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Published online: 26 Mar 2025.

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Automated decision making and deportation: legal concerns and regulation

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ABSTRACT

Over the past few years, automated decision-marking (ADM) tools have garnered significant attention from governments worldwide, leading to their deployment across various sectors, including immigration and homeland security. The introduction of ADM systems has dramatically reshaped the landscape of immigration enforcement. Some nations, like the USA, have been pioneers in integrating ADM technologies into immigration processes. Meanwhile, other regions, such as the UK and most EU countries, are also advancing efforts to ensure responsible use and regulation of ADM in immigration. However, as with all technologies, ADM tools present both opportunities and risks. To address these challenges, this article will examine the legal and technological hurdles associated with the use of ADM systems by immigration departments, particularly in deportation processes, within the broader context of responsible ADM use and regulation. This paper takes the view that there would be significant benefit in organising the various concerns into a coherent framework around which responsible regulatory efforts can be constructed. It proposes a simple schema for categorising issues which need to be addressed, surveys the issues that fall in each category and suggests regulatory measures that might best suit each type of issue.

1. Introduction

The world is run by data. Predictive analytics and machine learning are constantly feeding from people's data to predict behaviours. Big Tech propelled the 'Big Data' revolution after discovering that data translates into revenue. Netflix predicts what movies you will like, Facebook helps businesses predict what kinds of ads you are likely to click on, and insurance companies predict whether you will be in an accident or become sick. But what happens when the government uses your data to predict that you are going to commit a crime, or to track you and deport you if you are undocumented?[1]

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[1]Estefania E. McCarroll, 'Weapons of Mass Deportation: Big Data and Automated Decision-making Systems in Immigration Law' (2020) 34(3) Georgetown Immigration Law Journal 705, 706.

The call for mass deportation in the recent USA election campaigns is being hotly debated.[2] It is not too hard to imagine that artificial intelligence (AI) and Automated Decision-Making (ADM) tools would (continue to) play some significant roles.[3] In 2020, McCarroll posed a thought-provoking question (see quote above) in an article published in the Georgetown Immigration Law Journal.[4] Five years later, the question remains unanswered, yet concerns about the use of AI and ADM tools in deportation processes have only intensified.

Over the past few years, ADM tools have garnered significant attention from governments worldwide, leading to their deployment across various sectors, including immigration and homeland security. The introduction of ADM systems has dramatically reshaped the landscape of immigration enforcement. Some nations, like the USA,[5] have been pioneers in integrating ADM technologies into immigration processes. Meanwhile, other regions, such as the UK[6] and most EU countries[7], are also advancing efforts to ensure responsible use and regulation of ADM in immigration. However, as with all technologies, ADM tools present both opportunities and risks.

This article argues that while ADM systems can enhance the efficiency of immigration enforcement, including facilitating the deportation process, they also bring new challenges. A key issue is the lack of transparency, which not only presents significant legal risks but also exposes these systems to potential political manipulation. For instance, in the USA, the Risk Classification Assessment (RCA) system, used by Immigration and Customs Enforcement (ICE) to determine whether to release or detain immigrants, has been found to consistently favour recommendations for indefinite detention.[8] It is crucial, therefore, that the academic community, law and technology professionals, regulators and the general public actively discuss the potential dangers these systems present to vulnerable groups and explore methods to mitigate such risks.[9] To address these challenges, this article will examine the legal and technological hurdles associated with the use of ADM systems by immigration departments, particularly in deportation processes, within the broader context of responsible ADM use and regulation.

Despite the recent surge of interest in the topic, ADM is not an entirely new phenomenon. The project of guiding the integration of automated systems into governmental decision-making has been ongoing for several decades in the form not just of academic

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[2]e.g. Bernd Debusmann Jr and Mike Wendling, 'Could Trump Really Deport One Million Immigrants?', BBC (16 August 2024), <https://www.bbc.com/news/articles/ce9z0lm48ngo> (accessed 12 October 2024); American Immigration Council, 'Mass Deportation: Devastating Costs to America, Its Budget and Economy' (Report, 23 October 2024), <https://www.americanimmigrationcouncil.org/sites/default/files/research/mass_deportation_report_0.pdf> accessed 12 October 2024.

[3]See section 2.3.

[4]McCarroll (n 1).

[5]e.g. Julie Mao et al, 'Automating Deportation: The Case for Abolishing ICE's Automated Deportation Machine' (Mijente Report, June 2024) <https://mijente.net/wp-content/uploads/2024/06/Automating-Deportation.pdf> accessed 8 October 2024; see also section 3.1 herein.

[6]e.g. UK Government, Guidance: Ethics, Transparency and Accountability Framework for Automated Decision-Making (2023) <https://www.gov.uk/government/publications/ethics-transparency-and-accountability-framework-for-automated-decision-making/ethics-transparency-and-accountability-framework-for-automated-decision-making#understanding-automated-and-algorithmic-decision-making> accessed 11 October 2024.

[7]See section 3.1 herein.

[8]McCarroll (n 1) 707.

[9]ibid 707.

research but law reform studies, policy papers, legislative updates, work by standards bodies, ethics bodies and so on.[10]

As so often happens in respect of technological change, though, the uptake of ADM has progressed far more rapidly that the regulatory efforts that attempt to govern it. The capabilities and range of applications of ADM systems are expanding into ever more areas encompassing new types of decisions and their behaviour is constantly changing and becoming more sophisticated.[11] Consequently, despite the significant amount of work that has been done on the various legal questions raised by ADM, regulatory efforts are too often focused on playing catch-up with new developments rather than guiding the overall integration of ADM into public decision-making. Because of that focus, important fundamental matters have not been examined as closely as they need to be. How can authorities be confident that the substance of ADM-made decisions is consistent with legal requirements that might not have been formed with artificial systems in mind? What measures can be adopted to ensure that the behaviour of an authorised decision-maker who employs an ADM system is consistent with legal principles and rules that might not contemplate involvement of an artificial entity in the decision-making process?

Meanwhile, new forms and applications of ADM expose both shortcomings and challenges that need to be addressed as quickly as they uncover new strengths and benefits. Calls to limit the use of ADM in various ways are made as often as calls to speed its uptake. The task of designing regulatory efforts which realise the benefits of ADM while remaining consistent with all the principles and rules of administrative law becomes increasingly difficult.

This paper takes the view that there would be significant benefit in organising the various concerns, both positive and negative, into a coherent framework around which responsible regulatory efforts can be constructed. To that end, it proposes a simple schema for categorising issues which need to be addressed, surveys the issues that fall in each category and suggests regulatory measures that might best suit each type of issue.

This article comprises five substantive sections, in addition to an introduction and conclusion. Section II provides a foundational understanding of ADM, establishing a basis for regulatory reform discussions. Section III explores case studies on ADM deployment in deportation practices in the USA and EU, offering valuable contextual insights. Section IV addresses core concerns stemming from ADM adoption, along with emerging challenges as the technology evolves. Relevant examples from deportation and immigration will be included to illustrate key points. Lessons from Australia's legal framework

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[10]e.g. Australia's Administrative Review Council, Automated Assistance in Administrative Decision-making (Issues Paper, 2003), available at <https://www.ag.gov.au/sites/default/files/2020-03/automated-assistance.pdf> accessed 11 October 2024; Australia's Administrative Review Council, Automated Assistance in Administrative Decision-making (Report to the Attorney-General, Report No 46, November 2004); Commonwealth Ombudsman, Automated Decision-making: Better Practice Guides (originally 2007, and updated in 2019) <https://www.ombudsman.gov.au/__data/assets/pdf_file/0029/288236/OMB1188-Automated-Decision-Making-Report_Final-A1898885.pdf> accessed 12 October 2024; Justice Melissa Perry, iDecide: Digital Pathway to Decision (Law Council of Australia, Immigration Law Conference, 2019) <https://www.fedcourt.gov.au/digital-law-library/judges-speeches/justice-perry/perry-j-20190321> accessed 12 October 2024; Australian Human Rights Commission, Technology and Human Rights (2021); Law Council of Australia, Positioning Australia as a Leader in Digital Economy Regulation – Automated Decision Making and AI Regulation – Issues Paper (2022).

[11]This may vary from various social security services to criminal justice. See Yee-Fui Ng and Stephen Gray, 'Disadvantage and Automated Decision', (2022) 43(2) Adelaide Law Review 641. See also Australian Government, Report of Royal Commission into the Robodebt Scheme (2023).

and cases will be analysed to propose potential solutions and optimal regulatory models. Section V proposes specific regulatory approaches to address the identified challenges and ensure responsible ADM integration.

Rather than focusing on a deep analysis of any single issue, the paper takes a broader approach to ADM regulation, aiming to organise key regulatory concerns coherently. Citations to more detailed discussions are included where relevant. While the paper references Australian public law, particularly migration law, alongside US and EU case studies, it is important to note that the analysis is not country-specific. The focus is on the intersection of law, technology, and human impact. Technological change transcends jurisdictions and legal frameworks, influencing human behaviour by expanding capabilities, reshaping perceptions, and affecting decision-making processes. These shifts impact all areas of law, making the paper's findings and recommendations applicable on a global scale.

2. What is ADM?

Before assessing the effectiveness of deploying ADM systems in deportation practices and exploring the best approaches to designing and applying such systems in these contexts, it is crucial to first understand what ADM entails and identify fundamental principles for evaluating the effect of its regulatory framework.

