Algorithms, discretions and decisions in the "*Robo*" age[1]

Gail Hartridge FAICD
Barrister
Wilberforce Chambers

David W Marks QC, CTA
Barrister
Queensland Bar.

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1 Introduction

This paper was due to be delivered at the 2020 States' Taxation conference. In preparing to deliver it today at the 2021 conference, we were astonished by the amount of commentary and developments that have occurred in this area during that time. This brought home to us the pace of change in this area.

As the topic is broad, we have attempted to limit our paper (other than some brief reference to science fiction when appropriate) to the issue of the implications of use of computers in making decisions under taxation legislation, and the areas of law that are relevant to that, from a tax agency and taxpayer point of view.

Seventy-nine years ago, science fiction author, Isaac Asimov envisaged that human-like robots would need a set of rules[2] to prevent them from causing harm to humans. These rules were:

(1) A robot may not injure a human being or, through inaction, allow a human being to come to harm;

(2) A robot must obey the orders given it by human beings except where such orders would conflict with the First Law;

(3) A robot must protect its own existence as long as such protection does not conflict with the First and Second Laws.

But as the article in *Britannica* on "*science fiction*" says:

> Asimov was able to derive an entertaining set of novels and stories from these three premises – even though his imaginary laws have never been used for the control of any real-world robot. Quite to the contrary, 21st-Century robotics are probably best represented by semi-autonomous military vehicles such as the cruise missile, specifically designed to blow itself up as it reaches its target and to do considerable damage.

[2] The rules were included in a 1942 short story called "*Runaround*", also published as part of a collection of stories in, "*I,Robot*" in 1950.

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In view of the integration of algorithms and artificial intelligence into our modern way of life (which is not limited to use of androids), it is time for a new set of parameters.[3]

2 Definition of terms

There are a variety of terms which are not always consistently defined and understood as between lawyers and technology professionals. In our paper we will use the following terms with the somewhat shorthand meanings we have adopted:

"*Algorithm*": a finite set of instructions programmed into a computer to allow the computer to solve a particular problem;

"*AI or Artificial Intelligence*" a collection of interrelated technologies used to solve problems autonomously and perform tasks to achieve defined objectives, in some cases without explicit guidance from a human being. Subfields of AI include machine learning, computer vision, human language technologies, robotics, knowledge representation and other scientific fields. The power of AI comes from a convergence of technologies."[4]

"*Machine Learning*": the capacity of a computer to process and evaluate data beyond programmed algorithms, through contextualized inference.[5] Sometimes the term is used interchangeably with AI, but others consider that machine learning is a step along the way toward pure artificial intelligence.

[3] Anderson, MR, "After 75 years, Isaac Asimov's Three Laws of Robotics need updating" available at www.https://theconversation.com.
[4] CSIRO Data 61 Report "Artificial Intelligence" 2019 at p2.
[5] Dicitionary.com.

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3 History

Although the possibility of computers becoming "*thinking*" machines has long been mooted, there has been a recent escalation of the development and use of this technology. This topic, once the stuff of science fiction, is now close to reality.

We are familiar with computers being used to assist in collating data, applying simple algorithms to assist in interrogating data and automating simple correspondence. All of these uses are aids of the role of a human decision-maker, but they do not generally give rise to any legal issue related to the use of computers in the process. This is subject to the content of the ultimate correspondence or outcome, according with the legislation, and being able to be explained by the decision-maker in reasons capable of being understood by the person affected by the decision, and tribunals and courts reviewing the decision.

Most issues arise when algorithms go beyond a simple interrogation of data already available to the decision-maker. Legal and reputational problems are more likely to arise from systems which perform data matching between large databases to identify targets for legal or regulatory action, where an outcome of use of AI and/or machine learning is not able to be interrogated or understood by a human, or where there are insufficient procedures for referral of AI determined matters for human reconsideration.

4 Benefits and Risks of AI[6]

The following are the more commonly identified benefits and risks:

[6] See generally the discussion of risks and benefits in articles such as Yee Fui Ng *Deliberation and Automation* 2019 AJ Admin L 21 at page 21; Zalnieriute, Moses and Williams, *The Rule of Law and Automation of Government Decision-Making* (2019) 82(3) Modern Law Review; [2019] UNSWLRS 14

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Benefits	Risks
More consistent and accurate decision-making	Translation of the statutory requirements into computer code may not take account of judicial determinations on the meaning of statutory provisions, or be able to deal with the nuances in principles of statutory interpretation.[7]
Faster decisions	A flawed fast decision may ultimately lead to much delay in the finalisation of the matter or matters, if public pressure to correct it or litigation ensues.
Less bias	Bias can be inbuilt due to nature and limitation of inputs / databases used. Further there can be bias arising from the susceptibility of humans to defer to or place particular reliance on computer generated outputs.[8]
Fairer generally and better access to justice for historically marginalised populations [9]	Not fairer if the output is flawed in the manner otherwise referred to in this column, and recipient of the decision is unable to understand. May not accord with fundamental concepts of law and risk regulation and current statutory frameworks.

