Tax Officer 2030: the exercise of discretion and artificial intelligence

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Abstract

This article examines the principles underpinning effective decision-making and the exercise of discretion in Australian taxation law in the context of the development of digital government and the increasing use of artificial intelligence. The article proposes a framework for the exercise of discretion by the Australian Taxation Office (ATO) in decision-making involving expert systems and emerging supervised machine learning and deep learning, consistent with administrative law. The framework is of wider relevance to public sector delegated decision-making and it draws on relevant principles and case law. It identifies the capabilities the ATO requires to implement this framework and maintain public trust in the new systems.

Keywords: Tax administration, discretion, decision-making, public trust, digital government, AI

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1.   INTRODUCTION

The Organisation for Economic Co-operation and Development (OECD) has highlighted two dimensions facing post-COVID governments: a trust deficit and exponential digital change (OECD 2020, p. 5; OECD, 2022). Bentley (2020, p. 376) analysed the changing nature of tax administration and its workforce in a literature review across multiple disciplines. That article demonstrated the importance of building and developing the necessary skills and capabilities of tax officers, which will achieve the dual result of increasing citizen trust and well-being, and protecting the revenue base.

Building digital government with the requisite skills and capabilities to ensure its efficacy and maintain public trust remains a major policy plank of Australian governments through the Commonwealth Digital Transformation Agency, which in turn supports State governments and agencies (Digital Transformation Agency, 2022, pp. 5, 9). Important for this article is that the two aspirations of the Australian Taxation Office (ATO) embrace both digital transformation and building public trust and confidence in the tax system (ATO, 2021, p. 12).

However, the efficacy and public trust impacts of several major digital government initiatives have been brought into question, as seen in submissions to the 2021 Senate Standing Committee on Finance and Public Administration References Committee Inquiry into the current capability of the Australian Public Service (APS), for example that of the influential independent Centre for Policy Development, which was scathing in its assessment of ongoing critical delivery failures across Australia (2021).

These difficulties are not surprising as evidenced by the Australian Public Service Commission (APS) submission. The APS as the body responsible for oversight of the Commonwealth public service noted that in 2021, '[t]he APS Workforce Strategy is being finalised' to 'set a whole-of-enterprise direction' and 'is likely to focus on … action areas' including '[e]mbracing data and technology' (APS, 2021, pp. 13-14). It is clear from the submission from government agencies that while capability is critical, the work to deliver it is in its very formative stages and will take some years to deliver.

For tax administration, public trust is fundamental to engaging with taxpayers, ensuring voluntary participation, and building and maintaining high levels of compliance, as has been established by decades of research nationally and internationally in a context of technological change (Kirchler, Hoelzl & Wahl, 2008; Gangl, Hofmann & Kirchler, 2015; Bentley, 2016; ATO, 2022).

The OECD argues that the incorporation of digital technologies 'into the design of policies and services from the outset can help generate improved human and organisational capacities for information and knowledge management, especially for service design, and favour more convenient and tailored delivery' (OECD, 2020, pp. 9-10). Achieving this effectively reinforces the necessity to develop the digital knowledge, mindset and skills among all public officials (OECD, 2020, p. 10; OECD, 2021a). In an earlier framework setting out the facets of a data-driven public sector, the OECD identifies that a core requirement to maintain public trust is to adopt an ethical approach to guide decision-making using data and digital capabilities (OECD, 2019, p. 130). These characteristics are fundamental to the effective operation of the future tax system.

As digital government and tax administration expands and creates multiple dimensions of interaction with citizens across platforms and ecosystems, the nature of decision-making and the exercise of discretion will remain critical to maintain public trust (Gavaghan et al., 2019). Australian tax administration has faced this challenge many times over the years during its development. One of the most significant examples was the introduction in 1992 of the binding tax ruling system in Part IV of the *Taxation Administration Act 1953* (Cth) in conjunction with the introduction of self-assessment. The ATO had to build public trust in the new system over a period of years, while transforming its own capabilities.

The challenge is set out in the joint *Automated decision-making better practice guide* (Commonwealth Ombudsman, Office of the Australian Information Commissioner & Attorney-General's Department, 2019) (2019 Cth Guide) by a cross-agency collaboration between the Commonwealth Ombudsman, the Office of the Australian Information Commissioner and the Commonwealth Attorney-General's Department. It emphasises the complexity of applying rapidly emerging technologies to the web of legislation, delegations and internal guidelines in administrative decision-making. For tax administration, it requires framing any tax decision using a principle-based approach by tax decision-makers, who are appropriately trained to make such decisions with the support of those technologies.

This article examines the principles underpinning effective decision-making and the exercise of discretion in Australian taxation law in the context of the development of digital government and the increasing use of artificial intelligence (AI). The scope of this article is limited to the exercise of discretion by tax officers exercising delegated authority in fulfilling the functions of the tax administration. It further narrows this scope to the exercise of discretion by delegated decision-makers using expert systems, emerging supervised machine learning and deep learning. It uses the term 'expert and emerging systems' broadly to cover expert and advanced systems. While the 2019 Cth Guide still uses the term 'automated', the focus of this article is on AI-driven systems rather than basic automation (Commonwealth Ombudsman et al., 2019, p. 5).[1]

The article proposes a framework for the exercise of discretion by the Australian Taxation Office (ATO) in decision-making involving expert and emerging systems that remains consistent with existing administrative law and tax administration. The framework is adaptable to and consistent with the development and implementation of supervised machine learning and deep learning as these become predominant over time (Zalnieriute et al., 2019).

The framework is of wider relevance as these decisions are analogous to much public sector delegated decision-making and it draws on relevant principles and case law currently applied. It identifies the capabilities the ATO requires to implement this framework and maintain trust in the new systems (ATO, 2022).

The article, in section 2, considers the principles set out by the Administrative Review Council (ARC) in its report to the Attorney-General in 2004 and their subsequent application through relevant recent cases and administrative developments including the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019). Section 3 re-examines the

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[1] This article does not explore general ethical challenges of AI or taxation. For these see Department of Industry, Science and Resources (2019) and van Brederode (2019).

legal theories from which the current law is derived to determine whether recent approaches will allow legal reasoning and judicial interpretation to remain internally consistent as digital technologies emerge. In doing so, it identifies the importance of moving the view of the exercise of discretion as occurring at a single point in time, to one that reflects its reality as a process.

In view of the clear direction of digital government and decision-making (Gavaghan et al., 2019; ATO, 2022), section 4 takes this argument and recommends an updated framework for the exercise of discretion using expert and emerging systems in decision-making, which is particularly important for the ATO. While judicial review of decisions involving the administration of the tax system is significantly constrained or excluded by the *Administrative Decisions (Judicial Review) Act 1977* (Cth) and privative clauses such as section 175 *Income Tax Assessment Act 1936* (Cth), and Division 350 of Schedule 1, *Taxation Administration Act 1953* (Cth), the framework and principles remain applicable to both internal and external reviews of tax decisions and how they can be made in a way that best ensures public trust.

The recommended framework for tax officers to make decisions therefore builds on the ARC principles, addresses the issues raised in national and international reports, particularly the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019), and provides a strong basis for delivery of the objectives of the ATO Corporate Plan (ATO, 2022). Section 5 identifies the capabilities required to implement the framework, particularly for tax officers as they use expert and emerging systems. The framework and capabilities are relevant to delegated decision-making by public servants more generally and support public trust in digital government as it develops and matures.

While the article is framed around the particular question of administrative decision-making, it is important to note the broader context. AI itself is developing rapidly. Legislative and regulatory frameworks are struggling to catch up. The Australian Human Rights Commission released a discussion paper in 2019 and a Final Report in 2021 (Australian Human Rights Commission, 2019, 2021), discussed in detail below, which canvass many of the issues facing society and the need for an effective response. Internationally, developments vary between jurisdictions, with limited consistency of approach (Walters & Novak, 2021, pp. 39-70; OECD, 2021a). However, analysis of solutions to particular issues of regulation and administration, such as those considered in this article, involves deepening understanding of how to extend appropriately the particular to the general (Walters & Coghlan, 2019).