Regardless of the approach a government adopts in designing such a framework,[12] its effect ultimately depends on the perspective taken regarding the subject matter to be regulated. When it comes to ADM regulation, defining ADM in a manner that highlights the aspects most relevant to regulators presents a significant challenge, particularly in a field that is evolving so rapidly. However, one constant can be identified: the profound effect of ADM on decision-making processes.

2.1. An effects-based definition: external effects v internal workings

The ongoing project of regulating use of ADM technology seeks to realise the benefits of utilising ADM in a governmental decision-making context while avoiding or mitigating potential drawbacks. Such a project needs to be based on a conception of ADM which allows consideration of all the effects that the use of ADM systems have on governmental decision-making.

The reference to 'effects' is important. It is common for definitions of ADM to refer in some way to the technology they employ,[13] but it is argued here that the regulatory definition of ADM should focus instead on the effects that the regulatory framework seeks to shape, not the technical means by which those effects are achieved. ADM technologies are advancing rapidly, which makes them a poor reference point for rules that are, hopefully, intended to be useful over the long term. Moreover, technology *per se* is

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[12]e.g. Tobias D. Krafft and Katharina A. Zweig, 'How to Regulate Algorithmic Decision-making: A Framework of Regulatory Requirements for Different Applications', (2022) 16 Regulation and Governance 119; Benedict Sheehy and Yee-Fui Ng, 'The Challenges of AI Decision-Marking in Government and Administrative Law: A Proposal for Regulatory Design' (2024) 57 Indiana Law Review 665.

[13]e.g. Australian Human Rights Commission, Technology and Human Rights (2021); Terry Carney, 'Automation in Social Security: Implications for Merits Review?' (2020) 55(3) Australian Journal of Social Issues 260; Ng and Gray (n 11).

not the quantity of interest in this context; what matters is the way technology influences decision-making.

2.1.1. The scope of ADM systems: data collection plus decision-making

To that end, the term 'ADM' is defined here very broadly with a focus on its *'external effects'* rather than its *'internal workings'*. It encompasses any automated system, typically but not necessarily computer-based, which is utilised in organisational decision-making. It certainly includes systems that might be described as artificially intelligent, which is where most research interest is currently focused,[14] but is not at all limited to AI systems. It includes artificial systems, both simple and complex, that assist in gathering, filtering or otherwise processing data that is then supplied to a human decision-maker for consideration as well as systems to which an authorised decision-maker 'delegates'[15] the actual decision-making.

The defining feature of an ADM system of interest is simply that it is an artificial information-processing system, employed in a decision-making operation, that materially affects either the substance of a regulated decision or the process by which a regulated decision is made. Equivalently, it is an artificial system that affects either the capacity of an authorised decision-maker to fulfil a legal obligation or the manner in which that obligation is fulfilled.

It may be argued that merely gathering and processing data before supplying it to a human being does not constitute ADM. The view taken in this paper is that, by shaping the informational basis on which a human founds a decision, those preliminary activities have the potential to influence the decision that is taken as surely as does an ADM system that actually engages in reasoning. Because they can affect decision processes in similar ways, data gathering and processing systems are treated here as a variety of ADM systems. For example, ADM systems that supply biased historical data to a human decision-maker may contribute to generation of biased predictions.[16] Therefore, it is crucial to treat data gathering and processing as integral parts of ADM systems, rather than as unrelated, separate processes.

2.1.2. Essence of ADM: human-machine collaboration

The inherent effect of employing ADM systems, and the one which gives rise to its most essential legal consequences, is that it turns a purely human decision-making enterprise into a sociotechnical decision-making system; that is, a system comprising both human beings and technological artifacts and in which 'humans' and 'machines' both contribute to decision outcomes.[17]

That is not to say that this is a new phenomenon. Governments and other organisations have, of course, been employing computing devices to assist with data processing for a very long time. Although it tends not to be explicitly acknowledged, law and policy regulating public decision-making has, in fact, governed a sociotechnical decision-making system for

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[14]Mao et al (n 5); see also Dudley Kneller, 'A Change in Government May Put the Brakes on Australia's Support of AI and ADM? Or Perhaps Not?', Gadens (Blog Post, 18 July 2022).

[15]'Delegation' generally refers to assigning a decision to another legal person, not to a machine. See further discussion below.

[16]McCarroll (n 1) 708.

[17]For example, the USA's Rick Classification Assessment System, which recommends to officers whether an immigrant should be detained or released with bond. see McCarroll (n 1) 715.

decades.[18] Historically, though, the capabilities of machines have been sufficiently simple and their roles sufficiently constrained that they have been viewed as merely assisting human beings with specific, well-understood tasks that facilitate, but do not significantly alter, the activities that the human decision-maker would have performed unassisted.

The momentous change that has attracted so much regulatory attention to ADM in recent years has come about due to a confluence of advances in technologies relating to data storage, processing and transmission which have enabled construction of ADM systems with capabilities far beyond those of years prior. Specifically, systems that are able to undertake more complex decision-making tasks that previously only human beings could perform and do so, in some cases, much more cheaply, consistently and accurately. Consequently, their adoption amounts to a change in the roles played by human and machine in organisational decision-making systems. Indeed, changing those roles can be seen as the purpose of ADM: to place machines in roles wherein their capacity for speed, precision, consistency, cost savings and so forth most enhance the outcomes of the organisation's efforts. Legal questions arise when the nature and degree of the change in roles is such that it may exceed the limits embodied in current law. The changes take two forms.

2.2. Transformations in ADM systems: shifting human and machine dynamics

2.2.1. Changes to existing human roles: timing and nature of involvement

In some cases, where ADM systems are employed in a primary decision-making role, authorised human decision-makers effectively step back, their roles becoming more advisory or analogous to policymaking while machines execute individual decisions within the limits set by those policies. In other cases, where ADM systems gather, filter and supply information to human decision-makers, the human role turns to synthesising information which might already have undergone significant processing, rather than directly considering every potentially relevant detail. The timing of human involvement may change, occurring in advance of a process being handed over to an ADM system, or only occurring afterwards, when machine-made decisions become subject to review.[19] Finally, ADM involvement may change the informational basis on which humans act in decision-making processes, creating a dependence on information which has been processed by machine before being supplied to a human.

2.2.2. Addition of new human roles: participants and responsibilities

In all cases of ADM use, some decision-related tasks that would otherwise have been done directly by a human are instead transferred to the direct control of a machine. In general conversation, it is common and quite acceptable to simply describe those tasks as being done 'by' the machine, but in a legal discussion that phrasing is potentially misleading and only captures part of the significant change.

A machine, whether hardware or software, cannot properly be described as a decision-maker. That is true in law, at least in Australian administrative law, as statutory power to

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[18]Or longer, depending on how broadly one defines ADM systems.
[19]It has been noted that in some instances it has already become normal for humans to become directly involved in a decision process only during merits review or judicial review. See, eg, *Pintarich v Deputy Commissioner of Taxation* [2018] FCAFC 79 [47].

make a decision can be granted only to a legal person, whether a natural or juridical person; in other words, an entity which is legally capable of exercising powers and bearing obligations in relation to the exercise of those powers.[20] It is also true in fact. An automated system, whether computer-based or otherwise, is an inanimate object. The algorithm or other mechanism it utilises represents the process by which a decision is to be made but the ADM system is not itself a decision-making entity any more than a written manual describing the same process is a decision-making entity. An ADM system is a 'tool' constructed to aid the making of decisions but to do so it must be operated by a person or organisation. The view taken here is that the decision-maker, in a practical sense, is the group of people who collectively determine the behaviour of an ADM system and cause it to be utilised in the making of a specific decision, whether or not they actually turn their minds to the facts and law of the matter to be decided.

One of the most significant changes brought about by the adoption of ADM systems is the introduction of new participants in the decision-making process. While the use of ADM may reduce the direct influence of one group of people, those who would otherwise have made the decision unaided, it opens the door to at least indirect influence by other parties. The capabilities and behaviour of ADM systems are determined primarily by those who design, develop and program or train the systems, none of whom would generally be among the set of persons who would otherwise have been in a position to influence the outcome of administrative decisions. In many cases, they may not even be part of the organisation which will use the ADM system in its operations. Even within that organisation, persons in charge of selecting, configuring and authorising the use of an ADM system exert a level of influence over the outcome of decisions for which the system is used in a way they may not otherwise have done.

2.2.3. Degree of change: spectrum of human-machine collaboration

The magnitude of the effect that an ADM system has on the roles of human decision-makers is a matter of degree. It is not reflective of the nature of automation technologies to think of a decision as being either 'automated' or 'not automated'. The degree of automation of a system is, rather, on a spectrum. At one end of the spectrum, the effect of an ADM system that simply gathers data and presents it unfiltered to a human decision-maker for consideration might be minimal but is not entirely absent if it supplies data that might not have otherwise been considered. At the other end, even the most highly automated decision-making process must retain some, probably indirect, human involvement. At a minimum, people will still be required to design, program and configure highly automated ADM systems as well as to authorise their use for the making of specific types of decisions, monitor the results and respond to reports of problems. Collectively, those people preserve a human input into highly automated processes. In between, there are countless ways in which a human decision-maker's role might adapt when utilising an ADM system. They might decide based on data that has been pre-processed in some way by the system, select from a set of options presented by the system, approve or reject a recommendation made by the system, and many others.

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[20]For a brief discussion, see: 'Administrative Law and Automated-Decision Making', *New South Wales Ombudsman* (Web Page) <www.ombo.nsw.gov.au/guidance-for-agencies/automated-decision-making-in-the-public-sector/how-adminis trative-law-relates-to-automation-technologie>.

