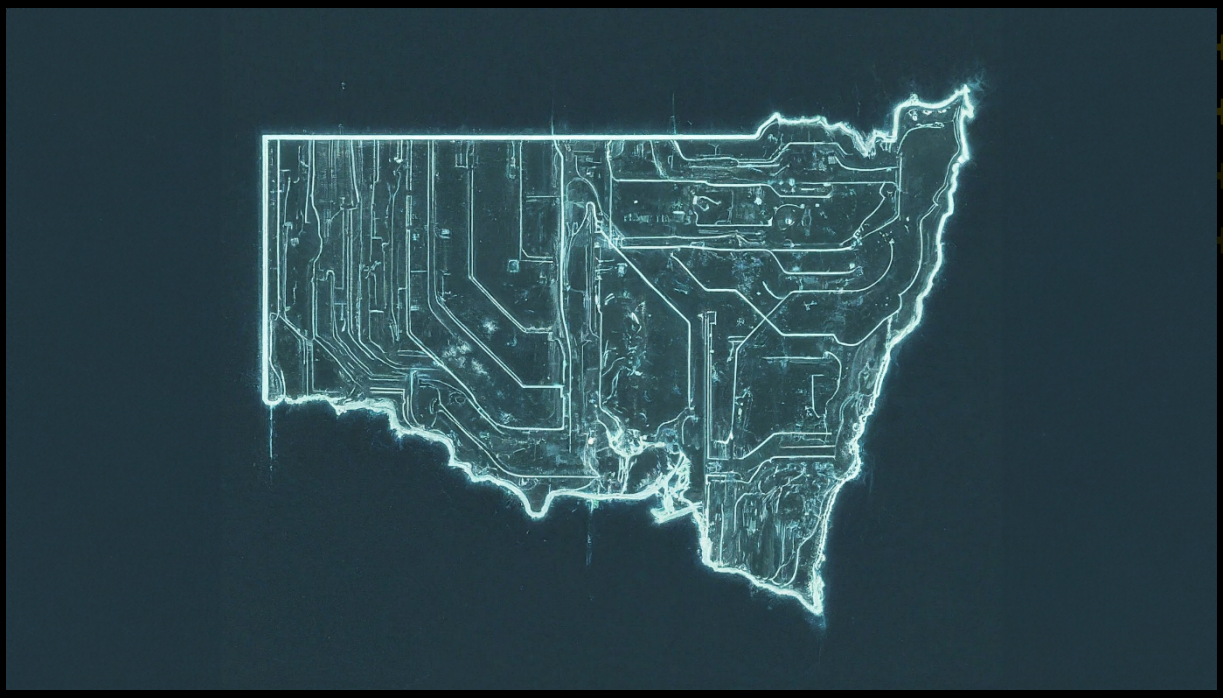
ADM+S ARC Centre of Excellence for Automated Decision-Making and Society

Automated Decision-Making in NSW

Mapping and Analysis of the use of ADM systems by state and local governments

Executive Report

March 2024



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Acknowledgement of Country

In the spirit of reconciliation, we acknowledge the Traditional Custodians of country throughout Australia and their connections to land, sea and community. We pay our respect to their elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples today.

Suggested citation

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Australian Government
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ABOUT THIS EXECUTIVE REPORT

We are experiencing significant technological shifts in how government decision-making is done. These shifts are in part about the adoption of artificial intelligence (AI), but also the expanding use of automated decision-making (ADM) systems in government services and functions, as more data becomes available, alongside more ways to update, process, and use that data. These developments have significant implications for NSW state and local governments' relationships with the people of NSW.

In 2021 the NSW Ombudsman released *The new machinery of government: using machine technology in administrative decision-making* ('*New Machinery Report*'), which analysed the use of ADM systems in government. The report explored how administrative law applies to decision-making using automated technology. It also sought to provide guidance for good administrative practice when deploying these technologies. The *New Machinery Report* highlighted the importance of governments being transparent about, and accountable for, their use of ADM systems.

The NSW public has limited visibility over when and how ADM systems are being used to support or replace the work of NSW public servants in making decisions that affect the public in NSW. Neither state government departments and agencies, nor local councils, currently have any specific obligation to report their use of ADM systems.

The limited visibility of ADM systems used by the NSW state government and local governments:

1. hinders the public's understanding, and their ability to hold governments accountable for use of ADM systems
2. is a barrier to oversight by independent integrity agencies like the NSW Ombudsman's Office, and
3. limits knowledge-sharing and capacity-building across government, which could constrain the development of best practice, and discourage beneficial uses of new technologies.

To address this knowledge gap, the NSW Ombudsman initiated this mapping and analysis of ADM use across NSW state government departments and agencies, and local councils. While the NSW Ombudsman's Office funded and supported this research, all responsibility for the data and analysis lies with the ADM+S team. Views expressed in this Executive Report, and the Research Report are those of the researchers and do not necessarily represent the views of the NSW Ombudsman.

We found that **NSW government use of ADM is widespread, and increasing**, both at the state government level, and across local councils. This includes the use (and proposed use) of AI across a wide range of contexts, including across every NSW state government portfolio. We found ADM systems in use across government services, from low to high

stakes contexts. We also found that a mapping of this kind is challenging for a whole range of reasons. Therefore we also provide insights, learned through the process of conducting this mapping, about how to identify, and record ADM system use in government, which we believe will be useful both for researchers and for governments seeking to be transparent and accountable for their use of technology.

The research we present here is a **mapping**, **not a counting** of ADM systems across government in NSW. Defining ADM systems is not straightforward, and it is not always clear where an ADM system starts and ends. It is also only a beginning. Our hope is that the work commenced here will contribute to transparency over ADM system use across NSW state and local governments, and to a broader public dialogue over how ADM systems should be designed, developed, deployed, monitored and de-commissioned.

This **Executive Report** is a shortened version of the more detailed **Research Report** which accompanies it. This Executive Report is intended for policymakers and interested readers wanting a high-level summary and key insights from the research. For readers wanting a deeper dive into our data, case studies and methods, the Research Report provides more information.

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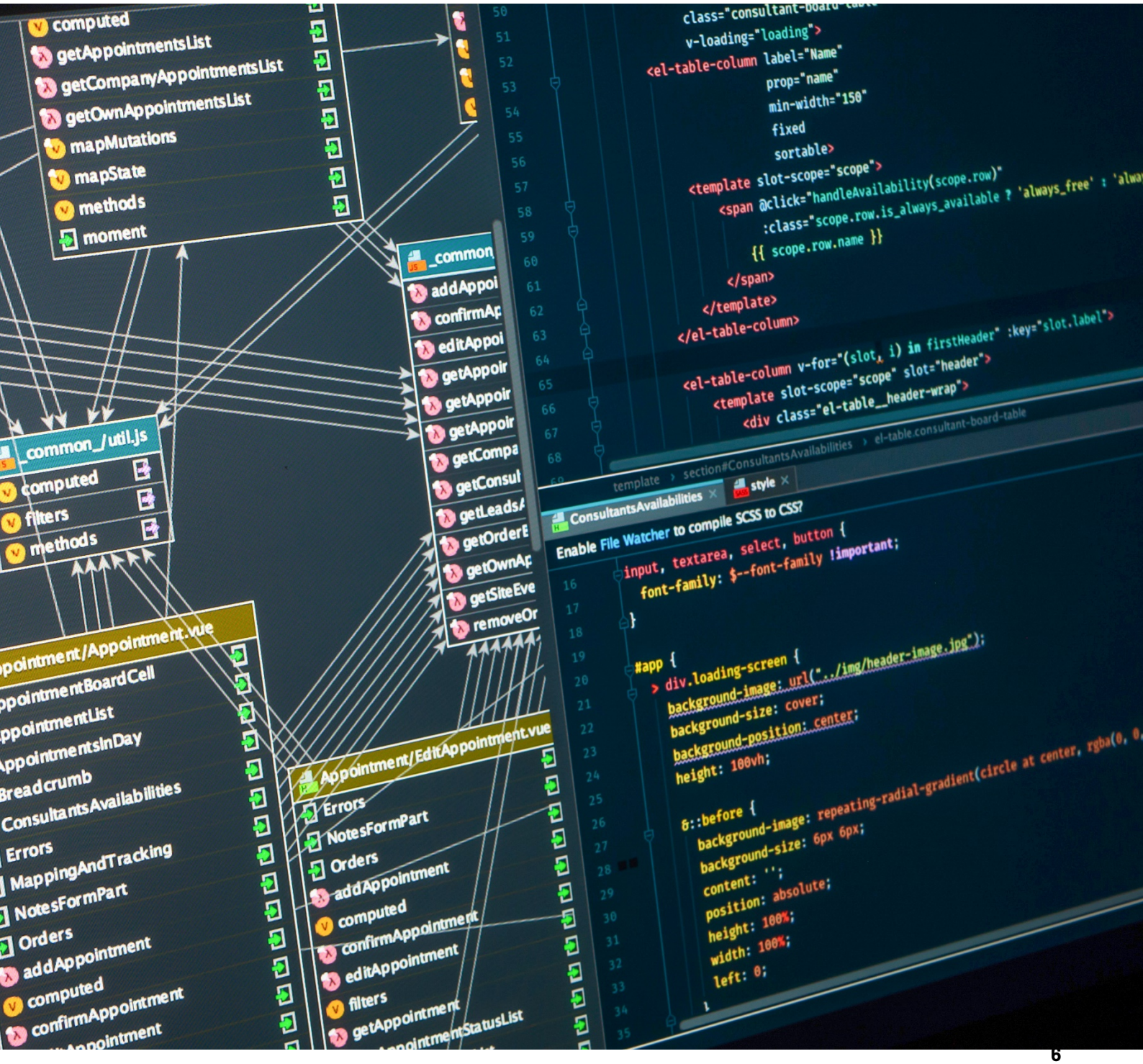

01. THE SCOPE OF THE RESEARCH

1.1. WHAT IS AN ADM SYSTEM?

Our research has taken a broad approach to defining the relevant set of ADM systems, set out in Table 1.