2.   ADMINISTRATIVE LAW REVIEW PRINCIPLES

2.1   The Administrative Review Council report (2004)

In 2004, the Administrative Review Council, one of the most expert groups in Australia on administrative law, considered a range of submissions to develop its seminal report to the Commonwealth Attorney-General, 'Automated assistance in administrative decision making' (ARC, 2004). It noted that its functions under section 51 of the *Administrative Appeals Tribunal Act 1975* (Cth) (AAT Act) included recommending improvements to the system of administrative law and to advise on ensuring under section 51(ab) that 'discretions are exercised, or the decisions are made, in a just and equitable manner' (ARC, 2004, para. 1.1). The report therefore provides a baseline position as at 2004, and sets out principles, which remain largely applicable, but now require improvements and some changes to reflect the nature and use of current expert

and emerging systems. The report remained the baseline position in the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019, p. 3).

The use of artificial intelligence (AI) in expert and emerging systems is developing rapidly. Reviews and cases have focused, as a foundational issue, on whether final application of the exercise of discretion is primarily determined by the system and not personally by the human decision-maker or whether the human decision-maker genuinely exercises a discretion. In 2004, the ARC put it that the question to ask was whether the system 'fettered any discretionary power of the decision maker' (ARC, 2004, para. 2.6). The ARC distinguished this situation from decisions where expert and emerging systems 'guide a decision maker through relevant facts, legislation and policy, closing off irrelevant paths as they go' or act 'as a decision-support system, providing useful commentary – including about relevant legislation, case law and policy – for the decision maker' (ARC, 2004, para. 2.6).

The ARC recommendations provide a systematic structure for ongoing review of decisions made and supported by AI, which still holds and is built on in the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019).

As a starting point, the ARC recommended that decision-making done by or with the assistance of expert systems should follow the principles that underlie administrative decision-making; principles developed to ensure that decision-making is 'consistent with the administrative law values of lawfulness, fairness, rationality, openness (or transparency) and efficiency' (ARC, 2004, vii and para. 1.4, citing French, 2001, p. 30). The principles that follow, flow from, and give meaning to these values in the context of AI, consistent also with the ongoing requirement to build public trust.[2]

However, the development of AI means that earlier distinctions are not as easily drawn. In 2004 it was appropriate to note that neural networks that learn from large data sets are not generally suitable for administrative decision-making, as they 'do not easily provide reasons for their decisions' (ARC, 2004, para. 2.5). This is the 'black box' argument, discussed later in the article. The focus of the ARC was therefore on the extent to which rule-based systems should be used and how they should be used and maintained to ensure that the system did not fetter discretion and supported administrative law values (ARC, 2004, para. 2.6). The ARC developed principles applicable to this distinction drawn from the broader framework of administrative law, which provide a valuable guide to the extension of the law as it responds to emerging technologies. These were used in the 2019 Cth Guide, which ensured that their extension encompassed Australia's international obligations (Commonwealth Ombudsman et al., 2019, p. 6).

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[2] This concept of public trust in the administration of Government has a rich history. It owes much to Roman Law classification, which gave rise to concepts of rights and obligations between state and citizen that has influenced both European and English Law. This was seen in Magna Carta in 1215 and the six statutes that followed. They formed the basis for the Petition of Right of 1628 preceding the trial and execution of Charles I and the subsequent Bill of Rights and the Act of Settlement adopted during the Glorious Revolution of William and Mary in 1689. However, the 19th century saw judges and writers develop the current theoretical basis underpinning the application and therefore the extension of English law as initially adopted in Australia, including that of administrative law and the principles that underpin public trust in its administration. While subsequent international legal developments, including constitutional development and human rights instruments, have proven influential, their influence is in the context of the extant law and procedure.

Those principles set out in Part 1 of the ARC Report, directly pertaining to automation that forms part of, or affects decisions requiring the exercise of discretion, can be summarised as follows (ARC, 2004), and apply equally to emerging systems. Required amendment of the principles to take account of technological development since 2004 are included in this summary, although the operational implementation to support the principles has transformed since 2004 and the 2019 Cth Guide provides a more recent, although already incomplete guide, given technological development, to how agencies should apply the principles in practice.

- Expert systems should not automate the exercise of discretion: they should not make a decision requiring that exercise unless it is submitted, with in principle support from the 2019 Cth Guide, it applies beneficially to the person affected, or it appropriately involves the person affected who either consents or requests the decision to be made (this could increasingly become the case with advanced ruling, transfer pricing or international exchange of information requests, for example) (Commonwealth Ombudsman et al., 2019, p. 9).

- Expert systems can be used as an administrative tool to assist an officer in exercising discretion. The original principle was based on current technologies and provided the automation should not recommend or guide the decision-maker to a particular outcome. This is a principle which the 2019 Cth Guide has appropriately updated (Commonwealth Ombudsman et al., 2019, p. 10) and is discussed below.

- Expert systems so used must accurately and consistently reflect government law and policy (Commonwealth Ombudsman et al., 2019, p. 10).

- If an expert system is used to make, rather than assist in making a decision, it should be legislatively sanctioned to maintain the legal principles of authorised decision-making, preferably including where the authority to override the system rests.

- Both the system's construction and the decisions made must comply with administrative law to be legally valid (Commonwealth Ombudsman et al., 2019, p. 9).

- Expert systems must comply with relevant requirements governing, in particular, privacy, disclosure, freedom of information and statements of reasons (Commonwealth Ombudsman et al., 2019).

- To comply with these principles, there should be a team which designs, constructs, maintains, monitors and tests the expert systems, which combines technical and legal and policy experts (Commonwealth Ombudsman et al., 2019, p. 18).

- This team should use the most advanced techniques to allow expert system self-evaluation and error detection (including human manipulation) and ensure that there exist comprehensive audit trails which can be reviewed (Commonwealth Ombudsman et al., 2019, pp. 19-27).

- Expert systems should be appropriately funded to support the decision-making and this extends to ensuring continuous data quality and storage, training for decision-makers, and regular updating, including contingencies to ensure decisions remain accurate pending upgrades for changes (Commonwealth Ombudsman et al., 2019, pp. 19-27).

- Expert systems must be capable of both internal review and external scrutiny (Commonwealth Ombudsman et al., 2019, pp. 19-27).

- Expert systems should take account of equity, access and service requirements of administration (Commonwealth Ombudsman et al., 2019, pp. 19-27).

In reaching its conclusions in 2004, the ARC reviewed the intelligent systems then available, including legal expert systems capable of self-learning and using neural networks that 'try to replicate the processes of the human brain' (ARC, 2004, para. 2.1).

In applying the system to administrative decision-making processes it identified the importance of applying legislation and policy to an individual's circumstances, noting that expert systems form part of the knowledge management framework whereby agencies can improve their capacity to apply a consistent interpretation of complex legal rules and policy. In the context of 2004, the ARC concluded that '[T]he main dangers associated with the introduction of expert systems for decision making will come from how the systems are used, rather than from the systems themselves' (ARC, 2004, para. 3.0 citing Fremont, 1994, p. 829) At the time it was felt that it was too difficult to construct 'an expert system that is capable of making a decision based on interpretation and representation of the law' (ARC, 2004, para. 3.1).

Now, the opposite is the case. The 2019 Cth Guide re-emphasises the importance of how systems are used and cautions agencies to 'pay particular attention … to ensure that elements of decision-making involving the use of discretion or judgement uphold the administrative law values of legality and fairness' (Commonwealth Ombudsman et al., 2019, p. 9). However, even in 2019 that meant enhancing the exercise of discretion by constraining the human element of that exercise to what humans are best at and leaving the other elements to the system.

