

THE APPLICATION OF ADMINISTRATIVE LAW PRINCIPLES TO TECHNOLOGY-ASSISTED DECISION-MAKING

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Last year, the National Public Radio of the United States produced an online calculator which predicted the likelihood of certain jobs being replaced by robots or technology.¹ The calculator is based on research by the University of Oxford,² and it has some good and bad news for the legal sector. On the bright side, lawyers are less than four per cent likely to be replaced entirely by robots. On the downside for those who aspire to judicial office, judges have a 40 per cent chance of being replaced by robots.

As with all of these online calculators, quizzes and other devices that make it easy to procrastinate, the calculator was far from comprehensive. Much to my chagrin, but hardly surprisingly, common roles in the administrative law world were not covered — roles such as complaints and integrity bodies, merits reviewers and first-instance administrative decision-makers. More's the pity, because, while robot judges grab all of the attention, they are still some way off from being a reality. Compare that to the position of administrative decision-makers: technology has been assisting and, in some instances, replacing decision-makers for over a decade now.³

Administrative law is concerned with the powers and functions of the state.⁴ However, that law has developed in the context of state powers and functions exercised through human agents — ministers, secretaries and public servants. Technology presents the opportunity to exercise state powers and functions through a non-human agent.

This article applies administrative law principles to technology-assisted decision-making to explore whether technology-assisted decision-making is capable of achieving the same administrative law outcomes as human-only decision-making and to identify possible pitfalls and challenges to administrative law in its ability to regulate the exercise of state power. The article ends with some suggestions to governments that are designing, implementing and using technology-assisted decision-making to do so in a way that upholds and enhances the objectives of administrative law.

What is technology-assisted decision-making?

Like all good administrative decision-makers, I begin by defining the scope and limits of my function — namely, the parameters of my field of inquiry.

'Technology-assisted decision-making' is the label I use to describe the use of technology to assist a human decision-maker to make an administrative decision. I have considered both cognitive computing technology (such as IBM's Watson⁵) and traditional rule-based technology. 'Technology-assisted decision-making' encompasses some of the systems that have been described elsewhere as 'automated systems'⁶ or 'expert systems'.⁷

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In its 2007 *Automated Assistance in Administrative Decision-Making: Better Practice Guide*, the Australian Government identified a 'hallmark' of an 'automated system' as 'its ability to examine a set of circumstances (data entered by the user) by applying "business rules" (modelled from legislation, agency policy or procedures) to "decide" dynamically what further information is required, or what choices or information to present to the user, or what conclusion is to be reached'.⁸

In its 2004 report *Automated Assistance in Administrative Decision Making*, the Administrative Review Council (ARC) found that expert systems could be used to:

- make a decision;
- recommend a decision to the human decision-maker;
- guide a user through relevant facts, legislation and policy, closing off irrelevant paths as they go; and
- provide a decision support system by providing commentary for the decision-maker (and, I would add, the user).⁹

My label of 'technology-assisted decision-making' implies that there is a human decision-maker whom the technology is assisting. As such, it does not include a system that actually makes the decision, which is included in the ARC's definition of 'expert system'. The application of administrative law principles to decisions made by technology requires closer consideration and raises difficult considerations about whether Parliament can authorise decision-making by a non-human agent¹⁰ and the reviewability of such decisions. I leave these issues for another time and place.

I exclude from consideration the effect of big data on administrative decision-making. In this article, I have focused on technology which assists humans to make decisions, rather than technology which obtains information upon which a decision may be based. I have not considered the use of big data to make administrative decisions. I have no doubt that big data and the use of data-matching by government agencies will have a significant effect on administrative decision-making in the near future — but that too is a discussion for another day.

Who is using technology-assisted decision-making?

Technology-assisted decision-making has been used by a number of key federal agencies since as early as 2004, when the ARC report was published.¹¹ Most of us will have experienced some form of technology-assisted decision-making when engaging with Centrelink, the Australian Taxation Office or the Department of Immigration and Border Protection, whether it be in the form of eTax¹² (replaced this financial year with myTax¹³), a Medicare benefit claim through the Express Plus 'app'¹⁴ or by using a SmartGate¹⁵ when arriving in Australia.

The full extent of the use of technology-assisted decision-making is not clear and is a topic to which I will return later in this article. However, with both state and federal governments committing to 'digital transformations' of government services,¹⁶ it is obvious that its use will only increase.

Applying administrative law principles

Which administrative law principles?

The definition of 'administrative law' and the objectives it seeks to achieve is contested and depends on 'what [we] want out of administrative law'.¹⁷

What I want out of administrative law are administrative decisions that are lawful, transparent and fair. This article will therefore ask whether technology-assisted decision-making promotes decisions that are lawful, transparent and fair by considering the traditional grounds of judicial review and components of administrative law relating to information, such as freedom of information (FOI) legislation and statements of reasons.

Does technology-assisted decision-making promote lawful decisions?