2.3. Categorising the changes: essential vs situational impacts

The change in roles has implications for both the process undertaken within an organisation in making decisions and, potentially, the character of decisions made. What is not changing, though, is the framework of legal principles and rules[21] within which ADM systems must be operated. The task of ensuring that the uptake of ADM by government reinforces rather than undermines administrative law principles is ongoing, and it is the task to which this paper seeks to contribute.

The change in roles is the source of the legal concerns that are the subject of current debate. The simple proposal made here is that the various legal consequences arising from use of ADM be categorised into two groups. The first group includes those consequences which are essential to use of ADM: those which relate to the changed roles of human and machine and which necessarily arise due to the mere fact of a machine being involved in a decision-making process, regardless of what technology it employs or how well it performs. These consequences cannot be avoided and must be incorporated within legal frameworks if ADM is to be successfully utilised over the long term.

The second group includes those consequences which arise not from the fact of machine involvement but from a specific aspect of that involvement, whether it be a particular technology, application or environment of use. These consequences are more situational, or even transient. They may be addressed by more specific regulatory or technical measures as they arise in the course of ADM uptake.

The distinction between the two groups is not the importance of each type of legal consequence (however importance might be defined). It is related more closely to the 'avoidability' of the two types of challenges: whether they are essential consequences arising from the mere fact of machine involvement or more situational concerns that may be addressed without necessarily halting the uptake of ADM.

After giving examples of AI-empowered ADM on deportation in the US and Europe in Section 3, Section 4 will discuss each of these types of legal consequences in detail.

3. Applying AI-empowered ADM on deportation: practices in the U.S. and the Europe

3.1. Automating deportation in the U.S.

3.1.1. Global leadership in AI technologies

Since 'artificial intelligence' was coined by John McCarthy at the Dartmouth Conference in the USA in 1956,[22] the country has maintained a dominant role in global AI technology. In particular, the recent surge in interest in generative AI, highlighted by the release of ChatGPT, has triggered significant government investment. In 2024, the U.S. Congress appropriated $3 billion across federal agencies to purchase and integrate

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[21]Note that moves are gradually being made to update legislative frameworks to accommodate the growth of ADM in public decision-making. Some of these changes are discussed further below. However, such changes do not extend to the fundamental principles of administrative law and the values on which they rest; those still act to constrain the use of ADM.

[22]John McCarthy et al, 'A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence, August 31, 1955' (2006) 27 AI Magazine 12, 12.

AI technologies.[23] With global private AI investment projected to reach $200 billion, the financial incentives for governments and companies to rapidly develop AI are substantial.[24] While AI and AI-empowered ADM systems have brought efficiencies, notably by reducing labour costs and accelerating decision-making processes within government agencies, they have also raised public concerns. There is increasing unease about 'leaving decisions to a secret machine that people know little about, let alone have the power to control' on crucial societal issues – ranging from healthcare and social services to military weapons and immigration.[25]

3.1.2. DHS's leadership in adopting AI and ADM systems & their limits

These same concerns arise regarding the use of AI and ADM systems by the U.S. Department of Homeland Security (DHS) for immigration enforcement. Benefiting from the Biden Administration's AI Executive Order issued in October 2023, which mandates the DHS to disclose its use of AI, Mijente completed a comprehensive report titled *Automating Deportation: The Artificial Intelligence behind the Departement of the Homeland Security's Immigration Enforcement Regime* (hereinafter 'Mijente Report').[26] The report surveys DHS's application of AI and ADM tools in deportation processes, drawing on years of research and newly revealed insights from DHS's 'AI Inventory'.[27] Much like the USA's leadership in global AI technology, DHS has been at the forefront of employing AI and ADM to enhance and streamline its core functions, including immigration enforcement.[28]

The Mijente Report reveals that DHS has utilised AI technologies for over a decade, expanding their use across sub-agencies like US Citizenship and Immigration Services (USCIS), Immigration and Customs Enforcement (ICE), and Customs and Border Protection (CBP).[29] However, this expansion has often occurred without sufficient public input or transparency, raising concerns about AI's role in critical, rights-impacting decisions, including in deportation process.[30]

Concerns are growing over AI's increasing influence on decision-making at USCIS and ICE. USCIS processes approximately 8 million applications annually, and the 2.8 million pending immigration court cases frequently rely on USCIS findings to determine deportation outcomes.[31] Today, USCIS's findings may be significantly influenced by the AI tools it employs. For example, according to DHS's AI Inventory,[32] USCIS uses AI tools like *Asylum Text Analytics* (ATA) and the *Fraud Detection and National Security*

[23]Edward Graham, 'Biden's $1.67 Trillion Budget Boosts Tech, AI', NextGov (11 March 2024) <www.nextgov.com/policy/2024/03/bidens-167-trillion-budget-boosts-tech-ai/394841/> accessed 11 Ocotber 2024; also cited by Mao et al (n 5).
[24]Goldman Sachs, 'AI Investment Forecast to Approach $200 Billion Globally by 2025', 1 August 2023 <www.goldmansachs.com/insights/articles/ai-investment-forecast-to-approach-200-billion-globally-by-2025>; also cited by Mao et al (n 5).
[25]Mao et al (n 5).
[26]Ibid.
[27]ibid 4.
[28]ibid 5.
[29]ibid 4.
[30]ibid 4.
[31]ibid 7. USCIS processes around 8 million applications annually, spanning work permits, temporary statuses, green cards, and 875,000 naturalisation applications. Meanwhile, the 2.8 million cases pending in US immigration courts, overseen by the Executive Office for Immigration Review (EOIR), often rely on USCIS findings to determine whether deportation will proceed or relief will be granted.
[32]USA Department of Homeland Security, 'Artificial Intelligence Use Case Inventory', *Artificial Intelligence Use Case Inventory*, August 16, 2024) <www.dhs.gov/data/AI_inventory> accessed 11 October 2024.

Data System NexGen (FDNS-DS NexGen) to streamline immigration processes. ATA identifies patterns in asylum applications to detect fraud,[33] while FDNS-DS NexGen flags high-risk applications for further investigation, improving fraud detection and protecting the integrity of the system.[34] Additionally, USCIS employs RelativityOne, a cloud-based eDiscovery platform that uses AI to improve document review efficiency in complex cases.[35] While these AI tools do not directly issue deportation orders, they play a crucial role in flagging cases for review by human officers. Cases flagged for fraud or public safety risks may lead to deportation if violations are confirmed. These systems help USCIS handle large case volumes by automating routine tasks, allowing officers to focus on complex cases that may result in deportation.[36]

Similarly, ICE uses AI tools like the *Giant Oak Search Technology* (GOST) and RCA in its deportation decisions. The GOST scans online activities to identify individuals who pose security risks, influencing deportation decisions when links to criminal or terrorist activities are found.[37] The RCA, implemented in 2013, evaluates detainee release eligibility with stricter criteria over time, leading to more undocumented immigrants being classified as high-risk, which can result in prolonged detention and deportation.[38]

Though these AI tools improve efficiency, they raise serious concerns about privacy, bias, and over-surveillance, especially in deportation processes. The Mijente Report underscores fears that AI could justify increased detention and deportation, disproportionately affecting Black, Brown, and immigrant communities.[39] Despite the AI Executive Order and federal laws,[40] DHS has been criticised for being 'secretive' about its use of AI.[41] For instance, although DHS released an AI Inventory, it provided minimal details on how these systems function – specifically, what data is being used (system input), how decisions or recommendations are generated (system output), and how errors are identified, managed, and reviewed.[42] A notable example is the RCA tool

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[33]ibid. ATA is a machine learning tool that USCIS employs to detect fraud in asylum applications by scanning for plagiarism in the narrative sections of forms. It helps prevent fraudulent claims by identifying common patterns across different applications.

[34]ibid. FDNS-DS NexGen is a modernised case management system used by USCIS, incorporating AI to detect and manage immigration fraud, public safety risks, and national security threats. It flags high-risk applications for further investigation, improving fraud detection and preserving the integrity of the immigration system.

[35]ibid. RelativityOne is a cloud-based eDiscovery platform that leverages AI tools to improve document review efficiency, automating tasks like document tagging, identifying patterns, and prioritising relevant documents. It is widely used in large-scale reviews for litigation, FOIA requests, and other document-heavy processes, including within several DHS Components and Office.

[36]For example, the Evidence Classifier, part of USCIS's Electronic Information System (ELIS), uses machine learning to tag high-impact documents, reducing manual review efforts. Between September 2021 and May 2022, it saved 24 million page scrolls and 13,348 h of work, nearly doubling the 30-day adjudication rate from 30% to 58%. See USA Department of Homeland Seecurity (n 32).

[37]Rob Thubron, 'US immigration enforcement used an AI-powered tool to scan social media posts "derogatory" to the US', *TechSpot* (October 27, 2023) <www.techspot.com/news/100642-ice-used-ai-powered-tool-scan-social-media.html> accessed 11 October 2024.

[38]Anu Chugh, 'Risk Assessment Tools: An Algorithmic Solution to the Due Process Problem in Immigration' (2022) 6 Columbia Human Rights Law Review 272, 274–276, 294.

[39]Mao et al (n 5) 10.