Table 1: What is an ADM system?

ADM system: a fully or partially automated technical system, used by a NSW government organisation (state government department or agency, or local council), in administrative decision-making, and that affects people.	
Fully or partially automated	An ADM system may be **fully or partially automated**. It may: • make a final decision • make a recommendation to a decision-maker • guide a human decision-maker through a decision-making process • provide decision support, e.g., commentary at relevant points in the decision-making process • provide preliminary assessments, and/or • automate aspects of the fact-finding process and influence an interim decision or the final decision. An automated system may or may not involve the use of AI.
Decisions that affect the people of NSW	This research focuses on the use of ADM in decisions that **affect the people of NSW**. It does not consider purely internal government activities or business processes, nor, for example, systems managing transport or goods logistics or for assessing or understanding natural resources or natural phenomena (e.g., meteorological systems). Clinical decision-making in the Health portfolio is also excluded due to its distinct nature. The project was not confined to decisions that would be reviewable under administrative law. Consistent with our inclusion of partial automation, we were interested in ADM that contributed to decisions, not just systems that make final decisions.
Systems	'Systems' can be defined at different levels. A large database that powers multiple automated decision-making functions could be seen as one large system, or multiple smaller subsystems. For this research, a bottom-up approach was adopted: that is, we recorded ADM systems as they were defined by public servants themselves, within the context of their own organisational and administrative systems.

Used by a NSW state government department or agency, or local council	ADM systems of interest are (i) systems currently in use, being piloted, discontinued within the last three years or planned within the next three years (ii) by a NSW state government department or agency, or NSW local council.

We cast a wide net, appropriate to a first attempt to map government ADM system use. By contrast, a mapping confined to *only* AI, and/or *only* fully-automated systems, would have yielded a much more partial picture of how technology is impacting NSW government decision-making that affects people. Future efforts could build on this work with a narrower focus – whether by the government seeking to make ADM system use more transparent, or by other researchers investigating the use of particular technologies.

1.2. METHODS WE USED TO IDENTIFY PUBLIC SECTOR USE OF ADM SYSTEMS

To create as full a picture as possible, we used three separate research methods, each of which provides a different perspective on ADM adoption and use:

1. **Direct surveys to public servants** asking departments, agencies and local councils to report, categorise and briefly describe their ADM systems. Where public servants responded, the information we have on these systems is direct, likely accurate, and informative.
2. **A systematised search and human review of publicly available material published by each department, agency, and local council** (web pages, annual reports and procurement data) to learn how government departments, agencies and local councils are currently reporting and describing their use of ADM systems to the public.
3. **A small set of case studies**, based on interviews with public servants, exploring the *process* of ADM adoption more deeply.

Each of these methods has both strengths and limitations that are described in detail in the Research Report. Together, they provide three distinct new perspectives on the use of ADM systems across NSW state government departments and agencies, and local councils.

An important note about data in this Report

Our Surveys had an end date of October 2023. In this Executive Report, and the accompanying Research Report, we present and analyse data about ADM systems reported up to that date. These Reports do not include ADM systems reported by NSW government departments and agencies to the NSW Ombudsman's Office as part of that Office's follow up process. As noted below, these Reports and our data are a **starting point**. The fact that the data we collected has already been added to is very positive, and we hope that publication of this Report prompts further awareness.

1.3. ADM SYSTEMS REPORTED BY GOVERNMENT DEPARTMENTS, AGENCIES AND LOCAL COUNCILS

ADM systems reported by NSW state and local government and their status

Responses to our survey confirm that use of ADM systems is widespread across NSW government departments, agencies and local councils, varied in function and technology, and actively expanding.

Of 206 NSW government departments and agencies contacted in our survey, 77 reported 136 ADM systems, a third of which were at the time of the survey planned, in development or being piloted. In other words, NSW state government departments and agencies reported **a potential increase of 50% in the next three years in the number of ADM systems** from the number currently reported as 'in use'. This should be qualified, however: some systems planned, in development or being piloted will replace or build on existing systems. A majority of state government departments and agencies that responded to the survey (46 of 77) reported using or planning to use ADM systems.

Of NSW's 128 local councils, 35 responded with 14 reporting a total of 77 ADM systems performing a range of purposes, with 23 of the reported systems planned, in development or being piloted. Use of ADM systems was more likely in metropolitan and city councils, with no concrete ADM systems reported in rural councils.

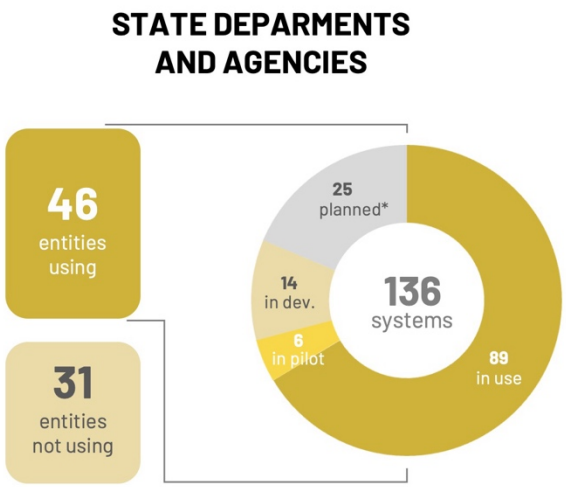

Figure 1: State government reported use of ADM systems
**For some systems their current state was not reported*

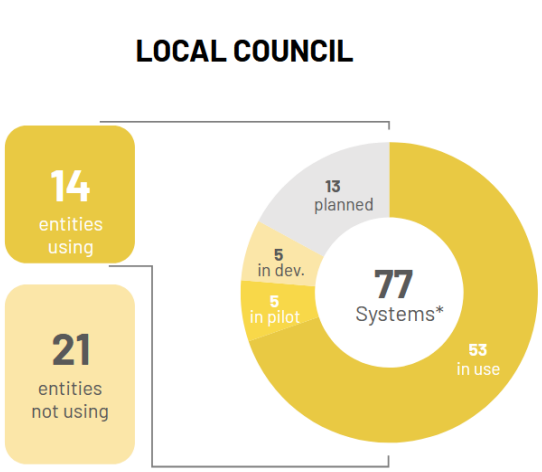

Figure 2: Local council reported use of ADM systems
**For some systems their current state was not reported*

State government use by portfolio

The NSW state government is functionally divided into groups, called portfolios. Each portfolio includes at least one department, and a number of agencies. Portfolios (formerly called 'clusters') were the initial contact point for our surveys. Every portfolio reported some ADM system use.

Table 2 below summarises ADM system adoption by portfolio. The table includes the number of agencies included within the portfolio.

Within the portfolios, 8 of 11 departments responded to the survey, reporting a total of 39 ADM systems. Sixty-nine of 195 agencies responded, reporting a total of 97 systems. One department, and 27 agencies reported that they were not using, or planning to use ADM systems. The Transport and Communities and Justice portfolios both reported extensive use of ADM systems.

Table 2: Use of ADM systems by state government portfolio[1]

Portfolio	Organisation	Responses from departments and agencies regarding ADM system use or planned use
Communities & Justice	Department	10 ADM systems reported
	Agencies/Entities	10 reported no ADM systems 9 reported a total of 19 ADM systems
Customer Service	Department	No consolidated department response received; subunit responses included in agency numbers below
	Agencies/Entities	5 reported no ADM systems 6 reported a total of 13 ADM systems
Education	Department	9 ADM systems reported
	Agencies/Entities	No responses received
Enterprise, Investment & Trade	Department	4 ADM systems reported
	Agencies/Entities	6 reported no ADM systems 2 reported a total of 7 ADM systems

[1] As noted above, the numbers in Table 2, and throughout this report, do not include systems reported to the NSW Ombudsman's Office after our Surveys. We understand that information about ADM systems which may be published by the NSW Ombudsman's Office will reflect updated information received from government departments and agencies.