[7] Huggins, A, *Addressing Disconnection: Automated Decision-making, Administrative Law and Regulatory Reform* (2021) 44(3) UNSW Law Journal 1048 at 1053-1054

[8] Ibid Huggins at 1065-66.

[9] Zalnieriute at p 2 citing P Gowder, *Transformative Legal Technology and the Rule of Law* (2018) 68 supp 1 University Toronto Law Journal 82.

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Benefits	Risks
Less costly administrative processes and staffing in decision-making	Danger that if something goes wrong, and the AI process has been replicated in many other decisions or processes, that there will be a high cost in reparation of the damage done e.g. Robo debt.
Acceptance by many consumers of decision by computer in preference to humans	Less human interaction in the process /dehumanisation with possible lack of confidence / trust in the system and decision. Accountability ie who made the decision, or who will be accountable if the AI system made the decision?
Communication of the decision can be standardised but also readily converted or produced in a form suitable for a variety of taxpayers of different cultural and ethnic backgrounds.	Rigidity of decision making.[10] Lacks flexibility to make equitable decisions or adjust rules for hard cases Lack of transparency including that decisions can be impenetrable i.e. the "*black box*" problem.
Lack of regulation assists innovation in this area.	Little regulation in place at present as to use of AI in government and industry. The adoption of legislation enabling use of AI (which is gradually occurring), should be balanced with safeguards regarding use, and protection of the legal standards now in place for decision-making by humans.

[10] Lord Sales, P, *Algorithms, Artificial Intelligence, and the Law* Bolch Judicial Institute at Duke Law. 2021.

The disquiet we may feel about the escalation of use of this technology in regard to government decision-making, arises due to the difficulties of assimilating it with the central part traditionally played by humans in government decision making. Decision-makers are expected to be able to provide reasons for their decisions, as part of general concepts of administrative law and the rule of law. As succinctly put by a commentator:

> authority without reason is literally dehumanising [11]

The trick or "*million dollar question*" is how to take advantage of the benefits of AI, and minimise the risks. The commentary on this area ranges from dire predictions of a robotic supremacy to extravagant claims that utopia awaits the adopters of AI. As is usually the case, the truth and answer lies somewhere in between.

5 Status of AI in Australia

Some commentators consider that to protect revenue, tax agencies have little choice but to use AI.[12] Indeed it appears that the United States, Canada and Australia (naming only a few) have committed to transformation to digital tax administration. [13]

The ATO has a "*digital by default*" approach to interacting with taxpayers[14], and has acknowledged that it is increasing investment in the use of "*automation and artificial intelligence to enhance the client experience and integrity in the system*" [15].

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[11] Jerry L Mashaw *Public Reason and Administrative Legitimacy"* in John Bell and others (eds), *Public Law Adjudication in Common Law Systems, Process and Substance,* Hart Publishing, Oxford 2016 11 at 17, as referred to in Palairet J*, Reason-Giving in the Age of Algorithms* Palairet J*, Reason-Giving in the Age of Algorithms* (2020) 26 Auckland U L Rev 92.

[12] Bentley, D, *Timeless principles of taxpayer protection: how they adapt to digital disruption*, e Journal of Tax Research Vol 16, No 3 p 679, 683.

[13] Bevacqua, J, *Tax authority immunity in a digital tax administration world*, e Journal of Tax Research (2020) Vol 18 No 2, p 402, 403.

[14] Australian Taxation Office, *ATO Leads Digital By Default* (30/11/15) as referred to in Bevaqua, , J, *Tax authority immunity in a digital tax administration world*, e Journal of Tax Research (2020) vol 18. No.2 at p 403

[15] Australian Commissioner of Taxation forward to the 2019-20 ATO Corporate Plan, as referred to in Bevaqua article at p406.

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In regard to the States and territories, Queensland has its Revenue Management System (RMS) and an online bot for answering queries called "*Sam*". In 2017, the Queensland Government approved the OSR Transformation Programme to provide "*next generation tax and revenue capabilities*", with funding of $80.9 M over 5 years.[16] It is understood that the other jurisdictions have similar systems and aspirations for revenue collection management, and to some extent AI including machine learning is already being utilised.

In addition, the Federal Government is strongly advocating that industry and government agencies become involved in AI development and use. The Department of Industry Science, Energy and Resource recently released Australia's AI Action Plan (June 2021)[17]. In that document, it is stated, that:

> AI could contribute more than $20 trillion dollars to the global economy by 2030", and up to $315 billion to Australia's economy by 2028.[18]

Money was allocated in the current 2021-22 Budget for new measures as outlined in the Action Plan.