A lawful or authorised decision is one that is made by the right person and exercised within the limits of the relevant statute and legislative instruments.¹⁸

Who is the decision-maker?

Technology-assisted decision-making assumes a human decision-maker, who will need to be authorised to make the decision either by the statute conferring the decision-making power or function or through a delegation.

Technology-assisted decision-making will involve the 'shared performance of duties short of delegation'¹⁹ — that is, the technological assistant will be '[doing] things which otherwise that person would have to do for [themselves]'.²⁰ This sharing of administrative functions may be authorised by the principle in *Carltona Ltd v Commissioners of Works*²¹ (*Carltona*) in much the same way that that principle authorises public servants to perform routine, administrative tasks as agents of the repositories of powers.²²

However, this would require extending the *Carltona* principle to public servants and departmental officers, who themselves may be delegates of the repository of power. The Land and Environment Court of New South Wales declined to so extend the principle in the context of human agents on the basis that the 'necessity imperative', which justifies the application of the principle to ministers, did not apply to the public servant in that case.²³

Extending the *Carltona* principle to relieve public servants of routine or administrative functions by relying on technology assistance would involve an acknowledgment that, although it is not impossible for public servants to perform administrative functions personally, there is a limit on the executive's ability to hire more public servants to perform those functions. As such, the rationale for the *Carltona* principle would need to be extended to recognise efficiency as well as necessity.²⁴

Courts will be more likely to so extend the *Carltona* principle if technology-assisted decision-making preserves 'accepted accountability structures'.²⁵ These structures may be challenged if technology is used to unbundle a decision-making process, such that separate people or systems are responsible for different parts of a decision-making process, and the decision-maker then denies responsibility for the actions taken by the technological assistant. In the circumstances, who or what is accountable for those actions? The need to avoid administrative 'black boxes'²⁶ which are immune from review or accountability may provide a basis for extending the *Carltona* principle to public servants in the context of technology-assisted decision-making to ensure that actions of technology assistants are attributable to a human decision-maker who can be held accountable.

Finding the limits of the power

In making an administrative decision, a decision-maker undertakes two cognitive tasks:

- (1) identifying the scope and limits of the decision-making power in the individual circumstances; and
- (2) evaluating the available information relevant to the criteria for the decision.

Identifying the limits of power

In respect of the first task, technology can assist by identifying:

- the correct question(s) for the decision-maker to determine, including the relevant decision-making criteria and any relevant or irrelevant considerations;
- whether any procedures or matters which are necessary preconditions to the exercise of the power have been met or exist;
- whether there exists any evidence in respect of each of the matters on which the decision-maker must be satisfied; and
- particular issues which require the decision-maker's consideration and evaluation.

By way of example, technology could assist in assessing the validity of an application made under an Act by:

- identifying the preconditions for a valid application, such as the group of permitted applicants, the form of the application, any fee required to be submitted with the application, any matters required to be addressed by the application and the time for making an application;²⁷
- assessing whether those preconditions have been met; and
- identifying matters which the human decision-maker needs to consider further, such as a discretion to accept an otherwise invalid application²⁸ or a step required to be taken before rejecting the application.²⁹

There are many other possible examples, limited only by the technological resources available to an agency. The possibilities are increased if an agency has access to cognitive computing, which is not limited to a binary assessment of compliance and can assess the extent of compliance in respect of qualitative or discretionary criteria.

In this respect, technology-assisted decision-making promotes lawful decisions because it ensures that decision-makers understand and act within the limits of their powers. These forms of assistance can also assist in the transparency of the decision because, once such matters have been identified to the decision-maker, they can be conveyed to the person affected by the decision.

Technology can also assist decision-makers with soft law, such as policy. Additional considerations are required to ensure that the technology assistance does not lead to the inflexible application of policy.

As with hard law, technology could assist in identifying the factors relevant to the policy and whether those factors are present on the facts. As such, the technology could apply the policy to the facts.

However, to ensure that soft law does not become hard through 'slavishly follow[ing] a policy and disregard[ing] the particular circumstances of a case',³⁰ the human decision-maker

should consider separately the question of whether the policy *should* apply in the individual circumstances of the case. To assist the human decision-maker to do so, the technological assistant should identify to the decision-maker that the guidance relates to policy, not law, and prompt the decision-maker to consider whether there are any reasons why the policy should not be followed in the specific matter.

Evaluating the limits of power

I anticipate that people will more readily accept technology assistance in identifying the limits and scope of a decision-making function and will require more persuasion about the appropriateness of technology assistance evaluating the information relevant to those limits and scope. Limits involve hard lines, which are either crossed or not, and the task of identifying those limits therefore conforms with our perception of the strength of technology — that is, applying rules with binary answers. In contrast, people may be more sceptical of technology's ability to assist in the cognitive tasks of evaluating the available information relevant to each criteria for a decision and synthesising that into an overall decision.