Specifically, the 2019 Cth Guide advocated using systems: to limit discretion to where it is relevant; providing the decision-maker with the factors they should consider when making their judgment; providing the relevant evidence for the decision; and requiring clear statement and recording of reasons before the decision can be finalised (Commonwealth Ombudsman 2019, et al., p. 10). This recognises how we use systems today, for example, pre-populating tax returns and strictly enforcing the rules on how a taxpayer may or may not change or add information to ensure that they do not inadvertently exercise their discretion to break the law.

Evident through the ARC report is the tension between the increasing use of expert systems and agencies arguing that where decisions were made by those expert systems, they were not intended to require the exercise of discretion. In part, it is this ever-evolving dance down the discretionary continuum reflected in the 2019 Cth Guide, which has remained the focus of cases and commentary since. However, the fundamental issue addressed in this article, is that 'expert systems' are increasingly important components of the legal process and that the ARC Report principles now need to be applied explicitly to the whole process of administrative decision-making from the design of the AI to its use and the final decision as set out in the 2019 Cth Guide and not as evidenced in past judicial decision-making. This is a fundamental issue for tax administration as the ATO adopts the latest expert and emerging systems.

2.2   Developments applicable to the use of expert and emerging systems in tax-related decision-making

The nature of expert and emerging systems and the focus on user experience, has seen multiple digital solutions applied across government. Practical case studies can be seen across the OECD both generally (OECD, 2021a) and specifically to taxation (OECD, 2021b, chs 5 and 6; Bevacqua, 2021). The ATO has invested significantly and is among global leaders in the implementation and usage of several innovative technologies, including AI, machine learning and robotics process automation (OECD, 2021b, p. 346). Governments and the ATO are simply responding to similar advances in society, a response self-evidently essential to their effective operation and continuing legitimacy (OECD, 2021a; Executive Order 13859 of February 11, 2019[3]; ATO, 2022). The COVID-19 pandemic illustrates this.

AI comprises a wide range of sub-disciplines, including deep learning, machine learning and neural networks. It has advanced significantly from 'expert systems' considered by the ARC in 2004, and which largely comprised different levels of automation, requiring human intervention to learn. Internationally, one of the most influential legislative definitions is Section 238(g) of the United States John S. McCain National Defense Authorization Act for Fiscal Year 2019.[4] It defined AI to include the following:

(1)   Any artificial system that performs tasks under varying and unpredictable circumstances without significant human oversight, or that can learn from experience and improve performance when exposed to data sets.

(2)   An artificial system developed in computer software, physical hardware, or other context that solves tasks requiring human-like perception, cognition, planning, learning, communication, or physical action.

(3)   An artificial system designed to think or act like a human, including cognitive architectures and neural networks.

(4)   A set of techniques, including machine learning, that is designed to approximate a cognitive task.

(5)   An artificial system designed to act rationally, including an intelligent software agent or embodied robot that achieves goals using perception, planning, reasoning, learning, communicating, decision-making, and acting.

AI systems learn in ways ranging from those requiring human intervention, to scalable learning using large datasets that can be structured or unstructured, with little human oversight and tested with techniques such as generative adversarial networks. Datasets can include sensory, oral and visual content seen in autonomous vehicles, speech recognition and facial recognition. Artificial neural networks are programmed in software to simulate the human brain.

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[3] US Presidential Documents, 'Maintaining American leadership in artificial intelligence', Executive Order 13859 of February 11, 2019, Document 2019–02544, Federal Register, vol. 84, no. 13, pp 3967-3972 (14 February 2019), https://www.govinfo.gov/content/pkg/FR-2019-02-14/pdf/2019-02544.pdf.
[4] Pub. L. No. 115-232, 132 Stat. 1636, 1695 (Aug. 13, 2018) (codified at 10 U.S.C. § 2358, note). This definition is more comprehensive and therefore helpful than most, including the OECD definition (OECD, 2019a).

Coglianese and Lehr (2017, p. 1167) suggest that there are three principal properties of machine learning of most concern in considering legislation. The first is machine learning's self-learning property, as 'the results of algorithms do not depend on humans specifying in advance how each variable is to be factored into the predictions'. The second is its 'black box' nature as 'results of machine learning analysis are not intuitively explainable and cannot support causal explanations of the kind that underlie the reasons traditionally offered to justify governmental action'. The third is the speed and complexity of machine learning that supports 'uses in which the algorithm produces results that can shorten or potentially bypass human deliberation and decision making' (Coglianese & Lehr, 2017, p. 1167).

However, as implicitly identified in the Section 238(g) definition, these systems are designed, developed and implemented by humans. In two recent examples, the Federal Court of Australia considered issues with relatively straightforward automation that failed in achieving the desired outcome. They supplement the ARC Report (2004) and 2019 Cth Guide with observations that inform the application of administrative principles to decisions involving the exercise of discretion and artificial intelligence. In both examples, which do not involve complex systems of the kind defined by Section 238(g) of the United States John S. McCain National Defense Authorization Act it could be concluded that human error and capability was the fundamental issue.

The first example is referred to as Robo-debt, which from a precedent perspective was unfortunately settled before the Federal Court could hear the matter. By way of brief background, the Federal government, through its agency, Centrelink, and with the direct involvement of the ATO, designed an automated online compliance program that identified debtors using a data matching and averaging system applied to fortnightly earnings provided by the ATO (not modelled for over-calculation of debts) rather than using actual earnings as required under the application of the law. It went further and, in addition to its extra-legal computational short-cut, sought to place the onus on the purported debtors to disprove their debt if they disagreed, that is reversing the onus of proof (Victoria Legal Aid, 2019; Carney, 2018). It was at best an example of poor administration (Commonwealth Ombudsman, 2017) and the government added to its own pain by arguing it was not – which led to legal action, although the government then settled out of court before a hearing.

How did it happen? Carney (2019, p. 4) argues that there were 'serious structural deficiencies and oversights in the design and operation of accountability and remedial avenues'. Those relevant to the automation and delegated decision-making rather than the review process were, he argues the absence of standards governing the design and implementation, and a failure of oversight and review (Carney, 2019, pp. 5-6). Had the approach recommended by the ARC (2004) been taken by the ATO and Centrelink, 'Robo-debt' would not have occurred, as the system and its application did not accurately reflect government law and policy, let alone the other requirements of the ARC framework. It is a salutary lesson that focuses attention on the requirement for the ATO and other government departments and agencies to develop systems and process that do reflect law and policy, using staff capable of designing, implementing and operating such systems. This is particularly important for the ATO, as it leads many areas of digital transformation for the Federal Government.

Pintarich v Deputy Commissioner of Taxation[5] provides another example of poor design and implementation. A comprehensive legal and ethical analysis is provided by Datt and Woellner (2021). In this case an automated system generated letters for authorised tax officers, who keyed into the computer system the relevant information. The letter provided on a chosen template the outcome of their decisions made on tax payable and, if applicable, interest and penalty charges.

The technology in question used by the ATO appears rudimentary and seemed on the evidence[6] to use a number of set templates into which data were input to generate the letters. In this case, the authorised decision-maker asserted that the system generated a document, which the decision-maker did not see or sign, that did not reflect what he thought he had put into the system. He asserted that despite the apparent decision conveyed in the letter, such a decision had not been made and the system had applied the data entered in the wrong template. Accordingly, the Commissioner of Taxation argued that the actual decision on remission of the general interest charge in question was made subsequently and resulted in a different result from the automated letter, which was then conveyed to the taxpayer.