[40]White House Office of Science and Technology Policy, 'Blueprint for an AI Bill of Rights: Making Automated Systems Work for the American People', *The White House*, Oct 2022 <www.whitehouse.gov/ostp/ai-bill-of-rights/> accessed 11 October 2024; *Advancing American AI Act*, Act of Dec. 23, 2022, Pub L No 117-263, ch Subtitle B, 3668 (2022) ('*Advancing American AI Act*'); Exec. Office of the President, 'Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence' Exec. Office of the President, Oct. 30, 2023) <www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/> accessed 11 October 2024.

[41]Mao et al (n 5) 10.

[42]ibid 10.

used by ICE, which almost always recommends indefinite detention, drawing criticism as a case of how ADM systems can be manipulated for political purposes.[43]

Overall, there remains a concerning lack of transparency in the deployment of these AI tools. The legal consequences of increased reliance on ADM will be further examined in the next sections.

3.2. Automating immigration in the EU and UK

3.2.1. EU's leadership in AI regulations

Although AI development and deployment in the EU may not be progressing as quickly as in the USA, the use of new technologies, including AI-powered ADM systems, is steadily rising in the fields of migration and asylum administration across Europe. Several countries have begun adopting or testing these systems to manage border control, home security, and decisions regarding who gains access to or remains in their territories and protection mechanisms.[44]

While Europe's pace of AI development may be slower, it has emerged as a leader in AI regulation. Notably, the *EU AI Act* proposal of 2021 classifies AI systems used in immigration, asylum, and border control as 'high-risk', recognising their potential impact on fundamental rights and public safety.[45] The *EU AI Act* was officially adopted by the European Parliament and the Council on 13 June 2024, reinforcing these provisions.[46] In terms of research, even before the Mijente Report in the USA, Oxford University researchers conducted a comprehensive investigation into AI practices in immigration and asylum across Europe.[47] Their 2023 report, Automating Immigration and Asylum: The Uses of New Technologies in Migration and Asylum Governance in Europe (the 'Oxford Report'), offered critical insights into the expanding use of AI in these sectors.[48]

The Oxford Report outlines how new technologies are integrated into European immigration and asylum systems at both national and EU levels. Taking a temporal approach, the report examines the use of these technologies at various stages: before arrival, at the border, and within European territories.[49] As individuals interact with immigration authorities throughout different phases of the process, they are subjected to various technologies, such as data collection, risk assessment tools, and biometric systems.

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[43]McCarroll (n 1) 707.

[44]Derya Ozkul, 'Automating Immigration and Asylum: The Uses of New Technologies in Migration and Asylum Governance in Europe' (Research Report, Refugee Studies Centre, University of Oxford) 5, <www.rsc.ox.ac.uk/files/files-1/automating-immigration-and-asylum_afar_9-1-23.pdf> accessed 11 October 2024.

[45]This classification is outlined in Article 6 of the Proposal for a Regulation laying down harmonised rules on Artificial Intelligence (AI Act), issued by the European Commission in April 2021. AI systems involved in visa processing, asylum decisions, and border control checks are specifically included, as these systems can affect individuals' legal rights. See Proposal for a Regulation of The European Parliament And of The Council: Laying Down Harmonised Rules On Artificial Intelligence (Artificial Intelligence Act) And Amending Certain Union Legislative Acts 2021 (European Commission) ('Proposal for a Regulation of The European Parliament And of The Council: Laying Down Harmonised Rules On Artificial Intelligence (Artificial Intelligence Act) And Amending Certain Union Legislative Acts').

[46]Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024: laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act) 2024 (EU) ('Artificial Intelligence Act').

[47]Ozkul (n 44) 5.

[48]ibid 5.

[49]ibid 5.

While deportation or removal decisions are typically made later in the process, it's crucial to recognise that these decisions often rely on information gathered at earlier stages, including prior to arrival or at the border. This interconnectedness means that technologies used at different points in the immigration process directly influence final outcomes, such as detention or deportation decisions.

3.2.2. Automating deportation or removal through multi-tools – UK's Triage system as an example

The UK's 'Triage Tool' system, used since 2017 by the Home Office, is a key example of ADM tools in automating detention, removal or deportation.[50] This system automates the assessment of an individual's removability and the level of harm they pose, prioritising high-risk cases and tracking obstacles like legal challenges.[51] According to the Home Office, the tool ensures consistent prioritisation across Reporting Centres and Casework Units while escalating unresolved issues for faster resolution.[52]

In this system, officers are responsible for identifying cases and conducting checks to determine whether individuals are suitable for detention.[53] They rely on various technological tools – both ADM tools, such as ATLAS, the UK Home Office's digital case-working system, and Identify and Prioritise Immigration Cases (IPIC), and data management tools, like Triage and Manage (TRAM).[54]

IPIC, a web-based ADM tool, generates automated suggestions for Immigration Enforcement (IE) caseworkers using predefined 'business rules'.[55] TRAM, on the other hand, functions as a data management tool, pulling information from various Home Office databases to supply IPIC with the necessary data inputs.[56] In essence, IPIC's automated recommendations depend on the data provided by TRAM. The practices in the UK serve as a compelling example of the necessity of adopting a broad-scope approach when defining the scope of ADM systems (as suggested in Section 2.1.1 of this article), encompassing both data collection systems and decision-making systems.

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[50]In UK law, detention involves holding individuals in immigration centres while their status is reviewed or pending deportation or removal. Deportation is the forced removal of individuals deemed a threat to the public, often following a criminal conviction, and typically includes a ban on returning. Removal, by contrast, is an administrative process applied to individuals without legal status to remain, such as visa overstayers, without the punitive element of deportation. Each process has different legal criteria and consequences. See also Amer Zaman, 'Deportation: The difference between being removed from the UK and being deported from the UK', Cranbrook Legal (July 22, 2022) <www.cranbrooklegal.com/the-difference-between-being-removed-from-and-deported-from-the-uk/> accessed 11 October 2024; and Peter William Walsh and Mihnea V. Cuibus, 'Deportation, removal, and voluntary departure from the UK', *The Migration Observatory at the University of Oxford*, Feb 14, 2024) <https://migrationobservatory.ox.ac.uk/resources/briefings/deportation-and-voluntary-departure-from-the-uk/> accessed 11 October 2024.

[51]Ozkul (n 44) 35–36.

[52]David Bolt, 'A re-inspection of the Home Office's Reporting and Offender Management processes and of its management of non-detained Foreign National Offenders (October 2018 – January 2019)' (Report, Independent Chief Inspector of Borders and Immigration) 12, <https://assets.publishing.service.gov.uk/media/5cd402b6e5274a3fd79d370a/A_re-inspection_of_the_Home_Office_s_Reporting_and_Offender_Management_processes_and_of_its_management_of_non-detained_Foreign_National_Offenders.PDF>, accessed 11 October 2024.

[53]Ozkul (n 44) 35.

[54]ibid 35–36; Bolt (n 52) 20.

[55]Home Office, 'Equality Impact Assessment. Published on 21 March 2022 as an attachment in response to the FOI request (No. 68562) by Tatiana Kazim, Triage tools used in an immigration offending context <www.whatdotheyknow.com/request/triage_tools_used_in_an_immigrat#incoming-2002033> cited by Ozkul (n 44) 35.

[56]Ozkul (n 44) 36, stating in its footnote 195 that 'These include Case Information Database (CID), Case Reference System (CRS) and ATLAS (which will soon completely replace CID). IPIC was previously in the Solihull piloting centre'. See also Bolt (n 52) 20.

It is important to note, however, that IPIC is not fully automated. The system only offers recommendations, which caseworkers must then evaluate for appropriateness before taking any action.[57] After receiving these suggestions, caseworkers review the cases using additional systems like the Case Information Database (CID) and ATLAS to determine whether the suggested intervention is suitable.[58]

Despite the efficiency offered by ADM tools, concerns about transparency and potential bias are significant. Similar to the US, transparency issues arise due to the system's complexity, and documents obtained through Freedom of Information requests, such as the Equality Impact Assessment (EIA), have revealed that personal characteristics, such as age and nationality, may influence the system's recommendations.[59] While anti-discrimination training is provided to IPIC users, oversight remains a concern, casting doubt on the system's fairness.[60]

In conclusion, while the Triage system, including IPIC and TRAM, improves immigration case management by integrating ADM with human oversight, challenges related to transparency and bias continue to affect its fairness and legality. It is evident that the deployment of AI and ADM tools in migration processes in both the U.S. and the EU/UK faces similar issues. These concerns, along with the broader legal implications of relying on ADM in sensitive areas, will be further explored in upcoming discussions.

4. Legal concerns about ADM deployment

The deployment of AI and ADM tools in migration and deportation processes in the US, UK, and EU raises several legal concerns, such as lack of transparency and insufficient human oversight. These issues are not unique to this domain; they reflect broader challenges in the development and implementation of ADM systems across various contexts. For example, the recent failure of Australia's Robodebt scheme in the social welfare sector underscored similar legal issues, highlighting the urgent need for greater transparency, stronger human oversight, and strict adherence to due process in the design, implementation, and review of ADM systems.[61]

Rather than focusing solely on the legal concerns specific to ADM use in deportation processes, the following sections will examine the broader legal challenges related to ADM deployment in general. References to ADM use in deportation and immigration will be included where relevant to illustrate key points. Furthermore, lessons from Australia's legal framework and cases will be analysed to propose potential solutions and an optimal regulatory model.

4.1. Core legal concerns

As noted above, increasing reliance on ADM fundamentally alters the roles of humans and machines in organisational decision-making processes. This shift necessitates

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[57]Ozkul (n 44) 35–36.
[58]See Home Office (n 55), which is also cited by Ozkul (n 44) 36.
[59]Ozkul (n 44) 36.
[60]ibid 36.
[61]See The Royal Commission into the Robodebt Scheme <https://robodebt.royalcommission.gov.au/publications/report>.

regulatory frameworks that can effectively address the changing division of labour between human and machine.