Nevertheless, I suggest that technology has a role to play in assisting the evaluative task. In addition to identifying the relevant questions and criteria, technology could extract and produce information relevant to those questions and criteria. Such information could be produced in formats with which we are familiar, such as a brief to the decision-maker (similar to those prepared by human public servants for human decision-makers); or new formats, such as guided decision-making 'apps' that select and filter the information that a decision-maker considers depending on their answers to a series of question. Such assistance would promote lawful decisions by ensuring that the decision-maker has all relevant information available to them, while preserving the ultimate evaluation for the human decision-maker.

Although technology assistance can *promote* lawful decisions, it cannot guarantee them. There is still plenty of scope for a fallible human decision-maker to get it wrong by, for example, drawing unreasonable inferences from the information produced, bringing a biased mind to the decision, or failing to follow the (lawful) guidance produced by the technology assistant. The risk that a human decision-maker will, despite technological assistance, make an unlawful decision is the inevitable consequence of relying on a human decision-maker. The more we limit the scope for the human decision-maker to bring their own mind to an issue or decision, the more we approach the domain of technology replacing the decision-maker.

Technology can assist in mitigating the risk of flawed consideration of the relevant information. For example, big data presents opportunities to identify trends and outliers in administrative decision-making, which could be used by decision-makers to reflect on the reasonableness of their decisions before finalising them.

I conclude that technology-assisted decision-making *can* promote lawful decisions. The question then is: *will* it? To answer this question, I turn to the principle of transparency.

Does technology-assisted decision-making promote transparent decisions?

The doctrine of the separation of powers means that it is for the courts, and not the executive, to determine whether a decision has been lawfully made.³¹ An assertion by the executive that the decision was lawfully made will not make it so.

Applying this reasoning to technology-assisted decision-making, it is not enough for the executive to claim that it is using, or will use, technology in a way that promotes lawful

decisions. There must be information available upon which the courts, integrity bodies and the public can assess this question for themselves. Put another way: you may say that technology has assisted you to make a lawful decision, but how do I know that?

Transparency in administrative decision-making is advanced through statements of reasons, review (judicial and merits), and proactive and reactive release of information through FOI legislation and requirements to produce annual reports.

Statements of reasons

Statements of reasons can both enhance and diminish transparency in technology-assisted decision-making. On the one hand, statements of reasons are an opportunity to disclose the existence of the technological assistance. On the other hand, technology can become the pinnacle of 'institutionalised processes for producing reasons',³² which fail to disclose the actual reasons for the decision.³³

Disclosing the existence of technology assistance

A statement of reasons should generally identify who made the decision.³⁴ In technology-assisted decision-making, where the ultimate decision-maker is human, should the statement of reasons identify both the human decision-maker and the fact that that decision-maker was assisted by technology?

In my view, such assistance should be disclosed so that the person affected and a reviewer may understand properly the decision and the reasons for it.

The rationale and strength of any technological assistance that extends beyond static commentary on legislative provisions is that it relieves the human decision-maker of part of the cognitive task of making the decision. Technology-assisted decision-making scaffolds or frames a decision-maker's consideration of the relevant issues, thereby ensuring that the right ones are considered and the irrelevant ones are not. It is therefore artificial to say that the decision reached by the human decision-maker is theirs alone; rather, it is a decision based on, or augmented by, the technological assistance provided by the technology.

Failing to disclose the technology assistant may constitute a form of misleading by omission. Unless told otherwise, most people would assume that a decision is made by the human decision-maker and that the findings in the statement of reasons were in fact made by the human decision-maker. As will be discussed below, the way in which a decision is challenged and reviewed may be affected by the existence of technological assistance. As such, it is necessary for the statement of reasons to disclose the existence of the technology assistance if the person affected is to be given a genuine opportunity to decide whether and how to challenge that decision.³⁵

It may also be appropriate for a statement of reasons to disclose any findings, recommendations or conclusions offered by the technological assistant and adopted by the human decision-maker. The need for such disclosure will depend on the extent to which the human decision-maker considers and discloses the reasoning of the technological assistant,³⁶ as opposed to merely adopting the suggested finding.

Disclosing the existence of technology assistance also provides an opportunity for agencies to build public confidence in their decisions and decision-making processes. For example, persons affected by decisions may have greater confidence in them and be less likely to challenge them if they know that technology has assisted the decision-maker to consider the necessary questions and the information relevant to those questions.

I also recommend that statements of reasons identify the version of the technology, program or application used (for example, eTax version 2.1) and the date of that version. Agencies should publish registers of the technology used in decision-making, including the versions, dates of versions and a description of the changes incorporated in each version. This information will assist persons affected by, and reviewers of, decisions to assess the likelihood that the technological assistant incorporated all relevant legislative and policy changes.

My position that a statement of reasons *should* disclose technology assistance is strengthened by considering the contrary question: why *shouldn't* a statement of reasons disclose technology assistance?