Interestingly, the issue of the effect of admitted human error in keying information into the system was not directly considered. On appeal to the Full Federal Court, Kerr J, in a minority decision, accepted that a decision had been made during the creation of the initial letter. His Honour noted that automated decisions are unexceptional in their use 'by Australian government departments for bulk decision making. Only on administrative (internal or external) and judicial review are humans involved'.[7]

The facts portrayed by the Commissioner were framed to suggest 'the system' had made an automated decision. The description of the rudimentary nature of the system suggests that it automatically printed the information keyed into it in the chosen template. The automation seems related to the template chosen, albeit unwittingly by a hurried or less well-trained user. Care must be taken not to fall into the trap of assuming that simply using a machine means that the operator is no longer responsible. If a truck reverses into a building because the driver put it into reverse by mistake, it does not mean the truck and not the driver is responsible.

Although their Honours did not directly consider this point it was the crux of majority and minority judgments. Kerr J, focusing on the decision, held that:

> It would undermine fundamental principles of administrative law if a decision maker could renounce as 'not a decision' (and not even a purported decision) something he or she has manifested by an overt act taking the form of a decision simply by asserting there was a distinction between their mental processes and the expression of those mental processes in the overt act. There is no requirement that to be a decision the overt manifestation of the decision must align with the subjective intention of, or the conclusion intended by, the decision maker. It does not cease to be a decision for such a reason.[8]

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[5] [2018] FCAFC 79; 108 ATR 31.
[6] Ibid [18]-[19].
[7] Ibid [47].
[8] Ibid [55].

Moshinsky and Derrington JJ in a majority decision found, following *Semunigus v Minister for Immigration and Multicultural Affairs*[9] that the authorised officer had not reached a conclusion on the remission of the general interest charge, and therefore no decision was made. The requirements for the exercise of discretion in reaching a decision were met only subsequently. Their Honours held:

> In order for there to be a decision to remit GIC under s 8AAG of the [*Taxation Administration Act 1953* (Cth)], we consider that there needs to be both a mental process of reaching a conclusion and an objective manifestation of that conclusion. In the present case, on the basis of the findings of the primary judge (which are not challenged on appeal) there was no mental process of reaching a conclusion.[10]

A further factor on which the majority differed from Kerr J was in accepting that this might lead to unfairness, while noting that it is 'unlikely to arise very often'.[11]

The position of the majority in *Pintarich* is consistent with the ARC (2004) principle, discussed above, that expert and emerging systems should not automate the exercise of discretion: they should not effectively 'make' a decision requiring that exercise. That was the effect of the automated letter sent in *Pintarich* to the taxpayer (even if the level of automation claimed by the Commissioner does not seem credible). While one can have sympathy with the minority view that automated decisions are unexceptional and not to accept them could lead to unfairness, this position conflicts with the ARC (2004) principle that both the system's construction and the decisions made must comply with administrative law to be legally valid.

Hong and Hui (2019, p. 892) argue that the pragmatic approach of Kerr J 'recognises that the legal conception of what constitutes a decision should evolve to reflect the reality of how decisions are made in the age of digitalisation'. This is 'clearly preferable', they state, 'to the rigid approach of the majority in *Pintarich* that suggests discretion can only be exercised by a human decision-maker' (Hong & Hui, 2019, p. 892). This argument seems to miss the point that the legal requirements for the exercise of discretion were not met.

The courts should not be put into the position of their Honours in *Pintarich* that they must second guess or reconstruct processes to compensate for poorly designed or improperly used systems. The implications of automation, as artificial intelligence becomes more generally applicable, simply place the responsibility on those using these systems to assist in or make decisions, to ensure that the systems meet the requisite design and implementation that allows for the making of a valid decision and that those using them are properly trained. Nonetheless, the changing nature of systems means that the approach to recognising the valid exercise of discretion does need to change.

Before examining the nature of the exercise of discretion, it is important to determine whether administrative law principles themselves have changed since the 2004 ARC Report. Ng et al. (2020, pp. 1045-1048) review the principles recognised as underlying Australian administrative law and conclude that commentators remain in broad

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[9] [2000] FCA 940; 96 FCR 533.
[10] *Pintarich v Deputy Commissioner of Taxation* [2018] FCAFC 79, [140].
[11] Ibid [151]-[152].

agreement both before and after the ARC (2004). They review the implications of the principles as they are applicable to different examples of administrative automation and related areas of the law such as privacy, access to information, and freedom of information (Ng et al., 2020, pp. 1048-1055).

Gaps they identify focus largely on application of the traditional principles and how they might adapt or vary to apply to automated administration rather than questioning the substance of the principles. Ng et al. (2020, pp. 1061ff.) draw on international principles, human rights legislation and case studies to derive recommendations for reform in Australia. These are useful and those that are relevant to automation and the exercise of discretion in delegated decision making by the ATO are incorporated into the discussion below.

Earlier decisions rely on the existing administrative principles. There is nothing coming out of the cases which suggests that they should change. However, what needs further analysis is the nature of a decision. The roll-out of digital government creates some urgency. However, it does not require subversion of administrative law principles. Rather, it requires a better understanding of how those apply where it involves systems using AI.

This is because, as argued by Ng et al. (2020, p. 1042), system-wide automation of government decisions means that 'deficiencies in the design, implementation or operation of automated systems have the potential to violate the rights of a large number of individuals. Therefore, public law should ideally adopt an approach that is also capable of addressing systemic issues'. This was evident in both Robo-debt and *Pintarich*.

How then to address the design of decision-making requiring the exercise of discretion in the context of AI: particularly, in the context of developments in AI and machine learning described above but not present in the two cases considered? It is logical to take account of all elements of the making of a decision, leading to the exercise of discretion. As argued by Ng et al. (2020, p. 1043), decision-making in the age of artificial intelligence has become a continuum given the nature of the systems that are increasingly embedded at different stages of the decision-making process. If different aspects of the process along that continuum are integral to the exercise of discretion, implicitly or explicitly, the administrative law governing that exercise cannot ignore it.

Analysis to date suggests that instead of examining where and how discretion is *actually* exercised (as a process), administrative decision-making is judged in its construction, exercise and review on traditional conceptions of where it *should* be exercised (as a single event). Using traditional concepts to understand decision-making in a digital context may in fact limit the application of administrative law values and principles. It precludes judicial consideration of the complete decision-making process.

It is critical to understand the processes of decision-making as they apply in a world of AI, rather than trying to force AI into existing concepts. The former protects the integrity of administrative law principles as the law responds to digital government. The latter disconnects administration from digital reality with a potential consequent loss of public trust. This is important for administrative law as it goes to the heart of why we have underlying principles.

Albu and Flyverbom (2019) note the limited evidence supporting transparency or openness in themselves as a driver of public trust. Rather, confidence in the system is driven by recipient perception of what and when information is disclosed, their perception of its clarity, accuracy and relevance (Ananny & Crawford, 2018, p. 980; Schnackenberg & Tomlinson, 2016) and their experience (Gangl et al., 2015). Administrative law principles must therefore evolve to meet public expectation and experience if they are to maintain their relevance.

A practical dilemma, therefore is whether the principle of delegation requiring the exercise of discretion can include a component of automated decision-making. Neither the majority nor the minority in *Pintarich* suggested this was an issue. The ARC (2004, paras. 4.1.3-4.1.5) concluded that the *Administrative Decisions (Judicial Review) Act 1977* (Cth), AAT Act and *Acts Interpretation Act 1901* (Cth) provide that the power of delegation is to a specified person or person holding, occupying or performing the duties of a specified office or position and the case law then extant did not provide any guidance as to the use of automated decision-making. Therefore, the ARC recommended that the use of an expert system should be legislatively sanctioned.

This will become semantic as AI becomes ubiquitous, although a legislative solution is discussed and included in the recommendations below. The pressing question is what constitutes a decision and how is it exercised where AI is part of the process.