The "*AI Action Plan*" appears to be a call to industry and government to get on board, before we miss the boat with AI innovation and use. The plan does refer to one focus area, relevant to the issue of preparation and protections needed to embrace the new technology, i.e. "*Making Australia a global leader in responsible and inclusive AI*". There is reference to proposals to amend the *Privacy Act 1988* (Cth) to "*empower consumers, protect their data, and best serve the Australian economy*". There is also to be a "*consumer data right*" (apparently through the *Data Availability and Transparency Bill 2020* – the DAT Bill)[19] which is to give consumers more choice and control about how their data is used and shared.

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[16] Queensland Better Regulation Annual Report 2018/19 at https://s3.treasury.qld.gov.au/files/Qld-Better-Regulation-Annual-Report-201819.pdf

[17] https://www.industry.gov.au/data-and-publications/australias-artificial-intelligence-action-plan

[18] Ibid at pages 2 and 3.

[19] The Bill was introduced to Parliament on 9 December 2020, but remains at present before the House of Representatives. The Finance and Public Administration Legislation Committee of the House of Representatives took evidence on 28 April 2021, but has not yet reported.

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The Action Plan does recognise the need to minimise "*negative outcomes*", and that "*lack of trust in AI technology will continue to be a major barrier to adopting and applying AI*.[20] The "*Australia's AI Ethics Principles*" released by the Australian Government in 2019 are also referred to, as being a means of reducing risks of negative impacts of AI and ensuring good governance standards.[21]

The Action Plan refers to the Australian Human Rights Commission report, Human Rights and Technology recently released and that the government will "*consider*" this report.[22] However it is understood that there is as yet no commitment to implement its recommendations.

It is interesting to note that the AI Action Plan refers to the establishment of a National AI Centre (within the CSIRO Data 61 area), and 4 Digital Capability Centres in the 2021-22 year. However these appear to be enabling agencies directed at business rather than regulatory. In contrast the Human Rights Commission report advocates the establishment of an "*AI Safety Commissioner*" is necessary "*to support regulators, policy makers, government and business apply laws and standards in respect of AI-informed decision making*".[23]

Australia is also a member of the Global Partnership on Artificial Intelligence (GPAI) with 14 other member countries, which was launched in June 2020. To date only preliminary reports appear to have been released by this group in November 2020.

The legislative and international initiatives of the Commonwealth will be important to follow, and States and Territories may well need to consider similar amendments to their privacy legislation and the adoption of legislation complementary to the DAT Bill to keep in step with the Commonwealth and provide a level of protection in areas of State and Territory jurisdiction.

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[20] Page 19.

[21] There was a "*Techtonic 2.0: National Artificial Intelligence Summit*" held online in June 2021, which includes details on some company case studies and findings from a pilot project in respect of use of the AI ethics framework. See https://www.industry.gov.au/data-and-publications/techtonic-20/stream-1-putting-the-ai-ethics-principles-into-practice

[22] ibid

[23] AHRC *Human Rights and Technology Final Report 2021* at 187.

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6 The Information Technology Industry

The IT industry is alive to the issue of the need to generate trust in AI systems, no doubt to assist in development of this area of their business. For example IBM has various toolkits and resources on its webpage which it says seeks to deal with the issue of trust from a technical /scientific point of view. The tools are aimed at addressing fairness, value alignment, robustness, "*explainability*", transparency and accountability.[24]

However the report by Philip Alston, the UN Special Rapporteur on Extreme Poverty and Human Rights, to the UN General Assembly on digital welfare systems,[25] identified a reluctance of the private sector to take human rights systematically into account in designing their systems. This was noted also that governments are somewhat reluctant to regulate technology firms, for fear of stifling innovation.[26]

7 Legal issues which can arise through AI use

7.1 Rule of law, administrative law and associated issues

At a basic level the concept of the rule of law is that "*society should be governed by law*"[27]. For the rule of law to be acceptable to society, it requires that the law be predictable, stable, accessible and all should be equal before the law. This requires that Government must be transparent and accountable in respect of the making of laws and the decisions it makes under those laws.

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[24] See https://www.research.ibm.com/artificial-intelligence/trusted-ai/#featured-work

[25] Human Rights Council Res. 35/19, UN Doc A/74/48037, (Oct. 18, 2019).

[26] Lord Sales, P, *Algorithms, Artificial Intelligence and the Law*, Bolch Judicial Institute at Duke Law. 2021 (judicature.duke.edu) at p 26.

[27] Zalnieriute, Moses and Williams, *The Rule of Law and Automation of Government Decision-Making* (2019) 82 (3) Modern Law Review; [2019] USWLRS 14 at p 4.

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The basis of administrative law, is fundamentally the court's role and responsibility to uphold the rule of law.[28] The tension that has and will continue is in use of AI in assisting or making decisions, particularly decisions-making powers derived from statute.