Given that technology assistance is permissible and, in some instances, may even be desirable, it is unlikely that a decision will be successfully challenged on the fact of technology assistance alone. To the extent that disclosure leads to an increase in challenges because people do not trust the technology assistance then the problem is not one of disclosure but one of public confidence in technology-assisted decision-making. This problem will not be resolved by being secretive about the use of technology assistance; rather, the opposite is likely. Disclosure and transparency are important, if not necessary, for building public confidence in, and acceptance of, technology-assisted decision-making.

Furthermore, technological assistance is likely to increase the ease of disclosing findings of fact, the information on which those findings are based and the reasoning process. The technological assistant will need to have identified these matters to the human decision-maker. It is not an onerous task for the human decision-maker or the technological assistant to record these matters in a statement of reasons.

Better decisions — or just harder to challenge?

The use of template or standard paragraphs in decisions has already given rise to a concern that such templates 'cloak the decision with the appearance of conformity with the law when the decision is infected by [error]'.³⁷ The use of technology assistance in the preparation of statements of reasons may produce a similar concern that technology will provide a facade of accuracy and objectivity that masks flawed decisions. This concern is essentially one that technology assistance will not lead to decisions that are *in fact* better but will merely enhance the *appearance* of a lawfully made decision.

This concern can be mitigated if agencies ensure that they do not utilise technology assistance only for the task of preparing statements of reasons. Technological guidance and assistance will be of greater utility before a decision is made than afterwards. Technology assistance should be designed to produce an audit trail which can be used to develop a statement of reasons, either by the human decision-maker or by another technological assistant.

Review of technology-assisted decisions

Technology-assisted decision-making presents challenges for both judicial and merits review. The challenges for judicial review are largely matters of evidence and efficiency. The challenges for merits review are more significant and may even raise questions about the utility and purpose of merits review.

Merits review

On one view, technology assistance at first instance will have little effect on the merits review function, especially since the reviewer is not bound by the original decision.³⁸ Although the reviewer stands in the shoes of the original decision-maker and has the same powers, functions and discretions as the original decision-maker, the reviewer may inform themselves as they see fit.³⁹ As such, they would not be bound to take into account any findings, recommendations or conclusions offered by the technology assistant or relied upon by the human decision-maker at first instance.

Where technology has assisted the decision-maker at first instance, a question arises as to the extent to which it would be desirable for a merits reviewer to utilise the same technology assistance. Technology assistance provides the opportunity to improve the quality and accuracy of decisions while reducing the cost of making them. There seems to be little reason to provide these benefits to the first-instance decision-maker only and rely on the fallibility of human decision-making alone on review. Yet, if the same technology is used by both the first-instance decision-maker and the merits reviewer, does the scope for reaching a different view on what is the 'correct or preferable decision' diminish? In essence, does technology assistance reduce the need for, and utility of, merits review?

Another alternative is that merits review bodies could develop their own technology to assist in decision-making. This may be an attractive option for high-volume jurisdictions such as the Victorian Civil and Administrative Tribunal. However, this alternative may lead to different technology assistance on the same statutory functions and powers. The efficiency of such an approach appears doubtful.

The effect of technology-assisted decision-making on merits review is something that deserves further consideration by observers, commentators, agencies and merits reviewers. When developing technology assistance, agencies should look beyond their own organisations and consult with the bodies that may be called upon to review the merits of decisions made with the assistance of that technology.

Judicial review

Technology-assisted decisions are *capable* of being judicially reviewed. Such review may be more difficult and expensive because of the need to engage with, and understand, what the technology is doing.

When reviewing any administrative decision, a court essentially considers the following fundamental questions:

- What did the statute require?
- Was that in fact what occurred in this decision?

This comparison of what was required and what was in fact done will still be possible, even where technology has been used to assist the decision-maker.

However, as anyone who has acted for a party to a judicial review proceeding knows, such proceedings are rarely determined in as neat and simplistic a fashion. Often, it is necessary to consider in great detail (but, of course, not with an eye attuned to error) the procedure adopted by the decision-maker and their reasoning process. The statement of reasons is ordinarily the primary evidence of such matters. Yet a statement of reasons may not be sufficient to identify an error in technology-assisted decisions.

It is at this point that technology-assisted decision-making begins to look a bit more complicated than the human-only variety. Where some of the procedure or reasoning process has been embedded in technology, understanding what was done and why may require a court to look underneath the graphical user interface (GUI) and peer at the code beneath. At this point, most lawyers will start to feel somewhat squeamish.

Considering how a technology program or 'app' has been coded to assist a decision-maker may require additional evidence, including evidence from expert witnesses. It is likely that such additional evidence would have consequences for the length and expense of judicial review proceedings.

The following example illustrates the evidentiary issue. Consider a technology 'app' that guides a decision-maker through a statutory test, including consideration of any interpretation provided by case law. The human decision-maker would be relieved of the need to consider independently the interpretation of the statutory test. Such consideration has been done by another person long ago when the technology was coded. If the statutory test was misconstrued when the technology was developed then that misconception could taint any decision made with the assistance of the technology. Revealing such an error may require, at worst, consideration of the code or programming of the technology or, at least, consideration of the business rules used to instruct the programmer who developed the code. Most judicial officers and lawyers would be unlikely to be able to comprehend code without the assistance of an expert witness.