3. LAW IN CONTEXT

3.1 Coping with change

Ananny and Crawford (2018) identify the different typologies of transparency, which provide useful definition to both legal decisions and the concept of transparent legal decision-making. Particularly important to transparent legal decision making that requires the exercise of discretion is the associated requirement to provide reasons for the decision, reviewable under the *Administrative Decisions (Judicial Review) Act 1977* (Cth).

Ananny and Crawford (2018, p. 976, citing Fox, 2007) classify this as transparency creating hard accountability with the power to sanction. It is also both upward and inward transparency in the sense that those subject to the rules and external to the system can observe the process of decision-making by those given the power to make the decisions. The transparency sought is both transparency as event, where there is a specific outcome, and transparency as a process, comprising the legal rules and procedures 'that define the conditions of visibility' (Ananny & Crawford, 2018, p. 976, citing Heald, 2006, pp. 29-32). It also comprises transparency in retrospect, as each decision is reviewable, and transparency in real-time, as the accountability is ongoing and subject to continuous surveillance by interested internal and external actors.

This analysis demonstrates the complexity of legal decisions and why changes to the application of administrative law principles have such broad effect. They are also supported by and support both legislation and case law and are subject to the mechanisms by which change is given effect in the legal system. Therefore, considered below are the theoretical underpinnings to reinforce the importance of change to ensure that the law remains a living reflection of the society that it regulates.

The points at issue in this article are the nature of a decision, the meaning of the making of a decision and the exercise of a discretion. The brief analysis that follows focuses on the application of elements of legal theory to how artificial intelligence interacts with decision and decision-maker as a process.

The approach from the analysis thus far suggests that decisions requiring the exercise of discretion in a world where AI will form part of almost any administrative process, must move from a consideration of the end decision-making event to a consideration of the process as a whole, from design to implementation. This does not require legislative intervention. The ARC suggests that legislative sanction should authorise such decisions as AI becomes more than a useful tool in decision-making. That was true in 2004 but should no longer be necessary, for every administrative process will soon require such sanction. Arguably, it is simply the role of judges to understand and draw this distinction in applying proven administrative law principles.

Where there remains a significant gap, as illustrated by Robo-debt and *Pintarich* and reinforced in the APS submission to the review of its workforce (2021), is workforce capability in the transition to the application of digital government. The ATO must be held accountable on the Ananny and Crawford analysis (2018), across the whole process. Judges will also require training and expert support. Otherwise, it is likely to reinforce a myth of 'Black-Box Government' (Coglianese & Lehr, 2019, p. 6)

Legal reasoning and its role in the development of the law is fundamental to the operation of the common law. There has been much debate over the scope of judicial discretion, whether, as Dworkin (1997, p. 24) argues, principle-based decision making ensures there are no gaps in the law and there is one right answer, or as MacCormick (1978, p. 246) suggests, gaps are continually being filled 'by extrapolation from what is already there'. From either perspective, it is legitimate for judges to embrace the use of technology as part of the world we live in and interrogate and determine how it should be applied across the decision-making continuum.

Arguments for justice across the theoretical spectrum from Rawls (1971), who argued for distributive justice to counter discrimination and inequality, to Nozick (1974), who argued for a minimalist state constrained only by the non-violation of individual rights, require the exercise of human decision to ensure an intrinsic morality, which provides legitimacy to the system and maintains public trust. Yet that human decision stands within and is integral to the legal system.

Therefore, justice arguments, whether in the context of redistribution of property, proper recognition of human rights, or human interaction with and use of technology, require an understanding of and engagement with the formalism of law to effect any change. It goes beyond simple case-by-case judicial reasoning and 'gap-filling' to a proper engagement with existing legal structures and narratives.

Ackerman argued in 1984 (p. 67) that it was vital to understand the formalism of law with the development of information technology, in order to 'engage in meaningful dialogue with the model builders concerning the basic assumptions that guided them in their construction of the social reality with which the law will have to deal'. The constructivist arguments have strongly influenced the development of tax law. Legislation and case law demonstrate the need to reflect a broad temporal frame (Kelman, 1981) in considering the activities of taxpayers (in determining intent in the

ordering of their affairs). This approach is consistent with the application of administrative law decision-making embedding AI.

Lyotard, in *The Postmodern Condition* (1984), explores the intersection of science and justice. While his arguments are contested (Jameson, 1984), he focuses on the concept of narrative as a context and legitimation for the scientific method (Lyotard, 1984, p. 35). This starting point is therefore useful where he argues that science or laws must satisfy a certain set of conditions to exist (Lyotard, 1984, p. 8) – the formalism of law – but where these conditions are themselves valid, just or ethical because they are consistent with the contextual and particular metanarrative and validation surrounding their exercise and interpretation.

Applying it to AI or automation, to be scientifically legitimate to meet that definition, for example in Section 238(g) of the United States John S. McCain National Defense Authorization Act, the AI or automation must be designed in accordance with the required formulation for those purposes. So too must the legal rule governing the subsequent exercise of discretion where that engages with AI or automation. Nonetheless, the scientific legitimation, the legal rule and the exercise of discretion are subject to a metanarrative to provide context, rationale and completeness.

As Davies (1994, p. 226) argues, 'the ideal of scientific completeness is logically unattainable. Thought which is systematised necessarily relies upon assumptions which cannot be demonstrated in the terms of the system itself'. This metanarrative is not discernible as a grand narrative that is universally consistent and ubiquitously applied. Rather it recognises that each person's interaction with the law and each decision exercising the adjudication or discretions permitted or required by the law, is influenced by the multiple complexities of the individuals and influences at that point of time in their particular situation (Commonwealth Ombudsman, 2017, pp. 19-22). Administrative law recognises this by delegating discretion.

The metanarrative does require for legitimacy a communitarian overlay of justice on any decision, even when taken within the appropriate legal framework. Hence the ongoing relevance of Ackerman's call (1984) to understand the basic assumptions used in the construction of any model of decision-making. Only thus can the metanarrative be satisfied against the claim to rights by citizens, whether constitutional or inherent, in the context of societal issues dealt with in Royal Commissions such as the Royal Commission into Aged Care Quality and Safety (2021) and the Royal Commission into Institutional Responses to Child Sexual Abuse (2017) or systemic issues such as legal and administrative rights of taxpayers (Bentley, 2007, ch. 2).

To put it simplistically, the Australian legal system is arguably rights-based under the *Commonwealth of Australia Constitution Act 1900*, but those rights are limited and human decision-making is an inherent component of any limitation. Such limits are imposed by law under the inherent rules of recognition of the right to limit. Adjudication rights of some kind (which are more limited in administrative law under the *Administrative Decisions (Judicial Review) Act 1977* (Cth)) prevent the arbitrary exercise of state power against rights claims.

3.2   Decisions as process – changing how administrative law principles are applied

As noted above, legal change is messy, particularly in a common law jurisdiction and even messier in a federation like Australia. Nonetheless, the common law provides for change.

My hypothesis is that the administrative law provides for judges to move from traditional concepts of exercise of discretion as a single event to how discretion is actually exercised where decisions embed advanced automation or AI, that is to recognise exercise of discretion as a process. To do so will not only address a gap in the effective oversight of decision-making, but also provide the basis for more effective administrative law by design, that understands the embedding of AI rather than seeing it as simply an add-on or tool.

It is generally accepted that the rules governing change in law do not preclude the concept of law as process. Much of the debate over the logic of legal systems and how they change focuses on exactly this tension found in the duality of law as both a point in time subject to, for example, the instance of judicial adjudication and the creation of precedent, and its continuity as a constituted system of rules, doctrines, principles and policies (Dworkin, 1997; MacCormick, 1978; George, 1999). This is particularly important in the context of administrative law (French, 2001).