In interpreting statutes, to discern the meaning and extent of the provision, a distinction is made at law between:

- An outcome of the operation of the provision, without a decision being required i.e. that applies by 'operation of law';
- A provision which requires a decision to be made that involves making an 'evaluative judgment'; and
- A provision which involves an exercise of discretion by the decision-maker. [29]

The first of these potential outcomes, does not involve a decision by a person or entity. Automation may be a useful tool to obtain greater efficiencies in the processing of outcomes of such provisions e.g. the rejection of an application where mandatory steps or documents have not been provided. From an administrative law standpoint, there may be little that is at risk in such use, provided that automation is designed strictly to follow the legislative provisions being applied. The case of *Buck v Comcare* [30] is an example of case concerning a self-executing provision which was not considered to be a decision enlivening the *Administrative Decisions (Judicial Review) Act 1977* (Cth) (ADJR Act).

In regard to the latter two kinds of provisions, the question, where AI is used in the decision-making process, is whether there was a decision at all. This has ramifications for the jurisdiction of both merits review procedures of tribunals, and also judicial review by the higher courts, as the starting point is that a decision has been made.

The leading case on the issue is the Full Federal Court's decision in *Pintarich v Deputy Commissioner of Taxation*[31]. This case stands for the principle that there must be a human element to the making of

[28] Palairet J, *Reason-Giving in the Age of Algorithms* (2020) 26 Auckland U L Rev 92 at p 95.
[29] See discussion of these distinctions in the context of AI, in the paper, Ng, Y & O'Sullivan, M, *Deliberation and Automation – When is a Decision a "Decision"?*
[30] (1996) 66 FCR 359.
[31] (2018) 262 FCR 41; [2018] FCAFC 79.

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a "*decision*", absent which no decision is made, (subject to any statutory provision altering that conclusion). The majority in *Pintarich* found that, for there to be a valid decision, there:

> … needs to be both a mental process of reaching a conclusion and an objective manifestation of that conclusion.[32]

There has been criticism of the majority decision by some commentators.[33] Further, the dissenting judgment of Kerr J points to the uncertainty and incongruities that may arise from the majority decision regarding whether a decision manifested by an overt act, but without the necessary mental element, is reviewable under the ADJR Act. Similar consequences may arise in the context of the State equivalents of the ADJR Act. However, *Pintarich* is still the leading appellate court authority on the issue of what is a "*decision*" in the administrative law context.

Further if the situation is as per the third kind of provision above, and the section provides for the exercise of a discretion, there can be a question as to whether the use of automated systems places an unlawful fetter on the exercise of the discretion of the decision-maker. The Administrative Review Council took the firm view some years ago that:

> the automation of discretion is not in accordance with the administrative law values of lawfulness and fairness because it could fetter the decision maker in the exercise of their discretionary power.[34]

However, it is not always clear cut whether the provision is granting a discretion or not: it is a matter of statutory interpretation. In general terms a discretion is characterised by a decision maker being empowered to reach a decision, where based on the same set of facts and circumstances a different decision maker might reach a different decision, but both decisions could be regarded as permitted.[35]

Overuse or poorly planned use of AI in the process of the decision-maker coming to a decision involving the exercise of discretion, could be considered to be similar to the over-reliance of

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[32] Ibid at [140].
[33] See the discussion in the Ng and O'Sullivan article op cit, at p 30.
[34] Administrative Review Council, *Automated Assistance in Administrative Decision Making – Report No 46,* at n 34, 15. The commentator Bevacqua, J doubts that this stance will be able to be taken in future due to the increasing use of AI: Bevacqua, J, *Tax authority immunity in a digital tax administration world* eJournal of Tax Research (2020) vol 18, No 2, 402, 424.
[35] *Norbis v Norbis* (1986) 161 CLR 513 per Mason and Deane JJ at 518.

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government officers on blanket policies, which do not permit proper consideration of the individual circumstances of the case.[36]

Other potential areas where misuse of AI could lead to legal causes of action include where it is found that the action or decision is ultra vires the statutory power, or that the decision is affected by bias (possibly including where the bias may not be directly attributable to a human, but to a flawed AI system).

Essentially care needs to be taken as to what the particular provision requires, as to whether or not a human being must be involved in the issue of the relevant document or decision to a taxpayer. For example there is a line of Court of Appeal and Tribunal decisions emerging from England and Wales in recent years on whether computer-generated notices /correspondence were lawfully issued, under a generic policy decision by a human that imposed penalties for default by means of such notices. [37] Ultimately the issue was dealt with by an amendment to the legislation, to put the issue beyond doubt.[38]

7.2 Human rights issues

Human rights legislation is largely state based at present, and differs from jurisdiction to jurisdiction.