Freedom of information

Transparency in decision-making can also be achieved through FOI legislation. In addition to the right to obtain information pursuant to a request, most FOI statutes require agencies to publish information regarding policies, procedures and guides used in administrative decision-making.⁴⁰

On one view, this obligation does not extend to technology used to assist decision-making, as the technology is simply the digital form of the rules prescribed by statute, regulations and policy. If the source of the rules is published (which they generally are) then it would not be necessary to publish their digital format.

The other view is that the obligation does extend to technological assistants, on the basis that technological assistants are greater than the sum of the legislation, regulations and policy upon which they are based. As such, technological assistants may constitute guidance that is separate from, and additional to, the guidance found in the constituent policies and other instruments.

Even if the obligation does not apply, it would be open to individuals to request information about the technological assistants, especially the business rules used to develop the code and possibly the code itself. Given the broad definitions of 'document' found in FOI legislation,⁴¹ it is likely that both the business rules and the code itself would be 'documents' for FOI purposes.

The question then is whether agencies would seek to rely on any exemptions in respect of the business rules or code of the technological assistant.

Early indications are that they may. For example, in *Cordova and Australian Electoral Commission*⁴² (*Cordova*), the Administrative Appeals Tribunal upheld the Australian Electoral Commission's (AEC) refusal to release the code of a computer program which is used to read and count Senate ballot papers in which the vote is recorded below the line.

The AEC successfully claimed that the code was a ‘trade secret’ on the basis that the same code and program were used for the AEC’s fee-for-service functions, such as conducting elections for private organisations.⁴³

It is unlikely that agencies engaged in administrative decision-making will face the same tension as the AEC between its fee-for-service functions and its public functions, in part because of the nature of most agencies’ ordinary functions. As such, the precedential value of *Cordova* may be limited to its specific facts.

Alternatively, it may be a sign of things to come. Although the trade secrets exemption may not be available in respect of the source code of technological assistants to other agencies, there are other exemptions that could be pursued. For example, an agency may seek to rely on exemptions relating to the deliberative processes of agencies by claiming that the code or business rules on which the code is based constitute ‘opinions, advice or recommendations’ to a decision-maker and that disclosure would be contrary to the public interest.⁴⁴

The issue of who benefits from technology-assisted decision-making is explored further by considering whether it promotes decisions that are fair.

Does technology-assisted decision-making promote fair decisions?

Technology-assisted decision-making presents some challenges to the actual and perceived fairness of decisions and, as such, the public’s acceptance of this form of decision-making. In particular, who should have access to technology used to assist decision-makers; and are decisions made with the assistance of technology sufficiently independent?

Access to the technology

It is now recognised that public sector information is a public resource. As that information becomes more complex and voluminous, the value in public sector information (and, indeed, any information) is not just the information itself but also efficient means of accessing and understanding it.⁴⁵

Technology assistance provides a more efficient means of accessing and understanding information relevant to administrative decision-making. Agencies and decision-makers are not the only parties to benefit from this information. Citizens can also benefit from accessing this information to understand efficiently their rights and responsibilities.

Technology assistance has the potential to exacerbate or ameliorate the natural information asymmetries that exist between government and citizen. If access to technology assistance is limited to agencies, the asymmetries will be exacerbated, while extending access broadly will reduce those asymmetries. Increasing information asymmetries would be inconsistent with the general trend in administrative law since the 1970s to provide more access to public sector information.⁴⁶

In addition to principles of fairness, open public sector information and democracy, there are economic reasons for providing equal access to technology assistance to agencies and citizens alike. Just as government uses technology assistance to reduce the cost of each administrative decision made, so too will the citizen seek to reduce the cost of each interaction with government. The resources saved can be employed by government and citizen alike in more economically productive activities.

The form in which the technology assistance is provided may be different for the citizen and public servant — in particular, it is not necessary to provide citizens with access to software

used internally within an agency. However, the business rules used to develop a technological assistant for decision-makers can equally be employed to develop an externally facing or citizen-facing 'app', such as a self-assessment tool. Such tools already exist on several agencies' websites, including those of the Australian Taxation Office⁴⁷ and the Department of Human Services.⁴⁸

There are opportunities to enhance and improve the format, quality and usability of the guidance provided by citizen tools. In particular, tools which provide an answer, but not the reasoning, can have limited utility; in essence, the 'what' is provided, but not the 'why'. Similarly, as decision-makers already know, guidance provided in large PDF documents are not as helpful as dynamic guidance which shows only the information that is relevant to the user's circumstances and changes based on answers given to previous questions. Ideally, agencies should provide to citizens guidance of a similar format, quality and usability as that given to decision-makers.