Health	Department	No ADM systems reported
	Agencies/Entities	1 reported no ADM systems 4 reported a total of 9 ADM systems
Planning & Environment **(one portfolio as of February 2023)**	Department	No consolidated department response received
	Agencies/Entities	1 reported no ADM systems 5 reported a total of 5 ADM systems
Premier & Cabinet **(one portfolio and department as of February 2023)**	Department	3 ADM systems reported
	Agencies/Entities	2 reported no ADM systems 1 reported 1 ADM system
Regional NSW **(two departments: Regional NSW and Primary Industries)**	Department	1 ADM system reported
	Agencies/Entities	2 reported no ADM systems 3 reported a total of 11 ADM systems
Transport	Department	11 ADM systems reported
	Agencies/Entities	24 ADM systems reported
Treasury	Department	1 ADM system reported
	Agencies/Entities	1 reported no ADM systems 1 reported having 1 ADM system
Independent Integrity Agencies		6 ADM systems reported

Local government use by local council type

Table 3 shows the spread of reported ADM system use by local councils across NSW. Urban, and especially metropolitan local councils reported far more ADM system use.

Table 3: Use of ADM systems by local council type

Type of Council	Responses received	Number of responses which reported using ADM systems	Total number of ADM systems reported
Rural	3 (of 16)	0	0
Large Rural	10 (of 42)	1	0[2]
Regional Town/City	13 (of 36)	6	19[3]
Metropolitan Fringe	3 (of 9)	2	12
Metropolitan	6 (of 25)	5	46

[2] One council reported having ADM system(s) but did not list any specific systems.

[3] One council reported having ADM system(s) but did not list any specific systems.

What are ADM systems used for?

At both the state government and local government level, ADM systems are being used for a range of purposes, although the pattern of use at each level is different. Local councils primarily reported using ADM systems for public service delivery, user interaction, resource allocation and planning, whereas use in state government was more diverse, with a strong emphasis on compliance.

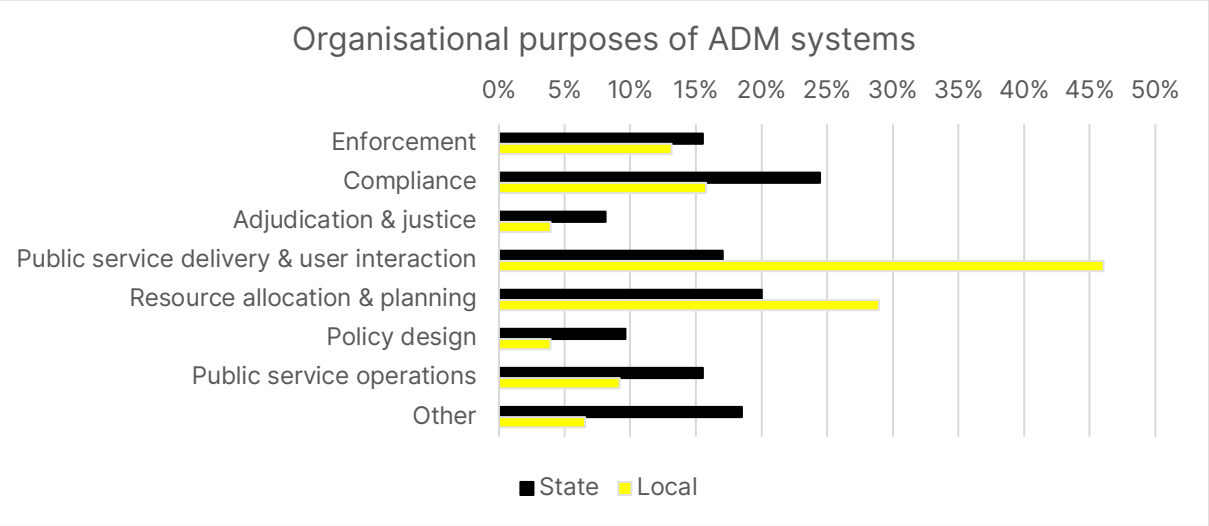

Figure 3: Organisational purpose of ADM systems (state and local government)

The lines between these categories of organisational purpose may not be as clear as sometimes assumed. While researchers and policymakers alike use these or similar categories of organisational purpose,[4] public servants responding to the survey appeared not to draw the same distinctions. In many cases surveys reported multiple purposes for a single system. To illustrate: systems based on computer vision to assist with more efficient parking could also be used in enforcement of parking restrictions, as discussed further in our case study of the use of computer vision by local councils.[5] A more detailed breakdown of the organisational purpose for the systems reported by portfolio is included in the accompanying Research Report.

Table 4 below provides **examples** of systems reported to us, illustrating the range of ADM systems, and the reported purposes they are serving. They range from the mundane and commonplace, to systems

[4] The organisational purpose categories in this figure are sourced and modified from David Freeman Engstrom et al., 'Government by Algorithm: Artificial Intelligence in Federal Administrative Agencies' (2020) NYU School of Law, Public Law Research Paper No. 20-54. These or similar categories are often referred to by policymakers: Commonwealth data-sharing legislation, for example, allows use for research and policy, but not compliance or enforcement: *Data Availability and Transparency Act 2022* (Cth).

[5] Research Report, case study 5.

playing a role in high stakes decision-making contexts. As an example of the latter, at the state government level, Corrective Services reported a system used as part of the classification of correction system inmates. This is an example that affects a vulnerable population in NSW in fundamental ways, although we emphasise that (as set out in Table 1 above) our data includes systems that *contribute* to decision-making: this data does not show that the processes involved have high levels of automation. An inmate classification system bears a high level of risk, with those risks in more than one direction: decisions made in this context impact both the safety or security of the community, and the welfare of vulnerable or disadvantaged people in the correctional system.

Table 4: Examples of ADM systems in state government, by purpose

Purpose	Examples
Enforcement: including identifying infringers and sending notices; licence/permit termination; preliminary assessment of possible infringements; application & collection of fines	Corrective Services reported a partially automated decision tree for classifying inmates currently in use, with plans for incorporation of predictive analytics. Transport for NSW reported the use of automated cameras and analytics to automate detection of road rules breaches and enforcement. Human officers review potential offence data before issuing a penalty.
Compliance: including systems that enable compliance, e.g., systems for applying for/renewing licences and permissions; systems that enable regulated actors to submit information	The Point to Point Transport Commission reported using digital forms for taxi licence applications. The NSW Architects Board reported a system for managing licensing of architects: automatically issuing renewal reminders, certificates of currency, recording of continuing professional development; and automated registration renewal. The Department of Primary Industries reported a self-service system for commercial and aquaculture fishing industries, with automated interactions.
Adjudication and justice: tasks that support formal or informal agency adjudication or rights or entitlements	The Department of Communities and Justice reported a Client Management System for victims of crime. The Information and Privacy Commission reported a tool for *Government Information Public Access Act 2009* (NSW) case management (i.e. dealing with freedom of information), which seems to be able to calculate timeframes for statutory actions.
Resource allocation & planning: using data-driven insights in operational and resource allocation decisions (e.g., identifying communities to prioritise for street maintenance, policing or public health interventions)	The Department of Education reported a map-based, custom-built platform for gathering and analysing data for insights across school infrastructure. The Office of Strategic Lands (Planning Ministerial Commission) reported planning a structured decision-making tool to support the agency to identify the best use of land in its portfolio. The NSW Rural Fire Service reported informing human decision-makers with automated predictions based on 000 calls to help understand risk posed by fire and identify suitable response options.
Policy: policy design, monitoring or analysing effectiveness of government actions or policies;	The Department of Education reported a system to project and predict student attendance, as information insights to supplement taking relevant actions.

profiling or cohort analysis for policy purposes	
Public service operations: e.g., procurement; monitoring service delivery & performance; internal fraud detection	Safety risk management systems (several examples). Incident management databases (several examples).
Other	The Independent Planning Commission reported using natural language processing for categorising submissions. Jury Management system (this is examined in a detailed case study in the accompanying Research Report).

Table 5 provides examples of uses by local councils, categorised by purpose.

Table 5: Examples of ADM systems in local councils, by purpose

Purpose	Examples
Enforcement: including systems that identify infringers and sending notices; licence/permit termination; preliminary assessment of possible infringements; application & collection of fines	A metropolitan council reported using CCTV cameras at council locations for public safety. Several councils reported testing automated detection of parking infringements.
Compliance: including systems that enable compliance, e.g., systems for applying for/renewing licences and permissions; systems that enable regulated actors to submit information	A metropolitan council reported developing a system for automatic issue of planning certificates based on eligibility to purchase the permit. Several councils reported using automated inbound email triage and sorting.
Adjudication and justice: tasks that support formal or informal agency adjudication or rights or entitlements	A metropolitan council reported using a tool to determine eligibility criteria to book a venue. A metropolitan council reported a system to assess eligibility for sustainability grants based on information provided by users.
Public service delivery & user interaction: direct provision of services to the public; chatbots and other automated engagement with the public	Several councils reported automated applications for services and permits (e.g., for rubbish collection, parking permits, road closure permits). A metropolitan council reported using a chatbot to assist users to identify relevant council information. A regional council reported providing online decision assessment tools for members of the public to determine if they need a permit for tree pruning.
Resource allocation & planning: using data-driven insights to make operational and resource allocation decisions (e.g.,	Several local councils reported developing automated image collection and analysis to identify road defects (see case study in Research Report).

identifying communities to prioritise for street maintenance, policing or public health interventions)	A metropolitan council reported a flood modelling tool identifying potential need for evacuations. A regional council reported using automated tools for information collection (including in some cases image analysis): e.g., beach dune regression; urban heat sensors; road usage; water consumption; dam levels.
Policy: policy design, monitoring or analysing effectiveness of government actions or policies; profiling or cohort analysis for policy purposes	A regional council reported planning a digital twin for modelling planning scenarios.
Public service operations: e.g., procurement; monitoring service delivery & performance; internal fraud detection	A metropolitan council reported a decision-making tool for assessing and managing grants: setting up grant program, recording and assessing submissions, and awarding and managing grants
Other	A metropolitan council reported a people count system to feed data to property managers of shopping areas to decide on rent and property enhancements.