Taking the relatively new *Human Rights Act 2019* (Qld) (HR Act) as an example, it is noted that this Act does make it unlawful for a public entity to act or make a decision in a way that is not compatible with human rights, or in making a decision, fail to give proper consideration to a human right relevant to the decision. However a failure to observe these obligations does not invalidate the decision. To enforce the rights, a person would need to have another cause of action to which the human rights

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[36] There is a common law rule against fettering, which is also recognised in judicial review legislation. See Aronson, Groves and Weeks, *Judicial Review of Administrative Action and Government Liability* Law Book Co 2017 6th ed, [5.250].

[37] *Donaldson v The Commissioners for Her Majesty's Revenue and Customs* [2016] EWCA Civ 761. However see *Khan Properties Ltd v HMRC* [2017] UKFTT 830 (TCC) where the Tribunal found that a "*flesh and blood human being who is an officer of the HMRC*" needed to make the assessment as to imposition of a penalty, which could then be implemented by the computer (at [23]). The decision in *Khan* was distinguished in both *Gilbert v HMRC* [2018] UKFTT 0437 and *Campbell v HMRC* [2019] UKFTT 454. See also *HMRC v Rogers* [2019] UKUT 0406 (TCC).

[38] *Finance Act* 2020 (UK) s. 103, as extracted in Annexure A. See discussion below as to a comparison of some legislative mechanisms to provide for use of AI and computers in statutory processes.

allegations could be attached e.g. grounds for judicial review. Alternatively it may be the subject of a complaint to the Human Rights Commissioner.

Having regard to the extent of commentary on the potential for adverse effects on human rights of AI, particularly in the area of machine learning, it seems likely that reliance will be placed on such legislation in future legal actions taken in regard to AI misuse.

At the Commonwealth level, there is the *Australian Human Rights Commission*, established under the *Australian Human Rights Commission Act* 1986 which has recently issued its comprehensive *Human Rights and Technology Report*. That report is particularly relevant to our topic today, and we recommend it as a good overview of the risks and challenges in this area at this point in time, and includes useful references to articles and materials.

7.3 Privacy issues

As indicated above, there appears to be recognition at a Federal level that the *Privacy Act 1988* will need to be amended to provide additional safeguards for consumers.

The case of *Privacy Commissioner v Telstra Corporation Ltd* [39] is illustrative of the limitations of the current legislation, in enabling access by individuals to metadata held by government agencies. In that case it was determined that the words "*about an individual*" in the definition of "*personal information*" in s.6 of the *Privacy Act 1988* had the effect that Mr Grubb was not entitled to all of the metadata information Telstra stored about his mobile phone service.[40]

In contrast, Internationally, action was successfully taken in *Dutch Jurist Committee on Human Rights & Others v the State of the Netherlands* [41] regarding a system (backed by legislation) used by the Dutch government to detect various forms of fraud, including social benefits, allowances and taxes fraud The system involved matching data across 17 categories of government records, including tax

[39] [2017] FCAFC 4
[40] Ibid, per Dowsett J at [2].
[41] C/09/550982/HA ZA 18-388

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records, to identify specific neighbourhoods with high numbers of low-income and immigrant residents, who were targeted for investigation.

The claim was that this legislation and system did not comply with Article 8 of the European Convention on Human Rights (ECHR). That Article protects the right to respect for private and family life, home and correspondence. It was considered that the Netherlands had a "*special responsibility when applying new technologies*", and the use of the system was insufficiently transparent and verifiable. It therefore found the legislation to be unlawful.

Although this case could not be run in Australia at present on this basis, the amendments sought by the Office of the Australian Information Commissioner, in submissions to the Federal review of the *Privacy Act 1988* could if adopted, result in further actions being available under that legislation.[42]

7.4 Summary of the impact of these issues

In summary, nothing replaces close consideration of the operative provisions of the legislation, and the automated processes being adopted, to determine the limits within which AI may be used under each such provision.

Additionally, where legislation facilitates or circumscribes AI, this must be taken into account.

[42] Amendments are sought to address the Telstra case referred to above. Also, the submission of the OAIC recommends the creation of a statutory tort for serious invasions of privacy and a broader direct right of action to enforce the Act, if not resolved through the OAIC processes: Executive Summary, available at https://www.oaic.gov.au/privacy/the-privacy-act/review-of-the-privacy-act/privacy-act-review-issues-paper-submission/

8 Recent cases and examples relevant to AI

When things have gone wrong so far in the AI journey, they have gone spectacularly wrong. In addition to the Netherlands case referred to above, the following is an outline of the more notable examples of AI issues internationally, not all of which have involved Government decision-making.