There may be operational reasons why agencies will seek to maintain information asymmetries and not share the technology assistance provided to decision-makers. This is most likely to arise in agencies with regulatory and enforcement functions in respect of the investigative methods use to discharge those functions. Such information is already protected to ensure that the effectiveness of those methods is not diminished.⁴⁹

Independence and transparency of decision-making

Public acceptance of government decision-making depends on, amongst other things, the independence of a decision-maker and whether decisions are made in public or private.⁵⁰ If it is not designed well, technology assistance could undermine or reverse some of the confidence in administrative decision-making that has been built over the years.

Technology-assisted decision-making must confront and deal with the inevitable perception that technology will be less independent than a human being. Since technology must be created, maintained and operated by someone (that is, an agency), it is often thought of as subordinate to or controlled by that person. Indeed, the alternative is generally undesirable — that is, a machine that escapes its programming and wreaks havoc on human society.

In administrative law, an uncontrollable assistant or decision-maker is undesirable given that decision-makers have limits on their statutory functions and powers and they must stay within those limits. Yet, within those limits, human decision-makers must bring their own minds to the decision, independently of their supervisors within the agency.⁵¹ How can a technological assistant programmed by an agency be independent of that agency?

On one view, in the context of technology-assisted decision-making, it is not necessary for the technology to be independent, because it is not making the decision. As long as the human decision-maker brings an independent mind to the decision, independence is achieved. However, this view relies on the artifice that, in technology-assisted decision-making, the guidance provided by the technological assistant and the decision made by the human are separate and independent.

As discussed earlier, technology assistance augments and shapes the human decision-making process. One of the possible strengths or benefits of technology-assisted decision-making is that technology navigates a human decision-maker to the 'correct or preferable decision'. However, this also raises the concern that what is 'correct or preferable' will be determined by the agency when it programs the technology rather than by the human decision-maker when they consider a particular decision.

Agencies may not agree that this concern is reasonable or rational, but that does not mean that it does not exist. Ignoring the concern will not address it in the minds of persons affected by decisions or the public. If the concern goes unaddressed then it will affect public confidence in decisions made with the assistance of technology.

Concerns about the independence, integrity and accuracy of technology assistance can be managed with transparency, not just in the individual decision but also in the management of technology-assisted decision-making generally. In particular, an agency should be transparent about the extent to which it is using technology-assisted decision-making. It can do so in the context of individual decisions by, as I have suggested, disclosing the technology assistance in statements of reasons.

Agencies can also publish information about the use of technology assistance on their websites and in their annual reports. Agencies already publish information about the services that citizens can use online. However, such information is generally limited to functional guidance about how the citizen engages with the online service. There is little information about what happens to the information once submitted by the citizen and, in particular, if the online service is integrated with technology assistance 'behind the scenes'. Publishing such information will allow public debate and scrutiny of technology-assisted decision-making to ensure that it is being used in a way that enhances, rather than undermines, the quality and integrity of administrative decision-making. Failing to do so will breed resentment and suspicion about 'black boxes'⁵² being created by government.

Conclusion and suggestions for success

My conclusion is that technology *can* promote lawful and fair decisions — if it is designed to do so. However, whether technology in fact results in lawful and fair decisions depends on transparency about technology-assisted decision-making — the fact of its use; how it is used, designed and updated; and who has access to it. Without this transparency, technology-assisted decision-making could undermine public confidence in administrative decision-making or make it difficult and/or expensive to review administrative decisions.

Like all technology, technology-assisted decision-making presents enormous opportunities to improve our current practices. To increase the prospects of technology-assisted decision-making promoting, rather than undermining, administrative law principles, I suggest that agencies consider the following matters when developing, using or reviewing technology assisted decision making:

- (1) *Be clear about why you are using technology-assisted decision-making.* The objectives of efficiency and reducing costs are valid ones, but they are not the only considerations relevant to administrative decision-making and should not be pursued at the expense of the objectives of lawful, fair and transparent decisions. As with all technology projects, designing a technological assistant to provide lawful, fair and transparent decisions will be more efficient than trying to retrofit the system later or defending the system in a court proceeding.
- (2) *Be clear about who will benefit from technology-assisted decision-making.* Administrative decision-makers may be the end users of technology assistance, but they are not the end users of the government activity.⁵³ Design technology assistance so that it assists both decision-maker and the person affected — in terms of understanding the information relevant to a particular decision and the reasons why a particular decision was made.