In formal adjudication in the common law, change requires application of the principle of derogation, that is, the framing should normally be subject to precedent (Harris, 1979, pp. 34-35). Under the principle of subsumption judges try to connect the rules deriving from superior and inferior sources such that they do not contradict. As Raz (1970, p. 34) points out, we are concerned with a 'momentary' legal system, that is one based in the current time, but drawing together both historical and current decisions into a consistent narrative.

In the same way with AI, the formulation of the rules that shape the model, for example, the construction of the algorithms and the assumptions on which they are based, form part of decisions subsequently based on that model. The rules need to be sufficiently explicit so that the process of the decision from human intervention in the design to the human adoption of the output from the model can be assessed. This then allows for adjudication or decision-making to act in a current moment of the legal system, yet drawing on the application of legal rules, principles and policies throughout the process to retain the integrity of the system and give effect to the duality of law. It does not preclude change, for the decision-maker can exercise discretion to contradict or annul in a decision today, a process which was accepted yesterday, or given a different interpretation.

If we accept the legal system as process, with a metanarrative to give it context,[12] each decision may well be momentary as Raz suggests, however the decision depends on all its constituent elements over time. Derrida argues in the context of law's structures, that we should understand them and their parts through both actively undoing, decomposing and desedimenting or through recognising its own deconstruction (Derrida, 1983). This

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[12] Understanding that the concept of metanarrative is contested and may be viewed as a symbol of structural artifice (discussed in Deflem, 2008, p. 205).

is a useful approach to understanding algorithms and how we might assess them in the context of legal decision-making.

We can examine the ensemble of the construct of the algorithm as process, to see whether and how it should be reconstructed to suit the current moment and metanarrative, recognising that that too will change over time. The infusion of judicial and legislative interpretation ensures that our metanarrative providing context for the exercise of discretion on each individual decision remains fluid and broadly consistent with the changing law and community ideals.

If therefore, where the discretion or decision is exercised using a model, framework or system that applies to a scientific method supporting the exercise of discretion, it can be deconstructed to understand the components of the process. This is consistent with the logic applied to computational or scientific theory, where each element must be tested and found error-free for the system to work. In a decision-making model this validation, testing and articulation of the logic is equally important and should include the principles or rules governing the construction of the model just as much as it applies to the internal consistency and valid operation of the model.

The decision or discretion can then be assessed as a whole and found to be valid, even where human decision or intervention is not required at certain points. The important criterion is that the human mind was involved in the creation, testing and validation of the model leading to the decision. As the overarching metanarrative changes, whether through changes to legislation, regulation or community norms that must form part of any decision, the process must be capable of change to reflect this, so that the discretion or decision can continue to be valid in the current moment of the legal system (the law as an unfolding narrative aligned to community and public expectations).

The latter importantly then supports changing linguistic, sociological and anthropological constructs, for example, which reflect the changing societal metanarrative as it is infused into the legal system. Without the facility to change, the inherent biases that may emerge over time in the construction of the original model will otherwise go unchallenged, simply because the scientific method of the model and automation, including artificial intelligence used in that automation, is not open to review.

This approach counters an argument that every step in an intelligent system and how the artificial intelligence derives changing approaches from data lakes available to it should be available for review and consideration. While attractive at certain levels, it presupposes deconstruction of those very elements which the model provides that are beyond human capacity to comprehend. Rather, in the same way as the legal system itself is seen as valid, provided its governing rules, consequent design, architecture and operation is clear, so an algorithmic model must reflect not only validity through human design but also through valid scientific construction and application for those aspects operating at a level of sophistication beyond human capability.

The mind is exercised in those parts where it is needed to define and apply the metanarrative as applicable to the rules in question, while recognising the relevant individual contexts and associated competing rights and obligations which it is in part the purpose of the exercise of discretion to consider. At another level it is exercised in the design, construction, testing, validation and ongoing monitoring of the model. Provided these human dimensions are properly exercised, then the model should be

deemed valid without trying to reconstruct every step in a computational exercise that is now beyond segmentation at that level of detail. To take an oppositional view is to revert to a literal, positivistic view of the law not seen since before the industrial revolution.

To take an example, the valuation of trading stock at year end requires specific measurement each income year under Division 70 of the *Income Tax Assessment Act 1997* (Cth). In an aluminium smelter process no judge or delegated decision-maker has held that the exercise of discretion in valuing the liquid metal in the smelter at year end needs to be tested by disassembling the smelter to ensure the machinery is working as designed and assessing each component at each stage of the smelting process to calculate its value in its molten state. It could not be done as the value would immediately be lost.

There is no impediment in theory or practice to the administrative law changing to reflect the reality that the exercise of discretion that includes use of AI or advanced automation is necessarily a process rather than event. The process reflects the principles outlined by the ARC Report of 2004 and as updated in the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019). It also recognises all elements of the exercise of discretion from the human decisions required in the design, building, validation, operation and monitoring of the model to those required in using its outputs.

Legislative or regulatory changes or judicial decisions that significantly alter the law can alter the basis for the exercise of discretion. This will impact directly on AI and advanced automation as the model will no longer be consistent with the law unless those updates are capable of automatic integration. Even where they are, the principle for monitoring, validation and quality assurance would necessarily apply and, in the same way as written materials are updated for use by decision-makers exercising a discretion where the law changes, so too should all elements of a process that incorporates AI or advanced automation.

4.   THE EXERCISE OF DISCRETION IN THE CONTEXT OF AI

Bentley's (2007, ch. 8) analysis of the requirements for the appropriate exercise of discretion in taxation, both reviewable and non-reviewable, still stands. The essence is that decisions in tax administration should be reasonable, based on criteria or standards, and fair (Bentley, 2007, p. 296; French, 2001, p. 33). Note that this formulation goes to how decision-makers should exercise discretion and come to a decision and does not go to the far narrower conditions for review. Chief Justice French (2001, p. 36) points out that the High Court in *Minister for Immigration and Ethnic Affairs v Wu Shan Liang* approved the articulation of the court's role by Brennan J in *Attorney-General (NSW) v Quin*:

> The duty and jurisdiction of the court to review administrative action do not go beyond the declaration and enforcing of the law which determines the limits and governs the exercise of the repository's power. If, in so doing, the court avoids administrative injustice or error, so be it; but the court has no jurisdiction simply to cure administrative injustice or error. The merits of administrative action, to the extent that they can be distinguished from

legality, are for the repository of the relevant power and, subject to political control, for the repository alone.[13]

Galligan (1986, p. 4) examines a theoretical formulation of the minimum requirements for an administrative law decision, which is equally applicable to both reviewable and non-reviewable tax administration decisions (Bentley, 2007, ch. 8), and concludes:

> (a) that any exercise of powers be based on reasons, and that the reasons be applied consistently, fairly, and impartially; (b) that the reasons be intelligibly related to a framework of equally intelligible purposes, policies, principles, and rules (in general, standards) which can be seen fairly to fall within and be the basis of delegated authority; (c) that in matters of procedure and substance there be compliance with general, critical considerations of morality. Around these foundations more detailed and specific principles can be created. Their significance is that they go towards regulating the relationship between citizens and the state by stipulating the processes and principles that must be satisfied if the exercise of official powers is to be considered justifiable and legitimate. In particular they eliminate decision-making by whim, caprice, chance, or ritual; they provide the basis for identifying and eliminating arbitrariness, for developing general standards in making decisions, and for extending the requirements of fair procedures; and they open the processes of decision-making to external public scrutiny. There is then a focal point from which the decision-maker can have a critical view of [their] own decisions, and there is a basis for legal and judicial controls.

The importance of these elements to effective administrative decision-making is highlighted by French (2001, pp. 34-35) in light of high volumes of decision-making, constrained resources and the experience and capability of lower-level decision-makers who are not necessarily given appropriate training.