8.1 Robodebt

There has been much written about the ill-fated Centrelink automated online compliance intervention system, commonly referred to as robodebt. The system involved data-matching between information held by Centrelink and income data from the ATO. However the algorithm used a fortnightly average of the income data, rather than the actual amount of income earned in any fortnight. Letters were automatically sent to recipients of benefits on the basis of the analysis of the algorithm, without manual review. Effectively the letters required the recipients to provide evidence of their income for 6 years or more in order to rebut the conclusion drawn by the algorithm. After more than 3 years of media, political and legal criticism Services Australia announced it would cease the programme in November 2019. Subsequently a class action brought by persons affected by the scheme was settled for over $1.8 billion in June 2021.[43] In the reasons for judgment when approving the settlement, Murphy J stated that the proceeding had "*exposed a shameful chapter in the administration of the Commonwealth social security system and massive failure of public administration*".[44]

It is interesting to speculate how the outcome of this programme could have been avoided. For instance,

- if there had been better attention paid to the preconditions for raising a debt in sections 1222A and 1223 of the Social Security Act 1991 (Cth), and inclusion of them in the algorithm or checking mechanisms;

[43] Prygodicz Commonwealth of Australia [No 2] [2021] FCA 634;Huggins A at 1057.
[44] Ibid at [5]

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- if the algorithm did no more than to identify the suspect transactions and more checks were undertaken by officers, prior to action being taken;
- if the letters were not written in the style they were,

the programme may have escaped much or all of the criticism and financial penalty.

8.2 UK post office agency prosecutions

Somewhat similarly, in the United Kingdom, a software programme titled "*Horizon*" was employed by the Post Office to assist in investigations into the operations of their contracted sub-postmasters, and the payment due from the Post Office for the amount of business conducted by the branch. By use of the programme, accounting shortfalls were identified, for which the Post Office held the sub-postmasters responsible.[45] It was for the sub-postmasters to disprove the allegation of the shortfall. Some sub-postmasters paid what was claimed, some were able to point to discrepancies, but others had their contracts terminated or were privately prosecuted by the Post Office – i.e. 918 successful prosecutions over 24 years.

Ultimately the Court of Appeal overturned 42 convictions. A civil action also resulted in 550 claimants receiving £57.75 million. Again the Post Office received trenchant criticism in the media, in the political arena and in the courts for oppressive behaviour.[46]

8.3 Automatic bitcoin trading

A recent case from Singapore demonstrates the risk of AI outside of government regulation, and the ability of the Court to develop novel approaches to common law principles. In *Quoine Pte Ltd v BSCS Ltd*[47] the Court of Appeal had to deal with the aftermath of a glitch arising between a bitcoin currency trader's algorithmic trading programme and the trading platform's programme, which resulted in automatic trades of bitcoin at 1/250th of the true value of the currency at the time. The court had to

[45] Bates & Ors v Post Office Limited (No. 3) [2019] EWHC 606 (QB) at [6] to [8].
[46] Ibid at [222]; See also *Hamilton & Ors v Post Office Limited* [2021] EWCA Crim 577
[47] [2020] SGCA(1) 02

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determine how the concept of mistake in contract, applied when effectively the trade /contract was between the two programmes. The majority of the Court of Appeal looked to the intentions and knowledge of the programmers, up to the time of the formation of the contract, even though they were not involved in the trading itself.[48] Ultimately the action by the trading company to unwind the trades and recover its losses failed on this ground of mistake and also unjust enrichment.

8.4 Thaler v Commissioner of Patents[49]

In addition to these cases providing salutary lessons on the areas of risk associated with AI, there has been a recent case in patent law exploring the ability of an AI system to be classed as an "inventor" for the purposes of the Patents Act 1990: *Thaler v Commissioner of Patents*. In that case, Beach J found that it was indeed possible and ruled accordingly, although it should be noted that the Applicant for the patent was still required to be a legal entity. Dr Thaler was the owner of the copyright in a computer system called DABUS, and he was also the owner of, responsible for and the operator of that system. However he claimed not to be the inventor, as "*the invention was autonomously generated by an artificial intelligence*"[50] that is the system titled, DABUS, developed the invention through machine learning through its "*artificial neural networks*", a sophisticated form of machine learning, The case is currently on appeal to the Full Court of the Federal Court, and is being watched not only in Australia but by many overseas.

9 Establishing a robust "*robo*" system relevant to taxing authorities

[48] Ibid at [98], [99]. See also discussion of this case in the article by Lord Sale at 31. It is noted that such an approach may not be of assistance where the systems involved have arrived at the action taken by means of machine learning.
[49] [2021] FCA 879
[50] *Thaler* at [8]

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The following are some considerations for tax agencies, and also practitioners dealing with these agencies regarding the effect of AI on decision-making.

9.1 Statutory support for AI use

There is legislative support for use of AI in regard to taxation administration, in all jurisdictions (largely in common with other taxation legislation internationally) in the general evidentiary provisions such as those deeming the validity of an assessment or certificate issued by the Commissioner or a delegate.

Some jurisdictions have started to go further in partly or wholly deeming decisions made with by computer as being decisions made by the agency itself. Examples in the tax arena, are section 153B of the *Taxation Administration Act 2001* (Qld), the *NZ Taxation Administration Act 1994*, s.105, and in the UK the *Finance Act 2020*, section 103.[51] These provisions are set out for ease of reference in **Annexure A**.

