmic Checks and Balances: A Rejoinder*, 29 EUROPEAN J. INT'L L. 1087, 1087–90 (2018).

358. *Principle (a): Lawfulness, Fairness and Transparency*, INFO. COMM'RS OFF., <https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/principles/lawfulness-fairness-and-transparency/> [https://perma.cc/3VGN-Z4XQ] (last visited Jan. 24, 2021).

359. See *Rechtbank den Haag* [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.31 (Neth); GDPR, *supra* note 307, art. 5(1)(a).

360. See Toh, *supra* note 20.

361. See *Rechtbank den Haag* [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.86 (Neth).

362. *Id.* ¶ 6.96.

363. See Convention for the Protection Human Rights and Fundamental Freedoms art. 8, Nov. 4, 1950, 213 U.N.T.S. 221.

364. *Id.*

the SyRI legislation did not sufficiently justify the system's necessity in a democratic society.³⁶⁵ The court acknowledged the importance of combating welfare fraud, a phenomenon that costs the state approximately €500 million.³⁶⁶ Inaction could have led the Dutch people to lose confidence in the government and compromise the integrity of the economic system and financial institutions.³⁶⁷ Despite these good intentions, however, SyRI went too far beyond just combating fraud.³⁶⁸ Since SyRI and other algorithms control the cases that are seen by caseworkers, purpose limitation is a critical safeguard. As mentioned before, one change could be to give caseworkers discretion over whether to put an individual under surveillance and for how long. In this way, humans will ensure that the burden of two years of surveillance will not be imposed lightly. After all, automatically surveilling every individual that the algorithm flags as suspicious is far from “necessary in a democratic society.”

Another significant criticism leveled at SyRI was its failure to minimize the amount of data it collected. Several public officials spoke openly against the collection and analysis of health and police data.³⁶⁹ In addition, the court highlighted that, from the information the state provided, the connection between the different data types collected and the conclusion of fraud was too unclear.³⁷⁰ While there is a clear link between housing data and cohabitation fraud, where people register at different addresses when they actually reside in one, the court struggled to find other examples.³⁷¹ Limiting data collection to data known to signify increased risk of fraud would allow agents to better understand the links and patterns that the algorithm based its predictions on and, if necessary, intervene and remedy discriminatory or biased links. This limitation is also crucial because welfare distribution is so sensitive; denial of benefits can be devastating to an individual, thus making accuracy paramount. In the next iteration of SyRI, the data being fed into the algorithm must be chosen carefully to ensure that the system makes credible inferences. Likewise, caseworkers must be able to understand what inferences SyRI will

365. Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.72 (Neth).

366. *Id.* ¶ 6.76.

367. *Id.*

368. *Id.* ¶¶ 6.80–6.83.

369. See Bij Voorbaat Verdacht, *supra* note 286.

370. Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 6.87 (Neth).

371. *Id.*

make when presented with certain facts so that they can correct mistaken decisions when necessary.

Accuracy is another key consideration. As previously mentioned, the accuracy rate of SyRI was very low. One project established only 117 cases of fraud out of 119,000 investigations, and benefits were terminated in only 10 cases.³⁷² The Minister of Social Affairs and Employment later admitted that a major reason the verdict was not appealed was that the system was not proven to be accurate.³⁷³ It goes without saying that having an accurate and reliable system would allow a better assessment of the algorithm and its impact on claimants. Furthermore, with technological errors taken out of the equation, any erroneous decisions can be more accurately traced back to the algorithm or the responsible caseworker, thus allowing for proper adjustments to be made.

The SyRI court did not hear arguments about storage limitation because this issue is well addressed in the legislation regarding SyRI. There are limitations on how long data can be kept. SyRI deletes individual data within four weeks if no risk report was generated.³⁷⁴ If a risk report was created, the SyRI legislation required that it be “retained by the Minister for not longer than deemed necessary for the purpose of processing risk reports and for a period of no more than two years.”³⁷⁵ Although data storage limitations do not directly impact caseworkers or their discretion, they do prevent systems like SyRI from unnecessarily holding data on citizens that is no longer needed for making a fraud determination, which is key for data privacy concerns.

The same goes for the ideas of integrity and confidentiality, which were likewise not debated by the parties, because as required by the GDPR, the IB encrypted the data processed and only decrypted some data about high risk individuals later on.³⁷⁶ Again, encryption of data does not directly impact caseworkers, but it does ensure that individuals do not lose their private information when applying for welfare benefits.