What technologies are being used?

Public servants reported many different types of technology being used in ADM systems, especially at the state level.

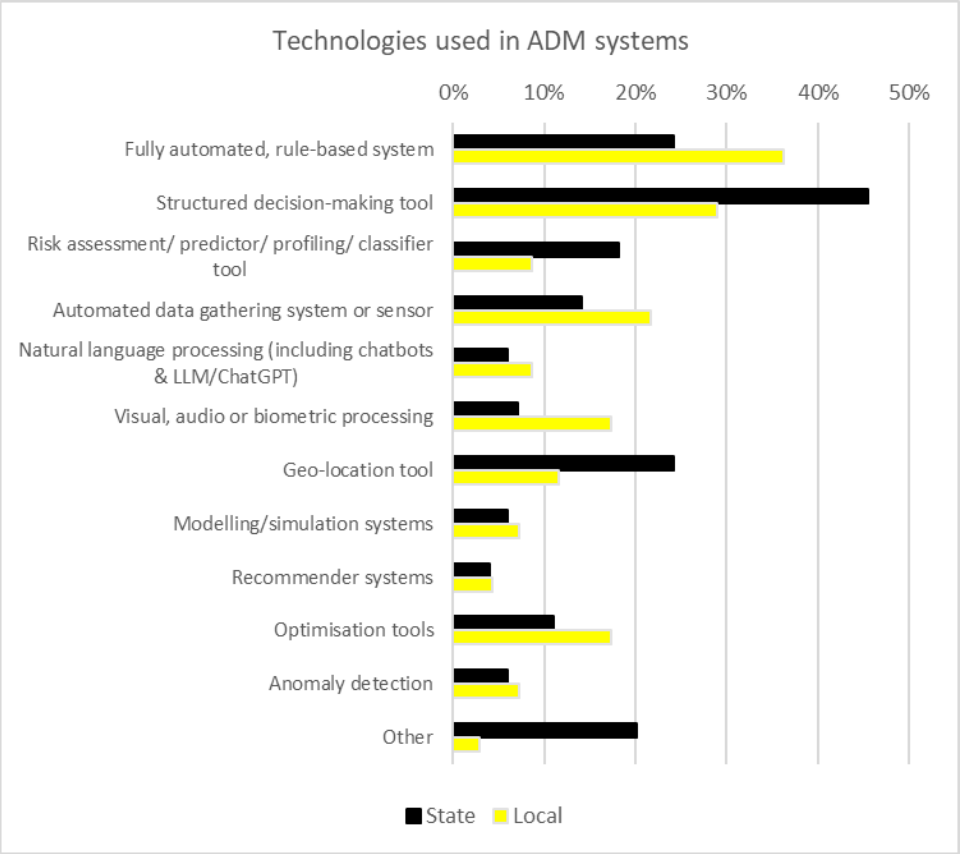

Figure 4: Technologies involved in ADM systems in use and planned

At the state level, structured decision-making is the most common technology type in reported ADM systems: identified in 45 reported systems or almost half of the 99 ADM systems classified by technology (one system can use several technologies). This suggests that in many cases ADM systems are being used to support, rather than replace human decision-makers. Further breakdowns setting out who is using which kinds of technology are included in the accompanying Research Report. Risk assessment and prediction is being used, and/or considered. One example reported to us was a plan to work with a university partner to research, explore and develop a potential automated risk identification tool to predict out-of-home care placement stability.

In the case of local councils, automation of structured decision-making is surpassed by systems designed to complete tasks, with limited human intervention and full automation. Several local councils reported similar ADM systems, used to automate simple repetitive tasks. Local councils also reported multiple uses of computer vision and analysis, which we explored in more detail in case study 5 in the Research Report.

Our 2023 survey coincided with strong public and government interest in generative AI, and particularly Large Language Models (LLMs), following the release of ChatGPT in late 2022. Like other organisations, organisations in the NSW government sector reported a range of plans and pilots in the use of AI. Examples reported to us included:

- to provide aggregated data in response to natural language queries
- in a generative AI-based education chatbot developed to assist educators and administrators with different tasks
- in a pilot for the use of generative AI to summarise public submissions.

A range of further uses were being explored, for example:

- to assist lawyers in the preparation of legal advice, in a manner that improves efficiency and/or quality, and
- leveraging generative (or non-generative) AI chatbots to enable customer interactions and respond to enquiries in natural language.

1.5. WHAT INFORMATION IS PUBLISHED BY NSW GOVERNMENT ORGANISATIONS ABOUT ADM SYSTEMS AND THEIR USE?

In addition to looking at ADM systems reported to us in the survey, we also reviewed what state government departments and agencies, and local councils, are publishing about their ADM system use, as well as AI and automation generally. We undertook a keyword search of annual reports and official websites, and supplemented this review with procurement data, followed by detailed human review.[6] So far as we can reasonably ascertain from the descriptions in these public sources, the resulting dataset records possible instances of ADM systems.

Care must be taken when analysing this material. We cannot be sure that everything published by state government departments and agencies and local councils, even on official websites, represents an accurate or complete picture of active, current automation. Information may be out-of-date, or published in advance of deployment (prospective) and not reflective of existing systems in use. Public-facing statements may also be expressed in broad language that make it difficult to be confident whether what is being described is an ADM system that fits within the scope of this research.

Despite these limitations, reviewing what governments publish can still provide an additional, and different perspective on ADM use in the NSW public sector. Specifically, it can:

1. help fill out the picture where we were unable to obtain a survey response
2. reveal how government organisations are describing and promoting their ADM system use
3. provide some picture of the level of attention that different portfolios are paying to automation of decision-making
4. capture data about possible ADM systems not perceived as such by (or even unknown to) the public servants who filled out our surveys, and
5. provide a more diverse picture of possible use of ADM systems in local councils, which may be less inclined to fill in surveys.

Although the publicly available data does not capture the same set of ADM systems, the high-level view of automation by state government departments and agencies offered by the publicly available data, shown in Figure 5, is not very different from the more detailed portrait offered by the survey collection. The Transport and Communities and Justice portfolios emerge as having a greater number of references to possible ADM systems in their publicly available materials. This could mean these portfolios are stronger

[6] The keywords were: computerisation; automate; AI; artificial intelligence; automated decision; ADM; algorithm*; machine learning; natural language processing; NLP; computer analysis; predictive analysis; online compliance; image recognition; decision support; robotic process automation. The processes of initial search; review and data cleaning and analysis are set out in detail in the accompanying Research Report, Section 3.

users of ADM systems, but another interpretation is that they are most open to making their uses publicly visible. The latter interpretation would be consistent with the responsiveness of these portfolios to our surveys. Among all the portfolios, four agencies or departments (Transport for NSW, Fire and Rescue NSW, the Department for Primary Industries and the Environment Protection Authority), represent together close to one fifth of all the possible instances at the state level of uses of ADM systems in the publicly available material identified as of high relevance. The accompanying Research Report describes the main divergences in terms of distribution around portfolios.

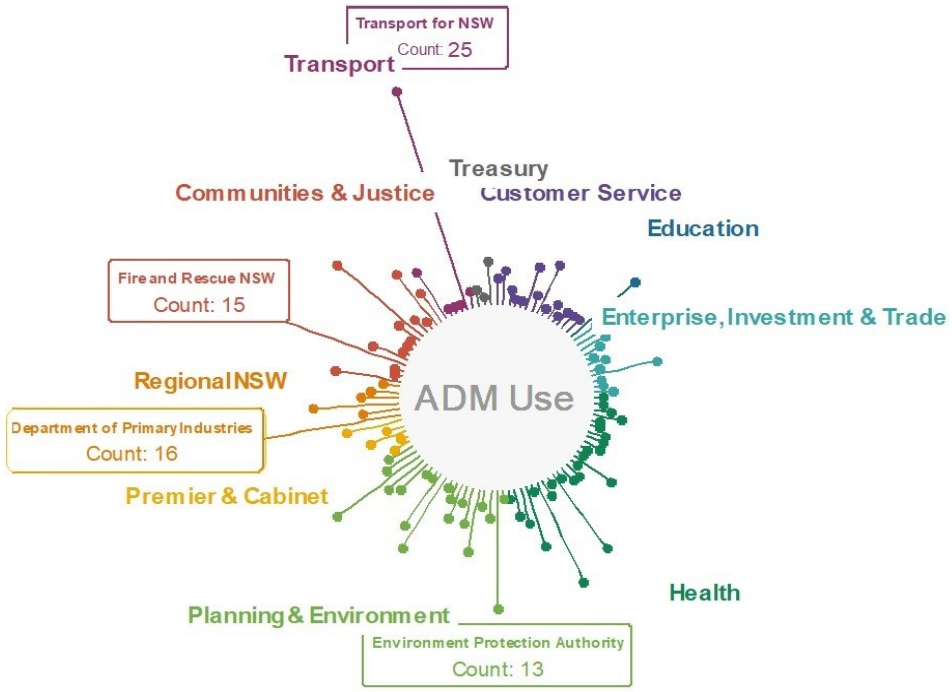

Figure 5: ADM system distribution described by state government organisations grouped by portfolio in publicly available materials, highlighting four agencies and departments with highest count of possible ADM systems

Analysis of the publicly available data enables a broader picture of use by local councils, including, in particular, in areas and councils not covered in the survey. A snapshot is given in Figure 6 below. At a high level, it seems that a significant number of local councils are describing potential or actual uses of ADM on websites and in annual reports. Figure 6 only includes local councils where two or more potential ADM systems were identified (38), but the publicly available data lists a total of 150 potential ADM systems across 67 councils. All categories of councils (rural, large rural, regional town/city, metropolitan fringe and metropolitan) had at least one potential ADM system identified in the publicly available data.