The Australian Human Rights Commission (AHRC) in 2021 released its Final Report *Human rights and technology*, which analyses how AI can be used effectively in Australian society while protecting human rights. Going directly to the discussion above on process, the Report sets out the individual steps in an AI-informed decision-making process as follows (AHRC, 2021, p. 39):

1. Humans procure artificial intelligence systems and define their intentions.

2. Humans define the input and design the algorithm.

3. Humans clean and label the input data.

4. In some cases, humans define the outputs of artificial intelligence systems.

5. Artificial intelligence systems define the model used and algorithms learn and adapt independently.

6. Humans decide how to apply and use the outputs.

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[13] Brennan CJ, Toohey, McHugh and Gummow JJ in *Minister for Immigration and Ethnic Affairs v Wu Shan Liang* (1996) 185 CLR 259, 272 quoting with approval Brennan J in *Attorney-General (NSW) v Quin* (1990) 170 CLR 1, 35-36.

Five of the six steps identified are undertaken by humans so that the outputs are appropriate. Yet, the focus thus far on the single event in step 6 of how the outputs are used by the end decision-maker effectively ignores the other four human elements in the decision-making process. Yet with the increasing use of AI in step 5, it is the first four steps that are of most importance to the recipient of the decision. Most of the legally focused submissions to the AHRC (2021, pp. 201-210[14]) failed to consider adequately, if at all, these vital earlier steps. Yet they were fundamental to the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019).

Within the first five steps the AHRC identifies the complex lifecycle of an AI system. It notes that before a use case is approved, it should include safeguards throughout training and testing the data sets, building the application, testing the system, monitoring the system and developing problem analysis, improvement and further testing and validation (AHRC, 2021, p. 46).

For all 'decision making that affects people's human rights' the AHRC sets out three key principles: international human rights should be observed; AI-informed decision making should be used in ways that minimise harm; and AI-informed decision making should be accountable in how it is used (AHRC, 2021, p. 48). The AHRC identifies those legal issues particularly relevant to the exercise of discretion in decision-making (as distinct from the numerous legal issues affecting human rights more generally) (AHRC, 2021, p. 51):

1. Does the AI-informed decision-making system produce lawful decisions?

2. Is the decision making transparent?

3. Can reasons or an explanation be provided for the decisions?

4. Is it clear who is legally responsible for a decision?

5. Is there appropriate human oversight and review?

These principles reflect the ARC Report (2004) and Galligan's (1986) minimum requirements for an administrative law decision. However, the answer to the five questions cannot be given exclusively on the basis of the single end point exercise of discretion and reinforces the necessity to consider the decision-making process to include the different human interventions leading to the decision. This is effectively the conclusion the AHRC reaches in requiring that where AI is used it should be covered by extensive and comprehensive regulation to ensure all such issues are addressed (AHRC, 2021, pp. 55-72). Somewhat illogically, it justified this approach as applicable to genuine AI, using the two examples of basic automation discussed above, Robo-debt and *Pintarich* to demonstrate how dangerous AI could be to human rights if used in decision-making.

There are significant public concerns about the use of AI that give rise to fear, pressure to regulate and a preference to avoid the use of AI in decision-making unless it can be proven to be completely robust. It is likely that this view will continue until the obvious advantages that AI can bring over the current state gain sufficient public support for

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[14] Available at: AHRC, 'Human rights and technology', https://humanrights.gov.au/have-your-say/human-rights-and-technology.

public trust in an AI supported system (Gavaghan et al., 2019). Unfortunately, private companies globally have misused AI sufficiently to reinforce these fears (AHRC, 2021). Concerns about due process, bias, discrimination, inequality, access, confidentiality, privacy, blatant misuse or theft of data and intellectual property, and general lack of consideration of ethical and human rights issues in AI design are well-founded and evidenced throughout the AHRC Report and in the submissions made to it.[15]

The principles of administrative law are sufficiently robust to support embedded AI in decision-making, and specifically for the purposes of this article, tax decision-making, where discretion is exercised, provided it focuses on the whole process and not simply a single human end point. However, at this early stage of AI, it is likely that regulation should support the exercise of discretion as a process and focus on all of the human interventions in the six steps of an AI supported system outlined above. This is the approach taken in the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019, p. 8).

McGregor, Murray and Ng (2019, p. 342) argue that an International Human Rights Law Framework provides the appropriate basis to:

> take advantage of both current and future approaches to prevention, safeguards, monitoring and oversight, and remedy; incorporate broadly accepted understandings as to the conduct that constitutes 'harm'; and provide guidance with respect to the circumstances in which algorithmic decision-making may be employed.

In the AI context this can be described as 'human rights by design' (Yeung, Howes & Pogrebna, 2020) and is adopted by the AHRC (2021, p. 91). The approach is consistent with those developed over many years for technical, mechanical, biological, health and other high risk systems involving regulation ranging from environmental protection to occupational health and safety. Bentley (2007, ch. 5) used the approach to analyse the enforcement of taxpayer rights, where the optimal solution incorporates the full range of legal, administrative, and social interventions, with the latter supported by effective quality assurance processes.

Regulation goes some way to ensuring design meets requirements that allocate responsibility, accountability and liability. It can also stipulate design standards and require certification (AHRC, 2021, p. 93). It does not necessarily result in good design (Gavaghan et al., 2019, pp. 49-73; Bevacqua, 2021) as is clear from the detailed requirements now set out in the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019).

Reviewing again the principles of the ARC Report (2004), expert and emerging systems are increasingly embedded in decision-making, and particularly by the ATO in delivering on its Corporate Plan (ATO, 2022). The process and steps identified in the AHRC Report (2021) where humans are involved in designing, building, implementing and monitoring the system that aids outputs leading to the exercise of discretion, demonstrate how important the earlier steps are to determining the value and robustness of the outputs (Commonwealth Ombudsman et al., 2019; Bevacqua, 2021). It can no longer be left to a single end point decision-maker to comprehend whether an AI process

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[15] These concerns are reflected internationally (Council of Europe, Committee of Experts on Human Rights Dimensions of Automated Data Processing and Different Forms of Artificial Intelligence, 2019).

is a valid support for that end point decision, including whether the process accurately and consistently reflects government law and policy. Neither does legislation or regulation ensure that all elements of the system protect those relying on the law and the system.

Therefore, in recognising that the exercise of discretion is a process with multiple inputs and several significant steps, the ARC Report (2004, Part B) principles focused on system design and implementation remain broadly relevant, current and appropriate in embedding AI into effective 'administration by design' (Commonwealth Ombudsman et al., 2019):

- Both the system's construction and the decisions made must comply with administrative law to be legally valid and will sometimes require express legislative validation (Zalnieriute et al., 2020).

- Expert and emerging systems must comply with relevant requirements governing, in particular, privacy, disclosure, freedom of information and statements of reasons.

- To comply with these principles, there should be a team which designs, constructs, maintains, monitors and tests the expert or emerging systems, which combines technical and legal and policy experts.

- This team should use the most advanced techniques to allow expert and emerging system self-evaluation and error detection (including human manipulation) and ensure that there exist comprehensive audit trails, appropriate to the system, which can be reviewed.

- Expert and emerging systems should be appropriately funded to support the decision-making and this extends to ensuring continuous data quality and storage, training for decision-makers, and regular updating, including contingencies to ensure decisions remain accurate pending upgrades for changes.

- Expert and emerging systems must be capable of both internal review and external scrutiny appropriate to the system.

- Expert and emerging systems should take account of equity, access and service requirements of administration (Bevacqua, 2021).