Finally, the issue of accountability is incredibly relevant to the issue of discretion. Ensuring that public officials are held accountable for their actions is critical for maintaining the public's trust in the system and the government as a whole. Given the long life cycle of an

372. INSPECTIE SZW, *NOTA VAN BEVINDINGEN: BESTANDSKOPPELINGEN BIJ FRAUDEBESTRIJDING 22* (2012).

373. *See* Letter from Tamara Van Ark, *supra* note 289.

374. Rechtbank den Haag [District Court of The Hague] 5 februari 2020, No. C-09-550982-HA ZA 18-388 (NJCM et al./State) ¶ 4.31 (Neth).

375. *Id.* ¶ 4.15.

376. *See id.* ¶¶ 4.28–30.

algorithm, different public officials could be responsible for different actions. However, it is difficult to hold officials accountable if they cannot credibly understand the algorithm's operation because they will not be able to justify its decisions on appeal. Therefore, street-level bureaucrats must be able to develop an adequate understanding of the algorithm's operation, such as what data it uses to draw its conclusions and why a specific conclusion was reached. By providing this information, street-level bureaucrats will be able to properly evaluate appeals and appellants will receive more well-reasoned decisions.

Although several researchers have criticized the safeguards laid out in the GDPR as too vague and ambiguous, it is clear that even broad safeguards such as fairness and limitation of purpose can be used by courts to fill in the blanks and adjudicate individual cases based on their unique circumstances. Furthermore, it is also clear that meaningful human agency can play an important role in promoting these safeguards and ensuring that automated systems do not just make correct decisions but also promote efficient decision-making and respect the privacy rights of individual welfare applicants.

VII. CONCLUSION

As shown throughout this Article, both MiDAS and SyRI had many failures. Some of the failures can be attributed to poor technical design, while others can be attributed to the failure to consider the impact on disadvantaged communities.³⁷⁷ Finally, many failures were related to the lack of proper human agency. Although this Article focuses on human agency, it is equally important to address each category of failures in order to fully understand the necessary changes that need to be made and assess the worthiness of future automated systems.

In terms of human discretion, the aforementioned cases clearly demonstrate that discretionary street-level bureaucracy is vital for the smooth operation of a democratic society and that even with the most advanced technological capabilities some parts of the decision-making should be kept in the hands of humans—especially when the service at stake is so essential.³⁷⁸

In a nutshell, in order to efficiently deliver public services and guard against the abuse of public resources, street-level bureaucrats need sufficient room to apply meaningful discretion. First, the breadth of the automated domain must be examined: what parts of the process

377. See Brown et al., *supra* note 224.

378. See Wagenaar, *supra* note 2, at 260–61, 274.

are automated, whether the system is automating a rule or a standard, and how much discretionary power is shifted to the engineers or to the IT itself. In this regard, MiDAS and SyRI are two different algorithms with different capabilities. MiDAS is a system-level bureaucracy, meaning an algorithm that automates a narrow domain, only fraud in unemployment benefits. And SyRI was a large-scale bureaucracy, an algorithm that investigated different types of welfare fraud. MiDAS is a decision-making algorithm, meaning that all parts of the process of detecting, investigating, and punishing for fraud are conducted by the algorithm. SyRI was a decision-aiding algorithm, it automated only the data collection and analysis part, and both algorithms automated a set of rules and standards where conflicts between them were inevitable. In addition, in both algorithms it is evident that discretion was shifted to the engineers and the technology, but the degree is not clear. Despite that, it can be concluded that both algorithms left room for street-level bureaucrats to apply discretion, although the room left by SyRI was wider.

However, whatever discretion is left must also be meaningful. Analysis of the interactions between the caseworkers and the algorithm in MiDAS reveal that human discretion was not very impactful because street-level bureaucrats did not have a clearly defined role in the system. In SyRI, the discretion was more meaningful because the caseworkers had the final say. Nevertheless, human agency needs to be present throughout the process—not just in the final determination—to prevent the algorithm from becoming the *de facto* decision maker. Both systems should do more to allow the human in the loop to consider other policy considerations, such as data privacy and due process.

The goal of this Article was to unpack the requirement for keeping humans in the loop and to outline the steps that policy makers should take in order to ensure sufficient and meaningful discretion is maintained. The role of street-level bureaucrats has been subjected to major changes over the years, and the use of advanced technology to constrain the capabilities of public officers suggests that we may be switching back to the traditional, tightly controlled public management approach. Given the failure of the traditional approach to adequately address the needs of the public, it is critical that the recent limitation of street-level bureaucrats be reserved.