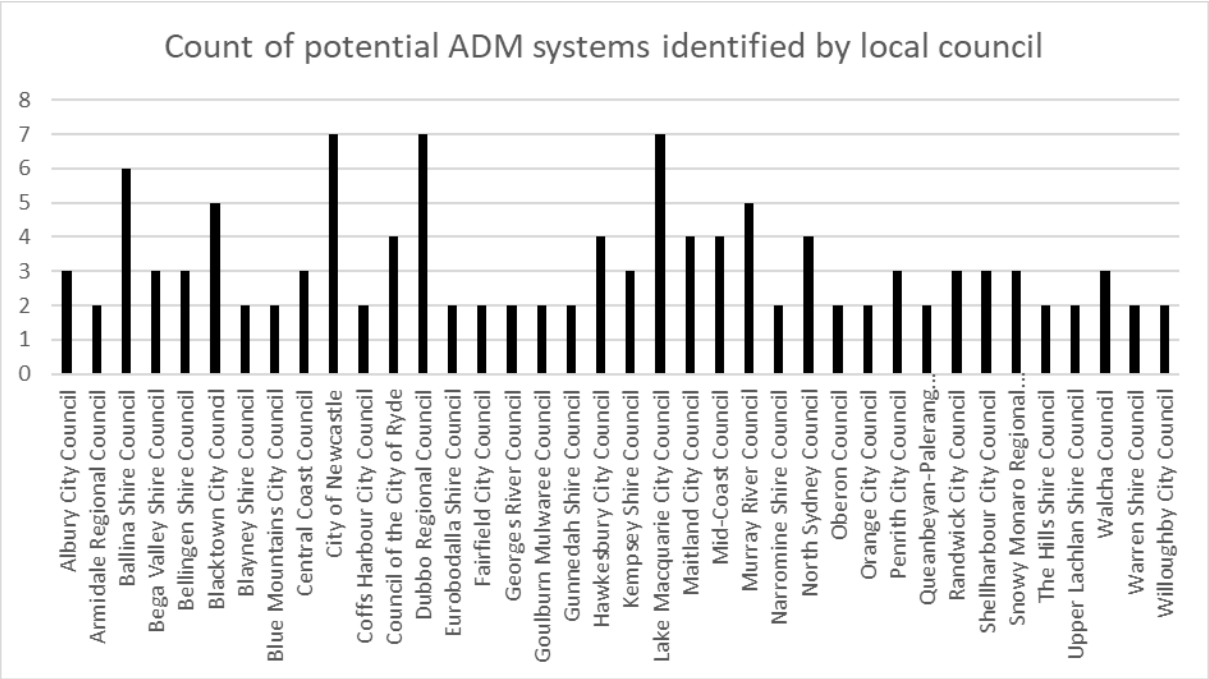

Figure 6: ADM system distribution by local councils in publicly available data with count higher than one possible system (alphabetical order)

Perhaps the most interesting insight from the publicly available data in relation to state government departments and agencies is a (necessarily high level) view of the *evolution over time* of statements about the use of ADM systems, by portfolio. Figure 7 shows this evolution by dates of inferred deployment, based mainly on data from descriptions and annual reports.[7] It shows a peak in ADM system descriptions around 2010, driven mostly by organisations in the Communities and Justice Portfolio, not identified until now. This activity predates the current wave of interest in AI. There is also a more recent peak in 2021–2022.[8] Observing these and other trends can provide us with a richer picture about how public servants are thinking about and describing automation in the government sector and reveal discussion of, and possible use of ADM systems in the past.

[7] Dates are only partially reliable as they refer to a combination of some explicit statements about dates of actual deployment, *and* references to intended/completed deployment in the context of the yearly report. In the latter case, the end of the reporting year was inferred to be the date of deployment (e.g., in a 2019–2020 report that describes the deployment of a system, the year 2020 was inferred to be the year of deployment).

[8] References to possible ADM systems continued in 2023, but 2023 data is not represented in the figure, as data collection ended in mid-2023.

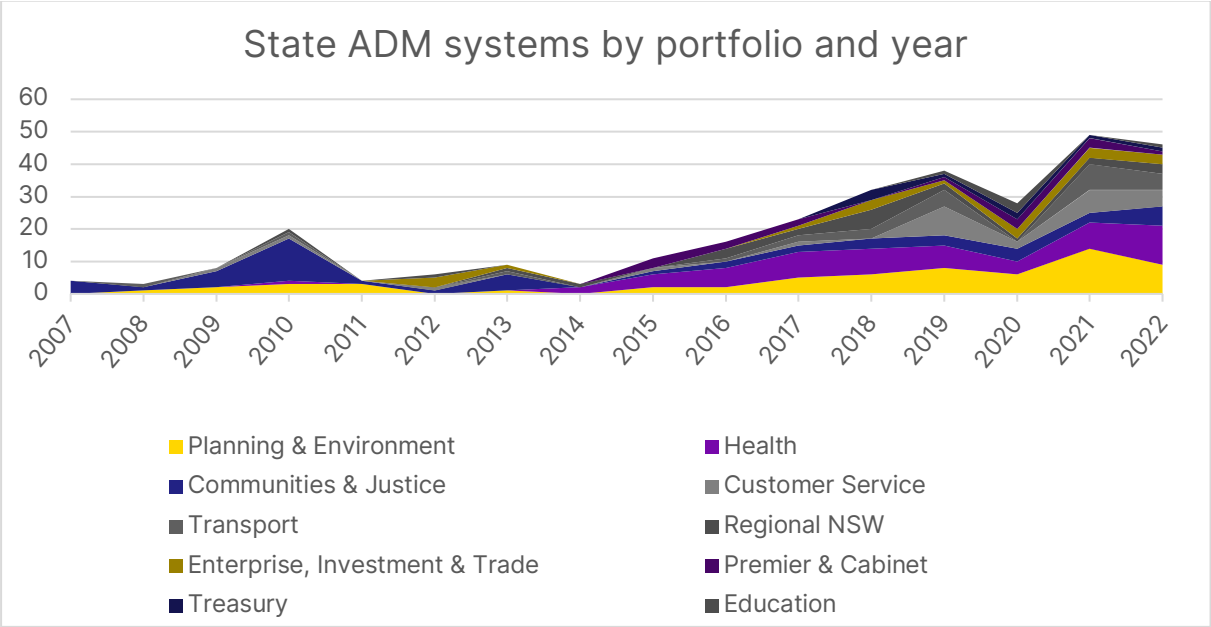

Figure 7: ADM systems described in publicly available data by portfolio and year of inferred deployment

1.6. ADM SYSTEMS, ADMINISTRATIVE LAW AND THE PRINCIPLES OF GOOD ADMINISTRATIVE PRACTICE

The *New Machinery Report*[9] set out four basic requirements for assessing whether the use of ADM systems by government supports lawful administrative decision-making and good administrative practice. We did not undertake a detailed audit for individual systems. In the accompanying Research Report we present some limited evidence on questions of process, obtained from 26 in-depth follow-up surveys, and case studies based on interviews with public servants. Some key points are summarised in the table below as against these basic requirements as adapted from the *New Machinery Report*.