However any legislative provision that simply enables use of AI will not be sufficient to deal with all of the legal risk associated with its use as outlined in this paper. Indeed, some commentators are querying if the shift to use of AI in taxation administration, will require that there be a reconsideration of the balance between taxpayer rights and tax authority accountability.[52] Accordingly there may be calls for a whittling down of the current statutory protections, unless other measures are taken to ensure taxpayer rights are protected.

Although common law principles of administrative law, and even contract and tort could be the basis of development of additional safeguards for taxpayers in regard to the increasing use of AI, the evolvement of these principles will necessarily be piecemeal and unlikely to match the pace of change currently occurring. Many commentators consider that the principal response must be legislative, [53]

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[51] There are provisions also in legislation outside of taxation legislation e.g. section 6A of the *Social Security (Administration Act 1999* (Cth), and s.495A of the *Migration Act 1958* (Cth). *Business Names Registration Act 2011,* s.66; *Therapeutic Goods Act 1989*, s.7C(1).

[52] *Bevacqua, J, Tax authority immunity in a digital tax administration world,* eJournal of Tax Research (2020) Vol 18, No 2, p 402, 413-414; Bentley D, *Timeless principles of taxpayer protection: how they adapt to digital disruption* eJournal of Tax Research Vol 16, No 3 p 679.

[53] Sale, P at 31; Huggins, A at 1072-1073.

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The United Kingdom, European Union and United States have or are developing legislative frameworks for the regulation of the use of AI, which may ultimately provide some guidance for Australian legislators. [54]

It would seem to be advisable for tax agencies (like all government agencies) even in the absence of regulation, to start taking practical steps to prepare for the greater use of AI. For example a review of the legislation for which they are responsible should be conducted to identify where AI is likely to be used, and where there may be tensions between such use and the requirements of the legislation e.g. provisions requiring judgment or the exercise of a discretion. Appropriate steps and safeguards can then been determined in order that the power being granted in the particular section, in the context of the Act as a whole, is exercised according to law.

Advisers to taxpayers and taxing authorities will need to keep abreast of and contribute to the policy development for the legislative schemes which would be expected to be developed in the near future.

9.2 Design of the automated system

A good start for taxing agencies is designing and implementing use of automation is to consider the Guidelines set by the *Automated Assistance in Administrative Decision-Making: Better Practice Guide* (2007). This remains a recognised basis upon which to formulate the policies and systems involved in greater implementation of automated systems. Consideration should also be given to the recently released *Human Rights Commission* report to ensure that the pitfalls identified there are managed. The Federal Government's AI Ethical principles will also assist to guide developments in this area.[55]

[54] For example, the Data Protection Act 2018 (UK); European Commission, *Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules of Artificial Intelligence (Artificial intelligence Act) and Amending Certain Union Legislative Acts* (Document No 52021PC0206, 21 April 2021); A Bill for the *Algorithmic Accountability Act* S 1108, 116th Congress (2019).

[55] They are, human societal and environmental wellbeing, human-centred values, fairness, privacy protection and security, reliability and safety, transparency and "explainability", contestability, accountability. See https://www.industry.gov.au/data-and-publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principles.

Any system of automation will only be as good as current policies and procedures in the manual system, and the unbiased data inputted.[56] In a conversion to AI, the manual system should be comprehensively documented, and reviewed for consistency with the legislation, and case law so as to try to avoid the AI system inheriting ingrained flaws and biases. Involvement of lawyers, or persons with legal training / risk management would appear to be essential to assist in the design of the software steps and decision tree so as to reduce the risk of errors occurring.

Data matching exercises need to be carefully considered to ensure that, to the extent possible, there are not flaws and inbuilt biases in the data. Ideally the system should be tested or audited regularly to ensure that the parameters set are appropriate. Testing of such systems on a small scale before roll out is imperative. Such testing evidence may become crucial should decisions based on the use of the AI be taken on review to a Tribunal or Court.

To the extent possible with current technology, the IT system should have the capacity to provide reasons for the determinations being made. This may be difficult the further along the machine learning path the system has progressed, as some machine learning outcomes, may not be readily understandable by humans. There are however, some indications that the IT industry is alive to the need to be able to build into their systems, the ability of the programme to provide "*reasons*". Whether the development of this capacity will be given priority in order to keep pace with the use of more advanced AI systems, will be the question.

9.3 Keeping the human in the loop, and interaction with taxpayers

Taxing agencies need to consider when in the process, hard cases will be able to be diverted to human intervention, or when further information should be requested from the taxpayer. Such steps would assist to ensure that the system does not become too rigid, and unresponsive to individual circumstances. However it is also noted that some commentators consider keeping a human in the loop may unduly fetter decision-makers discretion and afford insufficient protection against

[56] The Human Rights Commission has released a technical paper on *Using artificial intelligence to make decisions: Addressing the problem of algorithmic bias.* (2020). It provides some recommendations on steps to be taken to ensure responsible use of AI and data.