To create an effective regulatory framework for ADM, two foundational questions must be addressed. The first is whether a decision made using ADM technologies qualifies as a 'decision' under the administrative law regime. The second is whether mental activity is a compulsory element of decision-making under administrative law, and what it covers.

4.1.1. Redefining a decision: two-part test in case law and legislative contexts

The question of what constitutes a 'decision' has become increasingly complex with the integration of ADM systems. The process of adjustment is already underway in Australia, at least in respect of arguably the most basic concern: the fundamental question of whether a machine-made decision qualifies as a decision at all as Australia's administrative law regime understands the concept.

4.1.1.1. Two-part test in Semunigus. In 1999, the Australian Federal Court decision in *Semunigus*[62] set out a two-part test for determining whether a 'decision' has been made by a governmental decision-maker. According to Finn J:

> For present purposes I am prepared to hold that the making of a decision involves both reaching a conclusion on a matter as a result of a *mental process* having been engaged in and translating that conclusion into a decision by an *overt act* of such character as, in the circumstances, gives finality to the conclusion – as precludes the conclusion being revisited by the decision-maker at his or her option before the decision is to be regarded as final.[63]

Semunigus dealt with an appeal from a decision of the Refugee Review Tribunal wherein a member had signed the decision and notified the registry staff that a decision had been made but had not yet communicated the decision to the applicant who then sought to make further submissions. The question before the court was to determine 'the point at which it is properly to be said that the Tribunal has given its decision'[64] and, consequently, whether the Tribunal was *functus officio* when the applicant's further submission was made.

That question was dealt with primarily by reference to the *Migration Act 1958* (Cth) but Finn J's two-part test, requiring that the decision-maker both engage in a 'mental process' and express the conclusion of that process in a way that 'gives it finality', has since been applied in a range of other contexts.[65]

4.1.1.2. Application in Pintarich. The 2018 *Pintarich* case brought this issue into sharper focus, highlighting the complexities introduced by ADM systems.[66] Briefly, the case was about a taxpayer, Mr Pintarich, who had not paid taxes for several years and was eventually assessed as owing approximately $821,000 plus a General Interest Charge (GIC) of approximately $335,000. Mr Pintarich agreed to pay the outstanding tax but applied

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[62]*Semunigus v Minister for Immigration and Multicultural Affairs* [1999] FCA 422.
[63]ibid [19].
[64]ibid [1].
[65]e.*g.* family assistance law, see: *Precious Family Day Care Pty Ltd v Secretary, Department of Education* [2024] FCA 20; tax related issues: see *Pintarich v Deputy Commissioner of Taxation [2018] FCAFC 79.*
[66]*Pintarich v Deputy Commissioner of Taxation* [2018] FCAFC 79.

for remission of the GIC. The ATO officer who dealt with that request keyed in Mr Pintarich's details to an ADM system which produced a letter which was automatically sent to Mr Pintarich on 8 December 2014 without any person considering its contents. That letter had asked for a payment amount of $839,115.43, being the outstanding tax owed plus a small amount of interest. Mr Pintarich paid the requested amount and believed the matter was settled. Some time later, though, he received other letters from the ATO saying his request for remission was refused and asking for payment of the full amount of tax and GIC.[67] Mr Pintarich argued the debt had already been settled while the ATO argued that no final decision had been made at the time Mr Pintarich remitted his payment. Mr Pintarich sought judicial review, commencing proceedings in the Federal Court. He lost at first instance and appealed to the Full Court. Relevantly, the Full Court considered the question of whether the ATO officer who caused the ADM-generated payment request to be sent to Mr Pintarich had made a *reviewable decision* to remit the GIC.

The majority, Moshinsky and Derrington JJ, followed the reasoning in *Semunigus* in finding against Mr Pintarich, noting 'we consider the statement of Finn J to accurately capture the elements that are generally involved in the making of a decision, and thus to be of assistance in resolving the current issue.'[68] The *Pintarich* decision thus reinforced *Semunigus*' finding that a *human mental process* is an *essential ingredient* of a 'decision'.

4.1.1.3. Dissenting perspective and ADM implications. The dissenting opinion of Kerr J, on the other hand, found that a decision had been made in causing the first letter to be sent to Mr Pintarich. Kerr J accepted Finn J's statement in *Semunigus* as 'a fair statement of what is generally involved in the making of a decision'[69] (although noting that it 'may be rapidly becoming an artefact of the past').[70] However, Kerr J hesitated to apply it to the rather different facts of *Pintarich*, finding instead that:

> It would turn on its head fundamental principles of administrative law if a decision maker was entitled unilaterally to renounce as 'not a decision' (and not even a purported decision) something he or she had manifested in the form of a decision by reason of a distinction between their mental process and the expression of their mental processes.[71]

Moreover, Kerr J referred specifically to the rise of ADM as a reason that the legal conception of a decision might need to develop along with changes in technology:

> What was once inconceivable, that a complex decision might be made without any requirement of human mental processes is, for better or worse, rapidly becoming unexceptional. Automated systems are already routinely relied upon by a number of Australian government departments for bulk decision making. Only on administrative (internal or external) and judicial review are humans involved.[72]

What changes might be required in defining a 'decision' and other concepts? Most fundamentally, care must be taken in assuming that *specific activities* are to be undertaken by *humans or machines* (such as engaging in a mental process). As the above cases

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[67]Letters dated 11 December 2014, 7 January 2015, 14 January 2015 and 5 February 2015.
[68]ibid [143].
[69]ibid [41].
[70]ibid [45].
[71]ibid [64].
[72]ibid [47].

demonstrate, those roles have already begun to change in ways that test the suitability of established notions of decision-making.

4.1.1.4. Legislative adjustments.
Legislative changes have likewise begun to engage with governmental reliance on computer-made decisions. Over approximately the last quarter century, many Commonwealth Acts[73] have incorporated provisions which clarify that decisions made using computer systems are to be considered decisions made by an authorised decision-maker. The wording used in the *Migration Act 1958* (Cth) is typical:[74]

Minister may arrange for use of computer programs to make decisions etc.

(1) The Minister may arrange for the use, under the Minister's control, of computer programs for any purposes for which the Minister may, or must, under the designated migration law:
    (a) make a decision; or
    (b) exercise any power, or comply with any obligation; or
    (c) do anything else related to making a decision, exercising a power, or complying with an obligation.
(2) The Minister is taken to have:
    (a) made a decision; or
    (b) exercised a power, or complied with an obligation; or
    (c) done something else related to the making of a decision, the exercise of a power, or the compliance with an obligation; that was made, exercised, complied with, or done (as the case requires) by the operation of a computer program under an arrangement made under subsection (1).

It is clear that the *Migration Act 1958* (Cth) explicitly allows the Minister to arrange for computer programs to make decisions, exercise powers, or perform related tasks under the Minister's control. The Act further clarifies that such outputs are legally treated as decisions made by the Minister.

While provisions like these attempt to resolve whether ADM outputs qualify as reviewable decisions, they raise new questions about concepts like 'under the Minister's control' and whether this implicitly includes a requirement for human oversight or mental activity.

The lack of clear definitions regarding ADM-generated decisions can have significant implications. For example, if a country's immigration law does not formally recognise decisions made using ADM systems (whether wholly or partially), such decisions may

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[73]Including but not necessarily limited to: *A New Tax System (Family Assistance) (Administration) Act 1999* (Cth) s 223; *Aged Care Act 1997* (Cth) s 23B.4; *Australian Citizenship Act 2007* (Cth) s 48; *Australian Education Act 2013* (Cth) s 124; *Australian National Registry of Emissions Units Act 2011* (Cth) s 87; *Biosecurity Act 2015* (Cth) ss 280(6)–(7); *Business Names Registration Act 2011* (Cth) s 66; *Carbon Credits (Carbon Farming Initiative) Act 2011* (Cth) s 287; *Child Support (Assessment) Act 1989* (Cth) s 12A; *Child Support (Registration and Collection) Act 1988* (Cth) s 4A; *Customs Act 1901 (Cth)* s 126H; *Export Control Act 2020* (Cth) s 286; *Migration Act 1958* (Cth) s 495A; *Military Rehabilitation and Compensation Act 2004* (Cth) s 4A; *My Health Records Act 2012* (Cth) s 13A; *National Consumer Credit Protection Act 2009* (Cth) s 242; *National Health Act 1953* (Cth) s 101B *Paid Parental Leave Act 2010* (Cth) s 305; *Safety, Rehabilitation and Compensation (Defence-related Claims) Act 1988* (Cth) s 3A; *Social Security (Administration) Act 1999* (Cth) s 6A; *Superannuation (Government Co-contribution for Low Income Earners) Act 2003* (Cth) s 48; *Trade Support Loans Act 2014* (Cth) s 102; *VET Student Loans Act 2016* (Cth) s 105; *Veterans' Entitlements Act 1986* (Cth) s 4B.
[74]*Migration Act 1958* (Cth) s 495A.

lack enforceability. In deportation cases, this could mean that an ADM-generated deportation order is vulnerable to legal challenges questioning its validity and legislative authority.