Table 6: Evaluation of requirements for ADM systems

Requirement	Evaluation and observations
Proper authorisation: whether the ADM system has a proper legal foundation; whether the	• most ADM systems reported in our small follow-up survey were reported to be supported by organisational policy and procedure, legislation, regulations or other legislative authorisations

[9] NSW Ombudsman, *The new machinery of government: using machine technology in administrative decision-making* ('New Machinery Report') (November 2021).

decision is within the scope of the law	• one (council) system for licence plate recognition was reported as having no explicit authorisation or guidance • almost all systems in the follow-up survey were reported to have technical, policy and end user input in the design process • less than half the systems in the follow-up survey were reported to have legal input at the design stage • full automation of decision-making was rare; in most cases it was reported that action by a human was necessary to effect a decision, or a human retained the capacity to intervene • system design can be affected by uncertainty over whether, and to what extent, human action is necessary to fulfil legal delegation requirements, or because the text of the legislation prevents automation (see our Online Birth Registration (OBR) and Water Market case studies)
Appropriate procedures: including procedural fairness, privacy, anti-discrimination law	• in our follow-up survey, testing systems for accuracy was common both before and after deployment • other testing and assessments were less common, including privacy impact assessments, legal advice, risk assessments, and cyber security compliance • four systems had been assessed against the *NSW Artificial Intelligence Assurance Framework* (*NSW AI Assurance Framework*),[10] relatively new at the time of the survey • relatively few systems had been tested for disability accessibility
Appropriate assessment: whether the system gives proper effect to the statutory power; answers the right question; is based on proper analysis of relevant material	• there is evidence of widespread NSW government use of ADM systems for collecting, filtering, and presenting information and suggesting possibilities or guiding the decision-making process • we have not tested (and could not, without more detailed investigation) how systems influence decisions or checked whether they present information, and decisions to be made, in a way that enables the proper exercise of discretion

Adequate documentation: maintenance of appropriate records of administrative decisions, and the ADM system	• our findings on transparency are mixed:
	  • our review of publicly available material found many references to apparent ADM systems, including many recorded in annual reports
	  • in our follow-up survey, respondents frequently reported that information about the ADM system was *not* publicly available
	  • this may mean that information about the particular system was not available beyond broader references, and/or public servants were not aware it was available
	• information about ADM use is inconsistently provided, and individuals affected by decisions may not always be aware (or effectively notified) of the use of ADM systems in their particular case
	• commercial confidentiality was cited as a reason for certain information about systems not being available

[10] NSW Government, *NSW Artificial Intelligence Assurance Framework* (2022).

1.7. THE IMPORTANCE OF CONTEXT AND FULL LIFECYCLE CONSIDERATION

ADM systems are embedded in social and governmental contexts. Introducing a new ADM system into an agency, department or local council's activities is a public sector improvement project. As such, it may involve co-ordinating different expertise across separate teams within the organisation, from customer service provision and internal administration, to compliance, IT, and government record management. In some cases, it may also involve coordination between departments or agencies, or between government and private sector organisations, for example in order to link data, or interoperate with the systems of other organisations. ADM systems are introduced into – and must interoperate with – existing institutional and policy contexts and arrangements, and legacy IT and data systems, both paper-based and digital. Together, these realities make it a complex undertaking to introduce or upgrade an ADM system. There are many points where things may go wrong (or right), or design decisions may be made which affect (positively or negatively) system outputs and outcomes, and which affect people, their rights and interests.

We explored this complexity, and some of the ways in which context affects the development and deployment of systems, through five case studies. These provide further illustrations of the process of developing ADM systems within government.

The Jury Management System: data matching for efficient ADM

An ADM system for the selection and management of members of juries for NSW courts. This case study demonstrates:

- public sector led, in-house development
- selective automation of parts of a decision-making process
- a system for ADM built on relatively simple linking and matching against a databases held by other government agencies in accordance with the relevant legislation

eTrac: ADM for integrity enforcement

eTrac was introduced to help 'clean up' the greyhound industry and support regulation by the NSW Greyhounds Welfare Integrity Commission. This case study shows how:

- societal context matters: automation of enforcement may have been more acceptable for rigorous supervision of a controversial industry
- systems context matters: eTrac must interact with systems of other jurisdictions
- the importance of human override: stewards on race days can and do override system outputs

ADM systems in context: The Water Market System

The Water Market System will support assessment, approval and administration of water licences, work approval and metering for non-urban water take. This case study shows how:

- not all advanced self-service systems will work for all users
- non-automated alternatives to self-service can be important for some populations: in this case retaining paper-based systems for established rural users
- ADM systems which deal with proprietary rights, and personal information (as the system does) can be especially complex to manage

Fully automated birth registration through LifeLink and Online Birth Registration

A system for fully-automated birth registration. This case study illustrates:

- public enthusiasm for the convenience of automation and self-service
- some rules are easier to automate than others: obscene or offensive names are prohibited by law, but a journalist discovered that the automated system allowed her to register contrary to that rule
- ADM is often about data-matching: in this case, automated birth registration depends on a match between official data (from hospitals and medical professionals) and customer-provided data

Local councils, local cameras: computer vision and image analysis for local public services

Multiple local councils are using computer vision and image analysis for a range of purposes: parking management; 'people counting'; detecting road defects; maintenance needs and schedules through assessing conditions and levels of use of public infrastructure, and more. These case studies show how:

- there are potential gains for councils if more monitoring of the state of public infrastructure and data on local needs can be gathered and analysed automatically
- realising these gains may not be as straightforward as people – or commercial providers – expect. There is potential for more information sharing and capacity building at the local level to realise gains without engendering community concern or other data issues such as privacy concerns

Four key observations aimed at public servants involved in developing and deploying ADM systems emerge from the case studies:

1. **Expect the unexpected:** state government departments and agencies, and local councils deploying ADM systems will not always be able to predict in advance what the challenges of the system will be, or the public response: i.e., the demand for, resistance to, or expectations of ADM systems. Our case studies on Online Birth Registration and the Water Market System provide an interesting contrast: demand outpaced the pilot of Online Birth Registration, but resistance forced adjustments in the case of the Water Market System. 'Expect the unexpected' is no doubt true of all significant IT projects, but takes on additional significance in the case of automation of government decisions affecting people. ADM systems in this context have the potential to impact the relationship between the people of NSW and government agencies. It is especially important to take care with systems affecting vulnerable populations and populations dependent on government services.

2. **Consider non-automated alternatives and 'humans in the loop':** both backup and non-automated systems were important in our case studies, for a range of reasons. Examples included human intervention to modulate system outputs (eTrac), or meet the needs of individuals, especially those (such as among rural populations) where there may be limited internet access or higher levels of digital exclusion (Water Market System).

3. **Have a clear system-level plan:** agencies that had a clear articulation of the processes being automated (such as diagrams including data, data sources, all points of human intervention, all concrete inputs and outputs) could confidently explain how the system was designed, operated, assessed, tested and improved over time. Both internal and external supervision of systems can be facilitated where there is a focus on how automation relates to a broader government process to achieve a distinct function.

4. **Close involvement from public servants in the development of significant ADM systems is important:** agencies that were more closely involved in the design and development process seemed happier with the outcomes.

02. SUMMARY OBSERVATIONS ON USE OF ADM SYSTEMS ACROSS NSW STATE AND LOCAL GOVERNMENTS

In this section we draw out certain key observations regarding the use of ADM systems by NSW state and local governments, based on our analysis of all of the data collected through surveys, the review of publicly available material, and interview-based case studies.

2.1. NSW GOVERNMENT SECTOR USE OF ADM SYSTEMS IS WIDESPREAD AND INCREASING

It was striking that approximately one third of all the systems reported to us were in development, being piloted or planned within the next three years. Even allowing that survey respondents will think first of new and planned systems, and some planned systems will replace existing ones, this suggests an accelerated level of activity.

Our review of publicly available material confirms this finding. It indicates recent growth in mentions of automation and AI, linked to possible new systems. We note in addition that publicly available materials also show an earlier 'wave' of references to possible ADM systems around 2009–2011, driven mainly by the Communities and Justice portfolio.

The extent of existing and planned use of ADM systems by local councils is also noteworthy. It deserves further researcher and policymaker attention.

2.2. NSW GOVERNMENT ORGANISATIONS ARE INTERESTED IN AI, BUT SIMPLER FORMS OF AUTOMATION AND DATA LINKAGE AND MATCHING ARE WIDELY USED

Both direct survey responses and publicly available material provide evidence of widespread interest across both the state government and local councils in the adoption of various forms of AI, including predictive analytics, natural language processing, and generative AI. However, simpler technologies for ADM are more widespread, and heavily relied upon within government.

This affirms the need to continue to pay attention to the design, deployment and use of all ADM systems, and to ensure that all such systems are consistent with law and with good administrative practice. The challenges typically arising from both AI and ADM are not associated with the specific technology, but from how it is used.

2.3. USE OF SENSORS, COMPUTER VISION AND ANALYSIS IS WIDESPREAD, INCLUDING USE BY LOCAL COUNCILS

Multiple existing and planned uses of computer vision, image detection and analysis were reported. Some examples are well-publicised, such as Transport for NSW's use of computer vision and analysis for the enforcement of road rules, including the Mobile Phone Detection Camera Program. Transport for NSW has demonstrated accountability and transparency by consulting with experts, and publishing an *Automated Enforcement Strategy*[11] outlining in some detail, for the public, how it plans to use this and other automated enforcement technologies, and the guardrails (policies and systems) in place to manage risks.

Less widely publicised is the surprisingly common adoption of computer vision and automated sensors by local councils across NSW: from simple licence plate recognition in parking lots through to more advanced uses discussed in our case studies. The uses reported have clear public interest goals such as: efficient detection of road defects; targeting maintenance resources; analysing use of public facilities for resource allocation and management; or identifying other potential public issues such as urban heat.[12]

We would draw attention, however, to the potential surveillance and privacy implications of these technologies, and the need for explicit, mandatory limits or precautions, or perhaps consistent guidance adapted to common use cases.[13] It is particularly notable that local council use of such technologies is occurring in the absence of a specific, legislative framework, published strategies or guidance for the use of these potentially sensitive technologies. Such use is not subject to the *NSW AI Assurance Framework* which applies to state government uses.