- (3) *Be transparent about your use of technology-assisted decision-making.* Let the public know that your agency is using technology-assisted decision-making and publish information about the applications used (including the relevant versions). Agencies should be proactive by publishing information on their websites, in their annual reports and in statements of reasons. Just as government draws on the expertise of the legal community before implementing significant law reform, agencies should consider drawing on the expertise of the 'tech' community by releasing the code for new technological assistants and exposing it to testing and scrutiny of people other than courts.⁵⁴
- (4) *Build your technology assistance so it can be reviewed.* At some stage, someone will want to review the technological assistant — it is just a part of being in government. Agencies should design technological assistants so they can be reviewed by Ombudsman, merits reviewers and judicial reviewers.⁵⁵ Just as policy manuals use footnotes to reference the source of particular guidance, agencies should brief code-makers and programmers to annotate the code for the technological assistant to reference the source material, such as statutes, regulations or policy. Ensure that there is always a human in the agency who understands what the technology does and how it works. The surest way to lose control of technology is to adopt a 'set and forget' mentality. Just like human decision-makers, technological assistants need support and updating, especially following legislative changes or significant cases. If the technological assistant is ever scrutinised by a court, it may be necessary to lead evidence from a human about how the technology works.

Ensuring that technology-assisted decision-making promotes lawful, transparent and fair decisions will build public confidence and support for the use of technology in decision-making. Such confidence is necessary if government is to take the additional step of technology *making* decisions. But I leave that discussion for a future time.