4.1.2. Explicit references to mental activity

4.1.2.1. Balancing current and future use of ADM: risks and benefits. The threshold question of whether an automated process may result in a 'decision' at all may be dealt with by deeming provisions such as those above, but some legislative requirements go further in constraining the roles of human and machine. In some cases, legislative provisions governing a decision explicitly state that the process is to involve human mental activity: the exercise of discretion,[75] application of judgement,[76] formation of a belief,[77] being satisfied that something is true,[78] or some similar term. This presents a more significant barrier to the uptake of ADM, the capabilities of which are gradually expanding into areas which traditionally have relied on human judgement.

Currently, this concern is more forward-looking, focusing on future developments rather than present ADM use. Despite its pervasiveness in public decision-making, ADM is currently employed only for decisions requiring relatively simple, factual determinations[79] for which current software capabilities are well-suited. The explanatory memorandum to the bill introducing the above s 495A to the *Migration Act 1958* (Cth) explains:

8. In the migration context, a computer program will only be making decisions on certain visa applications where the criteria for grant are simple and objective. There is no intention for complex decisions, requiring any assessment of discretionary criteria, to be made by computer programs. Those complex decisions will continue to be made by persons who are delegates of the Minister.
9. To illustrate this, it may never be appropriate for computer programs to make decisions on visa cancellations. Computer-based processing is not suitable in these circumstances because these decisions require an assessment of discretionary factors which do not lend themselves to automated assessment.[80]

Nevertheless, the possibility of future expansion of the role of automated systems is subtly noted:

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[75]For example, in Australia's migration law, under PIC4020(4) (public interest criterion), the Minister may waive public interest criterion requirement on no bogus documents or misleading information if they are satisfied on the 'compelling circumstances' or 'compassionate and compelling' grounds. See Migration Regulations 1994 (Cth), PIC4020(4) and relevant policy guidelines.

[76]Again, taking Australia's migration law as an example, whether a visa applicant meet the 'character test' requires decision-makers to make various judgments.

[77]For example, in Australia's migration law, decision-makers need to form a belief whether a student visa applicant is a genuine temporary entrant (Subclass 500 visa), a de facto partner is in genuine relationship (partner visas), and a position of an employer is a genuine position (Subclass 482 visa). See Migration Regulations 1994 (Cth), Schedule 2.

[78]For example, in Australia's migration law, whether a document is true or bogus is important. See PIC4020.

[79]For example, applications for a Subclass 155 Resident Return Visa require determination of factual matters including whether the applicant currently holds a valid permanent resident visa and whether the applicant has been absent from Australia for more than five years, both of which can be addressed largely using automated systems.

[80]Explanatory Memorandum, Migration Legislation Amendment (Electronic Transactions and Methods of Notification) Bill 2001 (Cth), Outline [8]–[9].

69   Currently, computer-based decision making is intended to have a limited field of operation. In the migration context, a computer program will only be making decisions on applications for classes of visas where the criteria for grant may be subject to automated assessment. Nonetheless, section 495A establishes a flexible legislative regime that will support future developments in business processing and information technology.[81]

It is therefore necessary for a thorough investigation to examine the legal issues that could arise if, in the future, technology capable of playing a role in 'complex decisions, requiring any assessment of discretionary criteria' were developed and authorities sought to deploy it.

4.1.2.2. The role of discretion and judgment: potential risks. Does a legislative requirement for discretion or judgement simply act to prevent the use of ADM? Or can a decision to employ an ADM system amount to, be part of, or coincide with, an exercise of discretion or judgement? The answer seems to depend on the view one takes of what discretion and judgement are and what role they play in a legal system, two matters on which there are a range of views.[82]

To the extent that a requirement for discretion or judgement is seen as a barrier to use of ADM, a space within which only human faculties may be directly brought to bear on a decision, thought will need to be given to where the threshold should be set. It may not generally be feasible to completely remove all machine involvement from a decision process. Even automated systems that only gather data on which human decision-makers base their deliberations still have the capacity to influence the outcome of a decision process and any requirement for the exercise of discretion or judgement must account for that influence if such data gathering is unavoidable. Apart from the basic matter of the completeness of data that is gathered and made available, systems often transform data in various ways in preparation for analysis: unstructured data may be made to conform to known structures which support decision processes, structures which may highlight some features or patterns but not others;[83] information must often be extracted from sources that may be complex or difficult to work with and the processes for doing so may be imperfect and error-prone;[84] tools for preparing data for analysis and performing analysis may impose their own constraints on how data is viewed and understood.[85] Any such automated assistance with the decision process has the potential to impact the manner in which discretion is exercised and the conclusion that is reached.

4.1.2.3. Mental activity as a safeguard: potential benefits. Requiring mental activity as a compulsory element in decision-making offers several advantages. It mandates

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[81]ibid sch 2 item 9 [69].

[82]e. g. Justice Melissa Perry, 'The Future of Administrative Discretions (conference paper, 24 February 2023) <www.fedcourt.gov.au/digital-law-library/judges-speeches/justice-perry/perry-j-20230324> accessed 11 October 2024.

[83]For example, IBM and the Danish Refugee Council (DRC) worked together to provide technology to forecast refugee numbers arriving at certain location to assist the DRC's decision on resource allocation. See also Niamh Kinchin, 'Technology, Displaced? The Risks and Potential of Artificial Intelligence for Fair, Effective, and Efficient Refugee Status Determination', (2021) 37(3) Law in Context 45, 50.

[84]such as Robodebt based on information from ATO data.

[85]As examples of this, one may point to any of many publicly available data analysis services which provide application programming interfaces (APIs) with defined capabilities which unavoidably shape the types of analysis which is performed on data held in those services.

human intervention and oversight, ensuring that government agencies using ADM technologies remain accountable. For instance, decisions made without human involvement – such as those automatically generated by Australia's Robodebt scheme in the social welfare sector – would be invalid due to the lack of required mental engagement.[86]

Merely calling for increased transparency is insufficient. Introducing a mental activity requirement can make transparency obligations more specific and actionable. For example, this could include mandating a human review to ensure that oversight, such as deliberation or approval, is integral to the decision-making process. In deportation cases, if mental activity becomes a compulsory requirement, the absence of human mental involvement could render such decisions unenforceable under administrative law, allowing affected parties to challenge their validity. This requirement is particularly important in complex deportation cases, where nuanced judgments and discretionary assessments are essential.

4.2. Peripheral legal concerns

The second category of legal issues arising from the use of ADM is described here as 'peripheral'. These issues do not stem from the reliance on machines in decision-making processes per se but rather from some aspect of the way an ADM system operates, the behaviour of the technology it employs, or its particular applications. For instance, peripheral issues might include questions such as whether a specific new technology, like blockchain or AI, should be integrated into existing ADM systems, and if so, how it should be applied to enhance their functionality.

Unlike the core concerns discussed above – such as whether a decision made with the assistance of ADM technology meets the definition of a 'decision' under administrative law – the existence and severity of these peripheral issues can be managed through targeted legal or technological efforts which address the behaviour of concern without necessarily disrupting the broader uptake of ADM in administrative decision-making. These concerns may also be seen as properties of the sociotechnical system within which an ADM system is operated, dependent on the specific role which an ADM system plays in making a decision, the degree of human oversight provided, the behaviour of the algorithm it employs and the nature of the data it is trained on.

This section surveys some of the issues that fall within this category. It does not attempt to present an exhaustive list; there are many matters that could conceivably be listed here, and the intention is only to cover the matters that have been prominent in the literature. Indeed, it is to be expected that new issues will continue to emerge as the technology and applications of ADM progress further.

4.2.1. Authority and accountability
4.2.1.1. Authorised decision-makers vs. de facto controllers of ADM systems. This area of concern is based on the extent to which parties other than an authorised decision-maker

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[86]See The Royal Commission into the Robodebt Scheme <https://robodebt.royalcommission.gov.au/publications/report>.

might exercise some *de facto* control over a decision-making process due to their control over an ADM system used in that process.[87]

For public sector decision-making, legislative provisions generally specify who has the authority (or power) to make a decision ('only be exercised by the Minister personally';[88] ' … the Minister decides … '[89]). As the roles played by persons in a decision-making body change due to introduction of an ADM system, it is important to understand whether *de facto* control over the decision process may have changed in a way that does not conform to legislative requirements.

If ADM is relied on to the extent that those who determine the behaviour of the ADM system exercise a degree of effective control over the decision process that impinges on the control exercised by the authorised decision-maker, the intent of the relevant legislation may be undermined. For example, there is a risk that a system programmer (acting as the de facto controller of the ADM system) in immigration development, who has access to the system, could trigger a decision without authorisation from the official decision-maker (e.g. the Minister) or even initiate a decision under the Minister's name.

Deeming provisions which simply assert that machine-made decisions are those of the authorised decision-maker, such as s 495A of the *Migration Act 1958* (Cth) discussed above, without reference to the degree of control actually exercised by any party, may or may not be sufficient to address this concern. Addressing these gaps is crucial to prevent the misuse or misattribution of decision-making authority.

4.2.1.2. Challenges of decision-making authority and accountability. Questions about decision-making authority are perhaps not a serious immediate concern given the limitations of current technology, but consideration may one day need to be given to how well an authorised decision-maker understands the operation of an ADM system to which they choose to assign a decision and whether they are able to, or permitted to, avoid relying on an ADM system if they choose. For example, in deportation decisions, if an authorised decision-maker does not understand how the ADM system evaluates individual cases or determines grounds for deportation, they may be unable to take full responsibility for the final decision.

To the extent that an ADM system remains a tool that is properly described as being used and controlled by an authorised person, its use may be unproblematic. If a lack of information about or control over the decision process followed by the ADM system leaves an authorised person unable to properly account for the overall decision process or outcome, it may be possible to challenge the assertion that the authorised person 'made' the decision at all.