2.4. HUMANS ARE MOSTLY 'IN THE LOOP' FOR NOW, BUT FURTHER AUTOMATION IS A SHORT STEP AWAY

The most common type of ADM system reported to us at the state government level was structured decision-making. This suggests that, in many cases, ADM systems are being used in collecting, filtering and presenting information, and guiding decision-making, rather than to replace human decision-makers.

This may mean decision-making power generally remains in the hands of humans, which would help ensure there is a legal foundation and appropriate delegation of authority for those decisions. Human decision-makers may better address rare events or circumstances, which may not be planned for when designing an ADM system. An example is provided in our **Online Birth Registration** case study, where

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[11] Transport for NSW, NSW Automated Enforcement Strategy (Policy, 31 July 2023).

[12] These developments are outlined in more detail in case study 5 in the accompanying Research Report.

[13] See Young-Bin Kang et al., AI governance in the smart city: a case study of garbage truck mounted machine vision for roadside maintenance (Report, 2023).

system designers allowed for automated birth registration, provided the correct data was entered and matched. Designers did not foresee parents registering inappropriate names in breach of the law, such as 'Methamphetamine Rules'.

As the *New Machinery Report* notes, it is a short step from a system that provides information and/or a recommendation, to a system that automates (or effectively automates) a decision. Some of our case studies note that further automation is possible with existing systems, although there may be barriers in the law and/or community concern. As ADM systems provide more intelligence, organisations may be tempted to replace workers with operational knowledge, with less knowledgeable system operators. It is important, from an administrative law perspective, to ensure that human decision-makers do not *treat* AI/ADM recommendations as though they are binding, or promote their passive acceptance. Fully automating decisions can fundamentally upend administrative principles, as Robodebt did in reversing the onus of proof of an alleged debt,[14] or the Revenue NSW's Garnishee Order system did in removing human decision-making, as investigated by the NSW Ombudsman.[15]

There is also evidence that state government departments and agencies and local councils are considering making use of features (such as additional predictive analytics, or generative AI) offered in updates to existing software and platforms procured from commercial providers. This raises what we might call the 'flick the switch' dilemma in an 'AI everywhere' world. If a department or agency is offered the opportunity — or even simply told — that new versions of an already-acquired product or service now come either with 'AI-enabled by default', or as an additional feature available by simply flicking a switch, when does, and when should this trigger a renewed assessment using tools such as the *NSW AI Assurance Framework*?

2.5. THERE MAY BE A NEED FOR WIDER EXPERTISE AND TESTING AT THE DEVELOPMENT STAGE OF ADM SYSTEMS

Appropriate accountability for government use of ADM systems is best achieved from the beginnings of project inception and design. Designing accountability into ADM systems will necessarily require input from the perspectives of multiple professions, including digital tech/computing, legal, managerial, customer focus, and front-line service delivery professionals. One observation suggested in our more detailed look at ADM system development is reports from a number of organisations that legal expertise was not sought during development. While this observation is not based on a large dataset, it may indicate, alongside historical examples, that, in general, government departments, agencies and local councils need to give greater weight to questions of legality in the design and implementation phases to

[14] *Royal Commission into the Robodebt Scheme* (Final Report, July 2023).

[15] NSW Ombudsman, *The new machinery of government: using machine technology in administrative decision-making, (Annexure A)* – Revenue NSW case study (November 2021).

ensure adopted systems are properly authorised by law. We acknowledge that some agencies may have limited legal resourcing for this purpose; it is possible that better knowledge-sharing and transparency, as we advocate below, may assist. We also noted an absence of some testing, such as accessibility testing, from our responses to survey 2.

03. OBSERVATIONS ON THE PROCESS OF MAPPING AND ON FUTURE TRANSPARENCY OVER ADM SYSTEMS

The project has generated a second set of findings and observations, relating to the **process** of conducting this research, about how researchers, and governments might best meet increasing calls for transparency about ADM (and AI) use.

3.1. THE LIMITS OF VOLUNTARY DISCLOSURE

This project has produced a mapping of ADM systems used by NSW state and local governments, but it has also demonstrated the limits of a voluntary disclosure approach. Participation in the project by government departments, agencies and local councils was voluntary; no compulsory or investigative powers were invoked. The project benefitted from support from the NSW Ombudsman's Office, and from within the NSW government at various levels. Nevertheless, there are gaps in the data we were able to collect.

We observed that:

- support for (voluntary) transparency in some parts of an organisation will not necessarily translate to support or engagement or capacity in other parts of the organisation, or in separate agencies.
- sensitivity is a consideration: important ADM systems may be considered sensitive by vendors, public servants, government departments and agencies, or all of them, perhaps leading to non-reporting, or vague, even meaningless descriptions, or concerns about what information may be made public.

It follows that ensuring an effective future mechanism to secure transparency over ADM or AI use will be especially challenging if reporting is voluntary, or if no consequences attach to the failure to report a system.

3.2. THE CHALLENGES OF SCOPING, AND CONDUCTING A MAPPING OF ADM SYSTEMS

Future efforts to conduct either an analogous mapping, or to construct a mechanism for transparency over ADM systems and their use, will likely confront questions in scoping the mechanism (or research) and implementing it. This was also the experience of the research team in the course of this project.

We have not been tasked with designing follow-on or ongoing public sector mapping, a public sector registration system for ADM systems, or the appropriate scope for assessment against a tool such as the *NSW AI Assurance Framework*. However, our experience would be relevant to such a process, and we make four observations about this project's process which may be useful:

1. **Scope:** defining in advance which ADM systems were sufficiently important to include in the mapping exercise involved trade-offs. Our broad scope made the process more challenging for researchers and public servants alike. Too narrow a scope, however, would have left out systems that impact people, and hence would have been inappropriate for this first attempt at a mapping.

2. **Terminology, and the need to develop a common understanding:** key terms – *AI*, *automation*, *systems*, and *decisions* – lack clear, generally accepted meanings. In our interactions with government departments, agencies and local councils, we experienced significant pushback from public servants when we characterised their systems as ADM systems. Instead, public servants often preferred other descriptions such as workflow systems, online registration systems, or digital systems. Some considered that a system could only be described as an ADM system if it *replaced* a human decision-maker. This complicated communication with public servants, and our efforts to develop a shared understanding regarding what should be reported and how systems should be described. We developed multiple modes to communicate the project's intended scope: a general description; a table of indicative examples; and heuristics, or rules of thumb; and engaged in ongoing dialogue with survey respondents.

3. **Timing:** ADM systems evolve over time, further complicating how to report or describe them. We saw evidence of this, with survey responses noting the addition of features by commercial providers (such as integration of AI) or planned expansions or system upgrades. This suggests that, in any policy or law relating to the public disclosure of ADM systems, it will be necessary to include methodology and triggers to support the update of publicly available information.

4. **Finding the right people in complex organisations:** at present, there is no consistent, publicly designated, single individual or team with full knowledge of ADM/AI system usage in any given NSW government organisation. Designating such an individual or team will also be important in any future policy or law for the disclosure of ADM systems.

04. CONSIDERATIONS FOR FUTURE POLICY

As we have found, government use of ADM systems and AI is extensive, and increasing. Continued commitment to be transparent about their use of ADM systems and/or AI will require governments to find ways to navigate the challenges we have outlined. In this last section, we outline some considerations that may assist NSW state and local governments in this process. The discussion below draws on this research, but also the broader expertise and experience within the research team.

4.1. BUILD ON THE DATA

Consideration should be given to sharing, and building on, the data collected in this project, in particular as a foundation for agencies and departments to map their own systems internally.[16] We note that in the time since our surveys were concluded, the NSW Ombudsman's Office has continued to build on and update the data gathered, which is a very positive development. NSW government organisations, including local councils, could use data from this project as a valuable source of information when considering automation, both as a repository of ideas, and a guide for organisations contemplating development, or deploying new systems.

4.2. RECONSIDER SCOPE, AND HOW IT MAY IMPACT ON CALLS FOR TRANSPARENCY

We observed a wide variety of systems in the data collected, with very different kinds of impact on members of the public in NSW. A narrower scope of collection or reporting of ADM systems than we adopted for this project may be more sustainable for the public service. However, for the goal of transparency to be achieved in a way that responds to past concerns regarding government use of ADM systems, the scope of ADM/AI systems of interest should be defined, not by the kind of technology (e.g. AI or not; generative AI or not), but by the role and purpose of systems within government operations, and their impact on citizens and businesses.

It may be useful to consider staged, or graded disclosure levels. One model for this is provided in the contracts classes 1 to 3 in part 3 division 5 of the *Government Information (Public Access) Act 2009* (NSW) (GIPA Act). For example, in the ADM context, a register might require more or less disclosure depending on whether the system is used for data capture, predictive analysis, decision support, decision-making, or enforcement.

[16] Data collected in this project was provided to the NSW Ombudsman's Office, and we understand that subsequent to our work the NSW Ombudsman has continued to build on and update that information.