Endnotes

- 1 National Public Radio, *Will Your Job Be Done By a Machine?* Planet Money (21 May 2015) <<http://www.npr.org/sections/money/2015/05/21/408234543/will-your-job-be-done-by-a-machine>>.
- 2 Carl Benedikt Frey and Michael A Osborne, 'The Future of Employment: How Susceptible Are Jobs to Computerisation?' (Paper presented at the Machines and Employment Workshop, Oxford University, UK, 17 September 2013).
- 3 Administrative Review Council, *Automated Assistance in Administrative Decision Making* (Report No 46, 2004) app B.
- 4 Mark Aronson and Matthew Groves, *Judicial Review of Administrative Action* (Lawbook Co, 5th ed, 2013) [1.20] 3.
- 5 'Watson' is the nickname given to the cognitive computing system developed by IBM to win the *Jeopardy!* TV quiz show. It was a research effort aimed at extending the ability of computers to understand natural language. See further Katie Miller and Jason Leonard, 'A Helping Hand' [2016] (June) *Law Institute Journal* 44; IBM Corporation, *Go Beyond Artificial Intelligence With Watson* <<http://www.ibm.com/watson/>>.
- 6 Australian Government, *Automated Assistance in Administrative Decision-Making: Better Practice Guide* (2007) <http://www.ombudsman.gov.au/__data/assets/pdf_file/0032/29399/Automated-Assistance-in-Administrative-Decision-Making.pdf>.
- 7 Administrative Review Council, above n 3.
- 8 Australian Government, above n 6, 4.
- 9 Administrative Review Council, above n 3, 10.
- 10 Melissa Perry and Alexander Smith, 'iDecide: the Legal Implications of Automated Decision-making' (Paper presented at the Cambridge Centre for Public Law Conference: Process and Substance in Public Law, University of Cambridge, UK, 15–17 September 2014).
- 11 Administrative Review Council, above n 3.
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- 14 Department of Human Services, Australian Government, *Express Plus Mobile Apps* (20 July 2016) <<https://www.humanservices.gov.au/customer/services/express-plus-mobile-apps>>.
- 15 Department of Immigration and Border Protection, Australian Government, *Arrivals SmartGate* <<https://www.border.gov.au/Trav/Ente/GoIn/Arrival/Smartgateor-ePassport>>.
- 16 See, for example, Malcolm Turnbull MP, Minister for Communications, 'Investing in Digital Transformation' (Media Release, 12 May 2015) <http://www.minister.communications.gov.au/malcolm_turnbull/news/investing_in_digital_transformation#.V6Jbf5N96fU>; Gavin Jennings MLC, Special Minister of State, 'New Digital Start for Victorian Government' (Media Release, 12 May 2016) <<http://www.premier.vic.gov.au/new-digital-start-for-victorian-government/>>; State of Victoria, *Information Technology Strategy 2016–2020* (May 2016) <<http://www.enterprisesolutions.vic.gov.au/wp-content/uploads/2016/05/Information-Technology-Strategy-for-the-Victorian-Government-2016-to-2020.pdf>>; State of New South Wales, *Digital+ 2016: NSW Government ICT Strategy Final Update* (2015) <https://www.finance.nsw.gov.au/ict/sites/default/files/resources/Digital_Strategy_2016_20151125.pdf>.
- 17 Aronson and Groves, above n 4, [1.10] 1, [1.40] 6.
- 18 *Craig v South Australia* (1995) 184 CLR 163, 176–80.
- 19 *O'Reilly v State Bank of Victoria* (1983) 153 CLR 1, 30.
- 20 *Huth v Clarke* (1890) 25 QBD 391, 395 (Wills J), referred to in *O'Reilly v State Bank of Victoria* (1983) 153 CLR 1, 17.
- 21 *Carltona Ltd v Commissioners of Works* [1943] 2 All ER 560.
- 22 Aronson and Groves, above n 4, [6.160] 339–40.
- 23 *Gold And Copper Resources Pty Ltd v Minister For Resources and Energy* [2013] NSWLEC 66, [91].
- 24 *O'Reilly v State Bank of Victoria* (1983) 153 CLR 1, 13; Aronson and Groves, above n 4, [6.130] 337–8.
- 25 Aronson and Groves, above n 4, [6.170] 340.
- 26 Frank Pasquale, *The Black Box Society: The Secret Algorithms That Control Money and Information* (Harvard University Press, 2015).
- 27 See, for example, *Victims of Crime Assistance Act 1996* (Vic) s 26.
- 28 Such as a discretion to extend the time for making an application: see, for example, *Victims of Crime Assistance Act 1996* (Vic) s 29(2).
- 29 See, for example, *Freedom of Information Act 1982* (Vic) s 17(4).
- 30 *Surinakova v Minister for Immigration, Local Government and Ethnic Affairs* (1991) 33 FCR 87, 98.
- 31 *Victoria v Commonwealth* (1975) 134 CLR 338, 380; *Attorney-General (NSW) v Quin* (1990) 170 CLR 1, 35.
- 32 Aronson and Groves, above n 4, [8.420] 595.
- 33 *Re Minister for Immigration and Multicultural Affairs; Ex parte Palme* (2003) 216 CLR 212, 246; Matthew Groves, 'Reviewing Reasons for Administrative Decisions: *Wingfoot Australia Partners Pty Ltd v Kocak*' (2013) 35(3) *Sydney Law Review* 627, 629.
- 34 Administrative Review Council, *Decision Making: Reasons* (Best Practice Guide No 4, August 2007) 7.
- 35 *Osmond v Public Service Board* [1984] 3 NSWLR 447, 463; *Re Minister for Immigration and Multicultural Affairs; Ex parte Palme* (2003) 216 CLR 212, 242.
- 36 The permission given to a decision-maker to have regard to, and adopt, the reasoning of another person could be a basis on which to argue that human decision-makers should similarly be entitled to adopt the reasoning of a technological assistant: *Huluba v Minister for Immigration and Ethnic Affairs* (1995) 59 FCR 518, [38].
- 37 *Minister for Immigration and Ethnic Affairs v Wu Shan Liang* (1996) 185 CLR 259, [15].
- 38 *Collector of Customs (NSW) v Brian Lawlor Automotive Pty Ltd* (1979) 24 ALR 307, 335.
- 39 See, for example, *Administrative Appeals Act 1975* (Cth) s 43; *Victorian Civil and Administrative Tribunal Act 1998* (Vic) s 51.
- 40 For example, *Freedom of Information Act 1982* (Cth) ss 8, 8A; *Freedom of Information Act 1982* (Vic) s 8.
- 41 See, for example, the definition of 'document' in *Freedom of Information Act 1982* (Cth) s 4(1) and *Freedom of Information Act 1982* (Vic) s 5(1).
- 42 [2015] AATA 956.
- 43 *Ibid* [24]–[33].
- 44 See, for example, *Freedom of Information Act 1982* (Cth) s 47C; *Freedom of Information Act 1982* (Vic) s 30.
- 45 Office of the Australian Information Commissioner, *Principles on Open Public Sector Information* (May 2011) principles 1, 2, 5.
- 46 Australian Law Reform Commission, *Secrecy Laws and Open Government in Australia* (Report No 112, 2009) ch 2.
- 47 Australian Taxation Office, *Calculators and Tools* (19 June 2016) <<https://www.ato.gov.au/Calculators-and-tools/?sorttype=SortByTopic&marketsegment=Entire%20Website>>.
- 48 Department of Human Services, *Online Estimators* (17 March 2016) <<https://www.humanservices.gov.au/customer/enablers/online-estimators>>.
- 49 This protection is supported by exemptions in freedom of information legislation — for example, *Freedom of Information Act 1982* (Cth) s 37; *Freedom of Information Act 1982* (Vic) s 32.
- 50 Anthony Mason, 'Administrative Review: The Experience of the First Twelve Years' (1989) 18 *Federal Law Review* 122, 130.
- 51 See, for example, *Administrative Decisions (Judicial Review) Act 1977* (Cth) s 5(1)(c), (1)(j), (2)(e).
- 52 Pasquale, above n 26.

- 53 John McMillan, Commonwealth Ombudsman, 'Automated Assistance to Administrative Decision-making: Launch of the Better Practice Guide' (Speech delivered to the Institute of Public Administration of Australia, Canberra, ACT, 23 April 2007) <http://www.ombudsman.gov.au/__data/assets/pdf_file/0017/34523/23-April-2007-Automated-assistance-to-administrative-decision-making-Launch-of-the-better-practice-guide.pdf>.
- 54 Digital Transformation Office, *Digital Service Standard* (6 May 2016) <<https://www.dto.gov.au/standard/>>, criterion 8.
- 55 In implementing the Digital Service Standard, agencies should consider reviewers as one of the potential users of the technology assistance: *ibid*, criterion 1.