4.2.1.3. Suitability of existing accountability regimes. An associated concern is the ongoing suitability of existing accountability regimes as levels of decision-making automation increase. The capacity of review bodies to correct errors and effect meaningful

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[87]See also Section 2.2.2. Addition of New Human Roles of this article.
[88]For example, under s 48B of Australian *Migration Act 1958* (Cth), whether lifting a s 48A bar (no further protection visa application after a refusal) is a power the Minister can only exercise personally, which mean no delegation.
[89]e.g, under s 65 of Australian Migration Act 1958 (Cth), the Minister may decide whether to grant a visa or not after they consider a valid visa application, and this power can be delegated as it is not said to be exercised personally. It should be noted that the power under s 495A of Australian Migration Act 1958 (Cth) can be delegated (s 496).

change in highly automated decision-making processes must be preserved. For instance, in deportation decisions, if an ADM system wrongly flags a lawful immigrant as a target for deportation, review bodies must have access to the data and algorithms used by the system to rectify the error and prevent similar issues in the future.

Decision-makers who employ ADM systems must be able to provide sufficient information about their overall reasoning process (including the data and algorithm employed by the ADM system) in a form which is amenable to review by a tribunal or court. They must also retain sufficient control over ADM processes to be able to effect change as required by review outcomes. This is particularly so in respect of judicial review, which deals closely with the process by which a decision is made. Where an automated process is found to involve an error of law or breach procedural fairness requirements or entail some other procedural error, there must be a means for the decision-maker utilising that ADM system to ensure the error is corrected in future decisions.

4.2.1.4. Risks of 'black box' systems and outsourcing. The consequence is that thought must be given to ensuring that decision-makers retain a sufficient level of understanding of and ongoing control over the workings of ADM systems on which they rely. For example, if deportation decisions are made by a 'black box' ADM system, authorised personnel may have no understanding of why the system concludes that an individual should be deported, leading to unfair or erroneous decisions.

The use of ADM systems that are essentially 'black boxes' transfers *de facto* control over decision-making processes away from (legal) persons who would otherwise wield that power. This has implications for the design and transparency of algorithms used in ADM systems, a matter which is already widely recognised as a source of concern. It is particularly pertinent given widespread practices of outsourcing aspects of organisational IT services to third parties who would normally play no role in organisational decision-making.

4.2.2. Bias and procedural fairness
4.2.2.1. Rigidity and bias in automated systems. This area of concern is based primarily on the characteristic rigidity of automated systems based on current technology. The behaviour of an ADM system is defined by the algorithm it employs and, in the case of learning algorithms, the data on which the system is trained. Once set, that behaviour can change only to the extent that the algorithm is designed to adapt itself or, in the case of systems that learn online, the extent to which the system is exposed to data that triggers a change in behaviour. For example, in deportation decisions, if an ADM system's algorithm is trained on imbalanced data (e.g. data overly representing cases from certain countries or ethnic groups), the system might systematically favour deporting individuals from those groups, resulting in biased and unjust decisions. Such biases may conflict with the legal or moral framework within which the system operates, particularly if it overlooks individuals' lawful residency rights or personal circumstances.

Unwanted bias[90] emerges when the behaviour of an ADM system systematically diverges from behaviour which its operators desire; when its outputs consistently tend

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[90]Algorithmic bias could amount to either actual or apprehended bias.

towards a direction which is at odds with the legal or moral framework within which it operates. That tendency may be due to a flawed algorithm, an unbalanced or incomplete set of training data or numerous other causes.[91] Much has already been written on the topic of addressing bias in automated systems[92] and all that needs to be noted here is that the programming and training of ADM systems must be tailored carefully to the legal constraints and underlying values which decision-makers are expected to observe in the environment in which they operate.

4.2.2.2. Procedural fairness and fair hearing. In an administrative law context, avoiding bias is generally seen as a component of the requirement to accord procedural fairness when making decisions.[93] The other component, which may also be undermined by the rigid behaviour of ADM systems, is the requirement to give a 'fair hearing'; that is, the requirement to give a person a reasonable opportunity to present their case before making a decision that affects them. For instance, when an ADM system plays a significant role in deportation decisions, if an affected person cannot submit additional information relevant to their situation (e.g. health or family circumstances) for consideration, procedural fairness may be compromised. The system might fail to adequately account for these factors, leading to disproportionate impacts on individuals.

When an ADM system is to play a significant role in the making of a decision, thought must be given to how to incorporate information supplied by an affected person into the ADM system's reasoning, or how to balance that information against the reasoning of an ADM system which is not able to incorporate it directly.

4.3.3. Other matters

To the above major concerns may be added numerous others that depend in some way on how an ADM process is implemented. These include:

4.3.3.1. Transparency and algorithmic accountability. Transparency about the fact that an ADM system is in use, the role it plays in respect of a decision and the workings of the system's algorithm is essential to enable affected persons to know the reasons for a decision and to effectively challenge that decision. For example, in deportation decisions, if the specifics of the ADM system's algorithm and its criteria are not disclosed, affected individuals may be unable to understand why they were identified for deportation and unable to effectively challenge the decision. A lack of transparency can result in systemic unfairness and erode trust in the system. Transparency is primarily a property of the algorithm being used but may also be helped or hindered by the monitoring and reporting procedures surrounding the use of the ADM system.

4.3.3.2. Privacy concerns in ADM systems. Privacy is a multifaceted issue relating to, among other matters: which data is employed by an ADM system; how it is gathered;

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[91]Abid Ali Awan, 'What is Algorithmic Bias?' (Datacamp Blog) <https://www.datacamp.com/blog/what-is-algorithmic-bias> accessed 12 October 2024.

[92]e.g. Perry, 'iDecide' (n 10); Anna Huggins, 'Addressing Disconnection: Automated Decision-Making, Administrative Law and Regulatory Reform', (2021) 44(3) UNSW Law Journal 1048, 1064–1070

[93]The High Court has said that 'the expression "procedural fairness" … conveys the notion of a flexible obligation to adopt fair procedures which are appropriate and adapted to the circumstances of the case' (per Mason J in Kioa v West).

what inferences are drawn from it by automated systems; the relevance of the data, both gathered and inferred, to the purpose for which it is being used; with whom data is shared; how it is stored; and so on. For instance, in the context of deportation decisions, an ADM system may rely on personal identity details, financial records, or medical information, raising significant concerns about how these data are collected, used, and shared. If such data are not securely stored or shared inappropriately, individuals' privacy could be significantly compromised. Privacy concerns extend beyond the ADM system itself to the broader sociotechnical framework in which it operates. Proper safeguards and protocols must be established to ensure data protection and compliance with privacy standards.

4.3.3.3. Informed consent and decision-making. The capacity for affected persons to rationally consent to provide data for use in an ADM system, or perhaps to be subject to automated decisions at all, depends on many of the same issues that affect transparency and privacy as discussed above. For example, in deportation cases, individuals may not fully understand how their data will be used in decision-making processes or may not even be informed that they are subject to automated decision-making. This lack of informed consent can further undermine the legitimacy and fairness of the process. Ensuring that individuals have a clear understanding of how their data is used and the implications of ADM-driven decisions is a critical component of ethical and lawful ADM system implementation.

5. Regulation

Regulation is generally one step behind the development of technology, but countries are gradually strengthening their ADM regulations. For example, as discussed in Section 3.2.1, the EU AI Act was proposed in 2021 and then officially adopted in 2024.[94] In Australia, especially after the Robodebt scheme,[95] regulation of ADM has seen significant developments, including the Attorney-General's Department's consultation paper on ADM released in November 2024,[96] and the final report of the Select Committee on Adopting Artificial Intelligence (AI) released in November 2024.[97]

Despite these advancements, regulation in this field remains in its infancy. This section explores general principles for regulating technology and offers specific applications to ADM, particularly in the context of deportation. While ADM in deportation may not warrant a separate legal framework, it is likely to fall under broader regulations governing

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[94]Section 3.2.1 in this article. The text of EU AI Act, please see: https://artificialintelligenceact.eu/the-act/. See also: Mayur Jariwala, 'A Comparative Analysis of the EU AI Act and the Colorado AI Act: Regulatory Approaches to Artificial Intelligence Governance', (2023) 186 (38) International Journal of Computer Applications 23.
[95]The Robodebt Royal Commission's Report includes a recommendation on reform of legislation and implementation of regulation (see Recommendation 17.1). See Report of Royal Commission into the Robodebt Scheme, 2023, xvi. See also, Tapani Rinta-Kahila et al, 'Algorithmic Decision-making and System Destructiveness: A Case of Automatic Debt Recovery', (2022) 31(3) European Journal of Information System 313.
[96]Australia's Attorney-General's Department, Use of Automated Decision-Marking by Government: Consultation Paper (November 2024) <https://consultations.ag.gov.au/integrity/adm/user_uploads/consultation-paper-use-of-automated-decision-making-by-government.pdf>.
[97]The Senate, Select Committee on Adopting Artificial Intelligence (AI), Final Report (November 2024) <www.aph.gov.au/Parliamentary_Business/Committees/Senate/Adopting_Artificial_Intelligence_AI/AdoptingAI/Report>.

ADM and AI. The following reflections are intended to provide insights applicable across jurisdictions.