4.3. UNDERSTAND THE BENEFITS OF TRANSPARENCY FOR GOVERNMENT

Beyond a commitment to an important principle in public governance, i.e. transparency, there are clear additional benefits for government and/or public servants to be gained from transparency about ADM and AI use in government.

We saw evidence that greater transparency would benefit the NSW government sector as a means for knowledge-sharing that may not be happening as much as it should. It was clear that some agencies and departments are further advanced in the use of ADM systems, and are generating knowledge of both pitfalls and good practice that should be used to benefit others. Smaller organisations in particular, which may lack internal legal resources, could benefit from the availability of model policies (for example for common use cases) or centralised advice to support ADM implementation consistent with administrative law and good administrative practice. Departments like Transport for NSW have developed explicit, and thoughtful strategies around automation of enforcement.[17] Anecdotally, our conversations with public servants in the course of this project also suggest to us that at least some government employees would welcome the opportunity to learn from the experiences, and best practices of others.

4.4. UNDERSTAND THE BENEFITS OF A PUBLIC REGISTER OR SIMILAR TRANSPARENCY MECHANISM

Our research shows that the process of constructing a public register of ADM systems will have challenges, and costs. The process would also have benefits, including the following:

1. **Standardisation of key terminology**: in order to create a register or other transparency mechanism, it will be necessary to develop some standardised language and, more generally, a common understanding of what kinds of ADM and AI systems should be reported, and how. This will develop understanding and capacity within and outside government. It would also provide certainty for business, such as vendors who develop systems with and for government. In addition, it would have the added benefit of contributing to standardising language for future research and audit and assurance.
2. **Availability of information for government oversight, audit and analysis:** there is a shift, at a policy level, towards audit and assurance for some systems, especially AI systems. This trend is illustrated by legislative and policy developments in Canada, the European Union and elsewhere. Consistent disclosure would provide a starting point for any such future audits. A disclosure register could also

[17] *NSW Automated Enforcement Strategy* (n 11).

provide a starting point for accessing information on the public agency engagement of vendors of concern, such as for security reasons.[18]

The use of algorithmic registers is emerging as a trend, including in key jurisdictions of influence. It is timely for Australian jurisdictions to be planning and piloting solutions such as disclosure registers, as a means of staying abreast of international AI governance developments. Although there are no Australian jurisdictions that currently require the disclosure of ADM systems, a number of other cities and countries have started providing transparency in this manner. More information is provided in our accompanying Research Report.

Notable from the overseas examples is the common requirement that an overview description of the system or algorithm be provided. Our research supports this conclusion: any effort to provide public transparency must include descriptions of ADM systems and their purpose. The free text descriptions provided in Survey 1 by public servants were a critical source for understanding what systems were intended to do, and their potential impacts. Descriptions of systems also helps the reader understand relevant social and institutional context.

4.5. UNDERSTAND THE LIMITATIONS OF A PUBLIC REGISTER OF ADM SYSTEMS

At the same time, it is important to understand what a public register cannot do, as well as cost implications. In particular we note:

1. **The risk of unrealistic expectations:** agencies, legislatures and the general public may place too much faith in a disclosure model, for example, as a source of complete relevant information, and as the way to address risks arising from the use of ADM systems. Transparency alone cannot resolve the risks of AI, such as bias and privacy/security issues.

2. **Insufficient as notification:** a public register of algorithms or ADM systems does not address the separate obligation under administrative law and good administrative practice, to *notify* an individual of how and why a decision about them has been made, and on what basis. Members of the public cannot be expected to be aware of the contents of a public register unless explicitly referred to it, and if it is provided in a format, and language that can be unambiguously understood by members of the public.

[18] Daniel Hurst, 'Australian Intelligence Agency Advised Departmental Discretion on Using Chinese Equipment 14 Months Ago' *The Guardian* (Article, 10 February 2023).

3. **A register is not public engagement or participation:** the existence of a register does not address calls for the public to have a say over ADM or AI use, which would require notification, and public participation, in advance of a system going into use.

4. **Resourcing:** government agencies are typified by overstretched resources. Additional compliance requirements, however small, can be expected to have a cost to agencies.

5. **Excessive/inadequate information:** if the definition (and practical interpretation) of targeted systems for disclosure are too narrow or broad, then the information that is the most essential for disclosure may be excluded, or otherwise lost amongst excess data.

4.6. IDENTIFY (INTERNALLY AND PUBLICLY) A RESPONSIBLE OFFICER OR TEAM

A system for assurance, and/or transparency and effective external oversight requires a designated person or multidisciplinary team responsible for identifying new (or sufficiently amended) systems requiring reporting/assurance. It was not evident to us that such people or teams existed within NSW government agencies, or at least who could easily be identified.

Clear allocation of responsibility could be effective for both enhancing proper and safer implementation *and* identifying opportunities for beneficial automation. This also links to our observation above regarding terminology and the efforts required in this project to develop an understanding of the mapping with reporting organisations. To the extent that external reporting or transparency is expected, the more people who separately hold responsibility for doing so, the more room there will be for differences in interpretation, and the more work (and repetition of work) will need to be done to build understanding of what is required.

We note that the US federal government has recently proposed requiring agencies to create 'Chief AI Officers' in a draft federal policy on *Advancing Governance, Innovation, and Risk Management for Agency Use of Artificial Intelligence.*[19] Related proposals have been made in Australia, and within NSW.[20]

[19] Office of Management and Budget, *Advancing Governance, Innovation, and Risk Management for Agency Use of Artificial Intelligence* (Draft Guidance, November 2023).

[20] James Martin Institute, *Leadership for Responsible AI: A Constructive Agenda for NSW* (Report, 2023).

4.7. CONSIDER HOW EXISTING REPORTING MECHANISMS MAY ASSIST IN PROVIDING TRANSPARENCY

Transparency does not necessarily mean creating a new public register from scratch. Existing mechanisms for the reporting of public activity which we used for our analysis of publicly available material (such as mandatory annual reports and other disclosures) could be a stepping stone to systematic reporting of automation by NSW government departments, agencies, and local councils. The best examples of annual reports identified with this method already include much of the data about ADM systems that interested audiences could reasonably expect to be placed by default in the public domain. In the alternative, government could consider revising the existing GIPA Act list of information that agencies are obliged to make available as open access information and include a requirement to report at least certain ADM systems.[21] The mapping initiative within the Health portfolio described in the Research Report reinforces the importance of building any compulsory reporting or registration as part of existing procedures, such as a step in the current procurement process and guidelines.

The most important point is that a consistent approach is needed across government. At present, there may be more information published about automation across the NSW public sector than is generally appreciated, but finding this information is a labour-intensive exercise, and much of the reporting lacks important details. If government were to decide that a register was too resource-intensive, or premature, guidance about this reporting could be a first step, or preliminary step, which could facilitate more comparable and useful data in coming years, without significantly increasing the existing administrative burden.

Relying on existing publications on official websites would have downsides. Agency websites lack a common architecture, and it is not always obvious where information is located. For the purposes of this research, considerable active human review was required and although the dataset produced is useful, it has a degree of uncertainty embedded within it. Central reporting would overcome some of these problems, and perhaps facilitate knowledge and information sharing within government as discussed above.

[21] *Government Information (Public Access) Act 2009* (NSW), s 18.

05. A STARTING POINT, NOT AN END POINT

This Executive Report, the accompanying Research Report and the data on which they are based, together create a snapshot – or rather, a set of snapshots – of ADM and AI use in the NSW government departments, agencies and local councils. These snapshots reflect the position as of mid-2023, less than a year after the launch of ChatGPT heightened interest in the deployment of AI across both public and private sectors. The range of examples we have identified may assist in thinking about which kinds of systems warrant further transparency or accountability measures based on the various kinds of legal and social implications to which different systems and uses give rise. Specifically, there are certain patterns of developing use of ADM systems that perhaps warrant more attention than they have received to date, such as uses by local councils.

For departments, agencies and local councils, both these Reports, and the process of responding to our research project, may contribute to understanding, learning and developing best practice. We observed some learning through the course of the project, where the process of answering the questions made some entities more conscious about the systems they are operating or considering. After the survey period for this research, NSW departments and government agencies have further engaged with the NSW Ombudsman's Office and provided updated information about ADM systems. We would expect that these Reports and our results will trigger awareness of other systems we have not captured here. In other words, this Report, and the research underlying it, are part of a broader, necessary process of building knowledge about ADM systems and their impacts.

This project is innovative globally, with few examples elsewhere of mapping of ADM in government. We are grateful to have had the opportunity to undertake this work. We note our hope that the methodology of the project, as well as the specific datasets gathered in this project may be a potential source of further research insights. We look forward to continuing the conversation.

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Research ethics approval (UQ Ethics #2023/HE000009, approved 3 April 2023) was sought through the University of Queensland. University of Queensland researchers conducted the survey and communications with contacts provided by the NSW Ombudsman's Office. Data collection and data analysis of all surveys and interviews has been conducted independently under that human research ethics approval.

Participation by NSW government entities in the project has been voluntary. The NSW Ombudsman's Office did not use investigative powers to gather information for the project.

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All responsibility for the research, data, and analysis presented in this Report lies with the authors.

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