In tax administration in particular, there may need to be specific legislation, as referred to in the ARC Report (2004, Part B), to validate AI-assisted decisions, particularly as they are seen as part of an overall process of decision-making. For example, while the Commissioner of Taxation may delegate functions under section 8(1) of the *Taxation Administration Act 1953* (Cth), such delegation is to 'persons'. Intentional legislative validation may be seen as necessary to support the use of AI-assisted decision-making with the development of supervised machine learning and deep learning (Commonwealth Ombudsman et al., 2019, p. 9).

To these should be added a requirement to comply with service standards, industry standards and certification (Commonwealth Ombudsman et al., 2019, p. 18). The importance of responding appropriately to advances in both AI and its misuse (Council of Europe, Committee of Experts on Human Rights Dimensions of Automated Data Processing and Different Forms of Artificial Intelligence, 2019) will require continued expansion of the 'relevant requirements' principle to encompass the latest developments

in issues such as discrimination, bias and fairness, to ensure that the fundamental administrative law principles are upheld (French, 2001). In tax administration, continuing responsiveness to such developments is essential to maintain the public trust identified as critical to compliance and continuing public participation in and engagement with the tax system (Bevacqua, 2021; ATO, 2022, p. 13).

5. ADMINISTRATIVE LAW BY DESIGN: THE HUMAN DIMENSION

In the context of digital government, Bentley (2020) analysed human decision-making and capabilities required for the proper exercise of decision-making identified by the OECD, national governments and other commentators. The aim is to reinforce and build trust and public value (Scott, DeLone & Golden, 2016). However, as identified by French (2001, p. 35) and the Australian Public Service Commission (2021, p. 13) one of the fundamental challenges is that the Public Service and, in relation to tax administration, the ATO has limited capability to fully deliver on the ARC Report (2004) principles.

As a basis for the design, development, implementation and monitoring of any expert and emerging system, it is fundamental to the decision-making process that certain capabilities are present and demonstrable to any process of review and validation (Bentley, 2020, p. 369). While Bentley (2020) draws together the skills and capabilities required for digital tax administration, there is a sub-set specifically relevant to the design and implementation of a valid and effective automated decision-making process. These are consistent with the ATO Corporate Plan (ATO, 2022, p. 17) and the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019) and can be articulated as follows (Bentley, 2020, pp. 369-370):

- relevant taxation domain specialisation bringing deep technical knowledge to the decision-making process. Those exhibiting such specialisation would generally be the delegated decision-maker or would be referred to by lower-level tax officers for complex decisions;

- legal domain specialisation as required to ensure compliance with both internal and external regulatory and administrative law requirements;

- audit, risk and quality assurance domain specialisation to allow effective validation, testing and monitoring of systems with effective articulation of risks and appropriate mitigation;

- expertise in human-centred design, which can include the behavioural psychologists, ethnographers, analysts and programmers who are already mapping the tax 'experiences' within the tax administration to inform the decision-making models at each stage of that experience. This allows appropriate automation of components of the decision-making process to streamline services, build trust and public value without removing the requirements for valid decision-making;

- expertise in transdisciplinary integration of innovative techniques and methodologies to ensure valid models for automated decision-making. These capabilities are particularly important in ensuring that human-centred design delivers the technological solutions required at each stage of an automated decision-making process that meet the requirements of the tax experts for a valid decision; and

- these roles must be supported by the requisite digital technology specialisation and quantitative and qualitative data analysis, which are fundamental not only to ensure the human-centred design is delivered through the automated experience, including the artificial intelligence and other technological elements of the decision-making process, but also constructing the technical model to meet the legal requirements for a valid decision.

Without this collective capability it is unlikely that the construction of a decision-making model would meet the composite requirements of a valid human decision supported by an intelligent system capable of giving effect to that decision as intended. In addition, as noted in several reports and papers, to maintain capability requires ongoing education and training.

More importantly, the effective administration of the tax system by the ATO depends on public trust in the system. It is a symbiotic relationship: effective capability in the ATO workforce builds public trust, which is needed for an effective tax system.

6.   CONCLUSION

The ARC principles developed in 2004 for the use of expert systems are remarkably relevant to the debate today. While AI is developing rapidly with the increasingly ubiquitous use of technologies, the principles underpin how both national and international reports continue to see the operation of regulatory and administrative law constraints on the use of AI in decision-making.

Where AI has overtaken previous conceptions of the exercise of discretion, is that if the discretion is seen as a single point in time, a momentary articulation of the law, it fails to take account of the complex nature of discretion as exercised with the support of embedded AI. Even the basic automation and design errors identified through Robo-debt and *Pintarich* require a more sophisticated legal analysis of decision-making in such circumstances. Otherwise, the adjudicators or reviewers are forced into convoluted and potentially illogical rationales for their decisions. This is clearly articulated in the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019).

As the analysis shows, legal theory expects continuous change to the rules applied in any system and modern legal theories have focused on deconstructing the law to identify the very issues such as bias, inequity and discrimination that are now mainstream and critical elements in the regulation of AI. The rules of recognition and change envisage that the law will adapt to the context of the societies in which the law operates. It is therefore logical that, as AI elongates administration decision-making, from a moment in time to a process, the law should adapt to recognise this. It was foreshadowed in any event by the principles adopted by the ARC in 2004 to administer the design, implementation, monitoring and review of expert systems.

While administrative law can demonstrably adapt to provide a regulatory framework for AI in administration, the concerns of the public suggest that it should be supported as part of a more comprehensive framework as envisaged in the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019). This framework includes regulation, administrative law, voluntary codes, certification of standards and a comprehensive formal and informal review structure. In this way, AI as it develops, embedded within digital government, administration and tax administration, is more likely to satisfy the requirements for public trust.

The important additional component for the operation of an effective regulatory framework, digital government and digital tax administration, is the human capability to deliver it. The article outlines the primary specialist capabilities needed to design, build, test, implement, monitor and review AI systems in tax administration. As digital government goes to scale, the APS has already identified the significant skills gaps in its workforce (APS, 2021). A failure to remedy the position risks erosion of public trust in the tax administration specifically and digital government more generally (Gangl et al., 2015).

Interestingly, the two examples of basic automation discussed in this article go directly to two of the fundamental issues, which demand a far more rigorous consideration of the complete decision-making process, and one of the most obvious and challenging consequences. In both Robo-debt and *Pintarich* the programming of the basic systems was imprecise. Computers are precise and literal in their execution of the algorithms with which they are programmed. There is no room for fuzzy thinking or intuition. The second issue illustrated is that humans tend to be lazy, particularly where they think a system can do their work for them. It was pointed out as a flaw in the design of the Robo-debt system (Commonwealth Ombudsman, 2017) and was clear from the evidence in *Pintarich*.[16]

The consequence is inequity in decision-making, highlighted as a particular challenge in the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019). Human discretion at an artificial, momentary point in time, can conceal this. The advantage of seeing decision-making as a process requires administration by design with precision of thinking and monitoring of outputs to call out laziness. It requires the designers and implementers to consider in advance the consequences and the human capacity available at the time of implementation. Administration by design considers the process of decision-making to ensure implementation 'consistent with the administrative law values of lawfulness, fairness, rationality, openness (or transparency) and efficiency' (ARC, 2004, vii; French, 2001, p. 33), which in turn provides experiences for citizens that engender public trust.

AI in tax administration provides both challenges and opportunities. The legal system allows relatively seamless development of new regulatory frameworks, with multiple analogous frameworks both successful and unsuccessful from which to draw and learn, both nationally and internationally. The global nature of digital development provides a significant resource as Australia adapts to its context as envisaged in the 2019 Cth Guide (Commonwealth Ombudsman et al., 2019). The greatest challenges are the twin elements of human capability to deliver an effective regulatory framework and public trust that stems from capable implementation.

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[16] *Pintarich v Deputy Commissioner of Taxation* [2018] FCAFC 79, [18]-[19].

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