5.1. Principles

5.1.1. Challenges of uncertainty in regulating new technologies

New technologies present a unique regulatory challenge due to the degree of uncertainty they present. When a technology is early in its lifecycle, its nature, capabilities and applications are likely to be changing rapidly; consequently, the benefits and risks it presents are likely to be poorly understood and its compatibility with existing legal frameworks difficult to establish with confidence.

Given that uncertainty, the task may be usefully modelled as an exercise in risk management, wherein a successful regulatory regime is one which maximises the potential benefits which the technology offers while minimising the risks it presents.

For example, in deportation decisions, if an ADM system relies on incomplete or inaccurate data, it may result in wrongful deportation decisions. This risk is particularly severe if the system is not sufficiently validated or monitored.

5.1.2. Widely accepted regulatory principles

It is a task which governments around the world are facing with increasing frequency, particularly those grappling with the rapid advances in digital technologies over recent decades. While there is certainly no 'one size fits all' approach, some basic principles are reasonably widely accepted and can be applied to regulation of ADM technologies.

First, a *Technology-Neutral* approach is essential simply because rapidly developing technological characteristics present a 'moving target' for regulation, and rules that refer to technology-specific requirements risk binding people and organisations to outdated practices and obstructing their ability to benefit from advances. This problem has already been addressed in respect of many technological advances including the shift away from paper for the transfer of information and signing of legal documents.[98] In some jurisdictions it is currently being addressed in respect of road rules governing the operation of driverless cars.[99]

Closely related to that, rules are best framed in terms of the outcome they seek to achieve rather than specific means for achieving them. For instance, in deportation ADM applications, regulations should prioritise ensuring procedural fairness rather than prescribing specific algorithmic models or techniques. This flexibility allows for adopting the latest technological improvements while maintaining fairness requirements.

Second, *Regular Review of Regulatory Measures* is essential to ensure that the balance struck between risks and benefits when designing a regulatory framework is not upset as an emerging technology develops and matures. At the same time, care must also be taken to ensure that fundamental values remain protected in the face of changes to technological capabilities and the rules that govern them. For example, deportation ADM systems must undergo periodic reviews to ensure compliance with procedural fairness

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[98]e.g. Australia's Electronic Transactions Act 1999 (Cth).
[99]e.g. Japan's revised Road Traffic Act, see also Takeyoshi Imai, 'Legal Regulation of Autonomous Driving Technology: Current Conditions and Issues in Japan', (2019) 43 IATSS Research 263.

requirements under immigration law, avoiding new risks or injustices introduced by technological upgrades.

Policymakers must also consider the appropriate forms of regulation, including legislation, policy guidance, technical standards, industry self-regulation, and advisory bodies. For instance, standard-setting organisations can play a role in co-regulation, but concerns remain regarding the democratic legitimacy and human rights implications of private standards regimes.[100]

Third, in principle a *Risk-Based Approach* as adopted in the EU AI Act might provide a good way to regulate AI and the use of ADM, although criticisms must be recognised on the details of 'risk classification' and relevant requirements.[101] The EU AI Act categorises four levels of risk: (1) unacceptable risk, (2) high risk, (3) specific transparency risk and (4) minimal risk.[102] Each level of risk is associated with different requirements and obligations. AI systems with unacceptable risk are prohibited while high-risk ones are subject to requirements and obligations. Under Annex III of EU AI Act, AI systems used in the field of 'migration, asylum and border control management', in so far as not already prohibited, are listed as high risk.[103] In addition, verification/authentication at border crossings to check a person's identity against his/her travel documents (one-to-one matching) remain unregulated, because it does not seem that they pose a significant risk to fundamental rights while remote biometric identification is prohibited under the EU AI Act.[104]

5.2. Application to ADM and deportation

5.2.1. Distinction between ADM and AI

ADM and AI are two distinct but relevant concepts. ADM may involve using AI but is not limited to AI, while AI can be used for many purposes including ADM.[105] ADM in Australia's legislation is commonly referred to by the phrase 'computer program'.[106] For example, in deportation ADM decisions, while AI technologies like biometric systems are used, they form only part of the broader ADM process.

5.2.2. Technology-neutral regulation of ADM

In respect of ADM, a technology-neutral regulatory approach will require, at its most basic, a review of legislative provisions that refer specifically to human mental activity in the making of organisational decisions. It is precisely that activity that is subject to change with the uptake of ADM, so provisions that effectively mandate fixed roles for

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[100]See Marta Cantero Gamito and Christopher T Marsden, 'Artificial Intelligence Co-Regulation: The Role of Standards in the EU AI Act' (2024) 32(1) International Journal of Law and Information Technology 1.

[101]For example, Smuha et al. criticised that the proposal in the Act may not always recognise correctly harms and wrongs in associated with the AI systems. See Nathalie A Smuha et al, 'How the EU Can Achieve Legally Trustworthy AI: A Response to the European Commission's Proposal for An Artificial Intelligence Act', LEADS Lab of Birmingham University (5 August 2021). In addition, some scholars argue for more detailed list of classification to guide the industry. See Martin Ebers et al, 'The European Commission's Proposal for an Artificial Intelligence Act – A Critical Assessment by members of the Robotics and AI Law Society', (2021) 4 *J: Multidisciplinary Scientific Journal* 589, 593.

[102]EU AI Act, Articles 5 and 6. See also: European Commission, 'Artificial Intelligence – Questions and Answers', 1 August 2024, <https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_1683>.

[103]EU AI Act, Annex III (7).

[104]European Commission, 'Artificial Intelligence – Questions and Answers' (n 102). See also EU AI Act, Article 5.

[105]Australia's Attorney-General's Department (n 96) 7.

[106]Ibid.

human *and* machine by requiring decision-makers to exercise discretion, apply judgement or similar must be examined to determine whether their intent is to exclude the use of ADM. This being a core effect of reliance on ADM, one which will persist through advances in technology and utilisation of ADM, it is appropriately expressed in legislation governing the activities of agencies which employ ADM systems. Beyond that, given that integration of ADM into an organisation necessarily means changing the way in which organisational decisions are made, ADM use may also be indirectly regulated by rules governing the activities of organisational staff, which will also need to be examined for compatibility with the goals of implementing ADM.

5.2.3. Addressing peripheral issues through specific regulation

In respect of the numerous peripheral issues that will arise, specificity and responsiveness are likely to be keys to successful regulation. These issues are generally linked to specific technologies or applications and so require both high levels of technical expertise on the part of regulators and the ability to promptly update rules as technical capabilities and applications change. Ongoing engagement with ADM developers will be crucial. For example, as new biometric technologies or data analysis methods are integrated into deportation ADM systems, updated regulations will be essential to ensure compliance with privacy protections and procedural fairness.

5.2.4. Relationship between ADM and AI regulation

One particular issue is the relationship between ADM legislation and AI regulation. Should ADM regulation be separated from AI regulation? As exampled by Australia's practice, the piecemeal approach of 46 pieces of ADM legislation in Australia does not provide a consistent legal framework.[107] The Robodebt Royal Commission recommended that 'a consistent legal framework in which automation in government services can operate' should be introduced.[108] Australia is in the process of regulating AI, as evidenced by the Senate's Select Committee on Adopting Artificial Intelligence's final report released in November 2024, which includes a chapter on ADM.[109] It has been recommended that the recommendation proposed by the Robodebt Royal Commission (recommendation 17.1 and 17.2) should be adopted.

5.2.5. Specific implications for deportation ADM

In Australia, the Migration Act 1958 (Cth) provides the legal basis for deportation ADM through s 495A. However, the integration of emerging AI technologies, such as biometric systems and new data collection tools like ATA in the U.S., raises important considerations. Additionally, future AI legislation, such as the EU AI Act, may influence the existing legal framework. For instance, if deportation ADM systems are classified as high-risk, stricter requirements for transparency, algorithm accountability, and data privacy may become necessary. Such measures would ensure compliance with both national and international regulatory standards.

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[107]Australia's Attorney-General's Department (n 96) 5.
[108]Robodebt Royal Commission Report (n 95), Recommendation 17.1.
[109]The Senate's Select Committee on Adopting Artificial Intelligence, Report (November 2024), 113–141.

Exploring these questions is vital for developing robust regulatory frameworks. Future research should address the interplay between core legal concerns and peripheral issues, while also examining the role of co-regulation, particularly when AI technology suppliers operate across international borders.

6. Conclusion

In conclusion, while substantial progress has been made in the development of ADM technology and its integration into public decision-making, we are still in the early stages. Governments and organisations continue to wrestle with fundamental questions about the role of ADM technologies and their effects on decision-making processes. Now is the time to lay a strong regulatory foundation for future developments, but doing so requires foresight – specifically, an understanding of which legal rules should persist and which must evolve with ADM advancements.

This paper contributes to this effort by categorising legal concerns into two main groups: those inherent to ADM itself and those arising from specific ADM technologies, implementations, or applications. The former are best addressed through legislation that defines core decision-making principles, allowing flexibility for technological growth while safeguarding important values. The latter concerns may be more effectively managed through adaptable regulatory measures such as government policy and industry self-regulation, which can evolve with changing technologies.

As highlighted in the introduction, our approach is not focused on country-specific issues but rather on the broader intersection of law, technology, and human impact. While the paper references case studies from Australia, the US, and the EU, the analysis and recommendations transcend these jurisdictions. Technological changes affect decision-making across all areas of law, making the insights in this paper relevant on a global scale. Therefore, creating a regulatory framework that balances adaptability with the protection of fundamental principles is essential for the responsible integration of ADM technologies worldwide.

Disclosure statement

Funding

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