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mistakes.[57] There is also the danger that the involvement of a human in the process, may be too nominal such that the person merely rubber-stamps the determination indicated by the computer.[58]

Including a step or process of advising taxpayers that the decision affecting them has been in part made through AI use, is in keeping with international developments. In the UK in the *Data Protection Act 2018* (UK) s.14(4), specifically provides for notification to a person who has been the subject of a decision which has occurred through automated processing, and gives rights for the person to request a reconsideration of the decision. In Australia, the AHRC has recommended in its report on *Human Rights and Technology* that the Commonwealth introduce legislation to require that such a notification occur, where AI is "*materially used*" in making an administrative decision.[59]

Formal opportunities to seek a review also still need to be provided at appropriate decision-making points. Largely this is already dealt with by means of merits review of decisions through administrative review tribunals. However, having regard to the decision in *Pintarich,* it may need to be clarified that the outcome of the AI system is still a "*decision*" reviewable under those schemes. Also, there may well be difficulties that will arise in the future if the Tribunal is unable to understand how the agency made its decision, and as to what, in those circumstances is the "*correct and preferable*" decision.

10 Conclusion

This paper could not in the time available for this session, provide more than an overview of the key developments in this area, and to provide you with some references to resources which you may find useful.

We appear to be in a time of great change in regard to the use of AI, and as is generally the case, the development of the law and safeguards, is lagging. It will be necessary to continue to monitor this

[57] Palairet J, *Reason-Giving in the Age of Algorithms* (2020) 26 Auckland U L Rev 92 at 93.
[58] Huggins A, at 1060.
[59] See Recommendation 3 at p 281 of the AHRC Human Rights and Technology Final Report 2021.

fast changing landscape of AI effects in regard to the common law, and areas of law identified above, and how in particular the Federal State and Territory Governments deal with the challenges.

Hopefully the consequences of the inevitable adoption of AI in regard to taxation regimes, does not lead us down the path of the Matrix, where the character Morpheus said:

> *"Throughout human history, we have been dependent on machines to survive. Fate, it seems, is not without a sense of irony"*

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Annexure A

Comparison of NZ, Qld and UK Provisions

Queensland

Taxation Administration Act 2001

153B Commissioner may arrange for use of an approved information system to make particular decisions

(1) The commissioner may arrange for the use of an approved information system for any purposes for which the commissioner may make a relevant decision under a tax law.

(2) A relevant decision made by the operation of an approved information system under an arrangement made under subsection (1) is taken to be a decision made by the commissioner.

(3) In this section—

relevant decision means a decision that does not involve the exercise of the commissioner's discretion.

New Zealand

Taxation Administration Act 1994

105 Assessments and determinations made by electronic means. Any assessment or determination made by the Commissioner for the purposes of any of the Inland Revenue Acts that is made automatically by a computer or other electronic means in response to or as a result of information entered or held in the computer or other electronic medium shall be treated as

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an assessment or determination made by or under the properly delegated authority of the Commissioner.

United Kingdom

Finance Act 2020

103 HMRC: exercise of officer functions

(1) Anything capable of being done by an officer of Revenue and Customs by virtue of a function conferred by or under an enactment relating to taxation may be done by HMRC (whether by means involving the use of a computer or otherwise).

(2) Accordingly, it follows that HMRC may (among other things)—

(a) give a notice under section 8, 8A or 12AA of TMA 1970 (notice to file personal, trustee or partnership return);

(b) amend a return under section 9ZB of that Act (correction of personal or trustee return);

(c) make an assessment to tax in accordance with section 30A of that Act(assessing procedure);

(d) make a determination under section 100 of that Act (determination of penalties);

(e) give a notice under paragraph 3 of Schedule 18 to FA 1998 (notice to file company tax return);

(f) make a determination under paragraph 2 or 3 of Schedule 14 to FA 2003 (SDLT: determination of penalties).

(3) Anything done by HMRC in accordance with subsection (1) has the same effect as it would have if done by an officer of Revenue and Customs (or, where the function is conferred on an officer of a particular kind, an officer of that kind).

(4) In this section—

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“HMRC” means Her Majesty's Revenue and Customs;

references to an officer of Revenue and Customs include an officer of a particular kind, such as an officer authorised for the purposes of an enactment.

(5) This section is treated as always having been in force.

(6) However, this section does not apply in relation to anything mentioned in subsection (1) done by HMRC if—

(a) before 11 March 2020, a court or tribunal determined that the relevant act was of no effect because it was not done by an officer of Revenue and Customs(or an officer of a particular kind), and

(b) at the beginning of 11 March 2020, the order of the court or tribunal giving effect to that determination had not been set aside or overturned on appeal.

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