



ADMINISTRATIVE REVIEW COUNCIL

**AUTOMATED ASSISTANCE IN
ADMINISTRATIVE DECISION MAKING**

ISSUES PAPER

2003

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Comments and submissions

You are invited to make comments and submissions in response to this issues paper. Send them to:

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The closing date for receipt of comments and submissions is Friday 29 August 2003.

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Preface

Automated assistance – and in particular the use of rule-base systems – can fundamentally change the nature of administrative decision making. Such systems have increasingly been used by Commonwealth and some state government agencies in recent years to model complex legislation. Indeed, Australia is arguably at the forefront of this use of the technology.

However, the use of rule-base systems has evolved without consideration (other than on an agency-by-agency basis) of the administrative review questions that arise. For example, how is discretion exercised when a rule-base system is being used, and will the use of such systems mean that agency decision makers become ‘de-skilled’?

On the other hand, rule-base systems undoubtedly have the potential to make decision making more accurate, consistent and efficient. The challenge is to ensure that the use of these systems in administrative decision making meets administrative law standards, embodies administrative law values, and promotes the ideal of administrative justice.

The Council has happily embraced the opportunity to consider this subject and to instigate broader public debate about the questions it raises. The Council looks forward to receiving submissions on the issues paper and to continuing its work in this area.

Wayne Martin QC
President

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1 Introduction

1.1 The Council

The Administrative Review Council was established under the *Administrative Appeals Tribunal Act 1975* as an integral part of the Commonwealth system of administrative law. The Council advises the Attorney-General on a broad range of matters related to Commonwealth administration.

1.2 The project

The Council resolved to inquire into the use of expert systems in administrative decision making. The inquiry aims to examine the following:

- rule-base and other expert systems, including
 - current use of such systems by Commonwealth and some state agencies
 - how and by whom the systems are designed and used
 - the basis of the systems and how they are tested to ensure that they reflect the relevant legislation
 - the opportunities (if any) for independent scrutiny of the systems
 - the features an optimum system would have
- the implications of the use of such systems from the perspective of the administrative law system and its decision-making procedures
- aspects of access and equity that arise in relation to these systems.

In preparing the issues paper, the Council informally consulted a number of agency heads and officers. It also conducted a stocktake of the current and proposed use of expert systems in administrative decision making by Commonwealth agencies. The purpose of the issues paper is to encourage debate and comment. Commonwealth and state agencies, community organisations, companies that develop and supply expert systems, and other interested parties are invited to present submissions. The Council also plans to consult stakeholders. The submissions and the results of the consultations will be taken into account when the Council prepares its final report.

The inquiry is directly relevant to two of the Council's functions under s. 51 of the *Administrative Appeals Tribunal Act*:

- (aa) to keep the Commonwealth administrative law system under review, monitor developments in administrative law and recommend to the Minister improvements that might be made to the system; and
- (ab) to inquire into the adequacy of the procedures used by authorities of the Commonwealth and other persons who exercise administrative discretions or make administrative decisions, and consult with and advise them about those procedures, for the purpose of ensuring that the discretions are exercised, or the decisions are made, in a just and equitable manner.

Section 51 of the Act is reproduced at Appendix A.

1.3 The issues paper

The issues paper is divided into seven chapters. This introductory chapter deals with the nature of the Council's project. It describes the different types of expert systems, defines the term 'administrative decision making' for the purposes of the paper, and outlines views on the value of the use of technology in decision making, the utility of particular expert systems in administrative decision making, the relationship between government and the use of rule-base systems, and the primary administrative law values against which rule-base systems should be assessed.

Chapter 2 details the results of the Council's stocktake of current and proposed use of expert systems in Commonwealth and some state agencies. Chapter 3 considers the design and development of rule-base systems; Chapter 4 outlines the arguments for and against using rule-base systems; Chapter 5 looks at the administrative review and other questions that arise with the use of rule-base systems; and Chapter 6 briefly considers the alternative delivery options rule-base systems can provide. Finally, Chapter 7 proposes some features of optimum rule-base systems and makes concluding remarks in relation to the systems' operation.

1.4 Expert systems

Expert systems¹ are computing systems that, when provided with basic information and a general set of rules for reasoning and drawing conclusions, can mimic the thought processes of a human expert.² They are a branch of artificial intelligence technology. 'Artificial intelligence' describes computer systems performing tasks that, when performed by a human, require human intelligence. A legal expert system can be defined as 'a computer program that performs tasks for which the intelligence of a legal expert is usually thought to be required –

¹ There are various ways of defining an expert system and types of expert systems. The definitions here provide a useful starting point.

² *The Macquarie Dictionary*, 3rd edn, 1998.

whether the legal expertise be that of a lawyer or of a non-lawyer with expertise in a particular area of the law'.³

There are varying views about the use of the term 'expert system'. The systems are only as 'expert' as their programming allows; their 'expert' status is also dependent on their being used appropriately. At least one agency informed the Council that it does not favour use of the term 'expert system' because it considers its staff to be the experts. The Council acknowledges this view but notes that the term is commonly used and is generally well understood.

1.4.1 Rule-based systems

Rule-based systems are a type of expert system. They involve the modelling of intricate rules accompanied by an 'engine' that is able to automate the process of investigating those rules by interacting with users to establish client details. Such systems create a 'decision tree'; that is, the response to each question leads to another question, and then another, until all the requirements for the decision have been considered.

Rule-based systems that model legislation perform two functions:

- They interrogate the user, identifying the next relevant legislative matter and closing off irrelevant paths as they go.
- They draw conclusions, applying the structural logic of the legislation on the basis of information collected from the user.⁴

The systems typically operate online, with an officer asking an applicant questions as prompted by the rule-base. The questions the rule-base asks give effect to the legislative requirements for the decision in question (for example, receipt of a particular benefit) and the relevant policy. The applicant and the officer can view on the computer screen commentary about the questions, the source legislation, relevant cases and the agency's policy. An unlimited amount of explanatory material can be provided using devices such as scrolling, tabs and hypertext links.⁵ (The means by which any discretion in relation to the entitlement can be exercised is discussed in Chapter 3.) When the question-and-answer process is complete, the questions and answers are printed and the applicant signs the form. The rule-base system then produces a report on whether the person is eligible for the benefit and provides detailed reasons for the decision.

³ Baker D., 'The probable impact of legal expert systems on the development of the social security system', Paper submitted to the Research Unit, Faculty of Law, Australian National University, October 2001, p. 6.

⁴ Sutherland P. & Johnson P., 'The impact of technology on decision-making and administrative review', Paper presented to Australian Institute of Administrative Law Conference, Canberra, 1996, p. 9.

⁵ Johnson P. & Dayal S., 'New tricks: towards best practice in the use of rulebase systems to support administrative decision-making', Paper presented to a seminar of the Institute of Public Administration Australia, Canberra, 1999, p. 21.

Rule-base systems can also be used as a means whereby an applicant enters the required information and receives an assessment of whether the information satisfies the applicable legislative criteria. The applicant can then decide whether to proceed with their application. Some government agencies have proposed the use of rule-base systems for complete self-assessment.

Among the rule-base systems that model legislation are 'STATUTE Expert', developed by SoftLaw, and 'jnana', developed by Jnana Technologies Corporation. STATUTE Expert is used by Commonwealth and state government agencies in administrative decision making (see Chapter 2).⁶ Jnana is used by Blake Dawson Waldron in applications developed for clients to evaluate whether advertisements comply with the *Trade Practices Act 1975* and other relevant laws and regulations and to determine whether the permit requirements in various jurisdictions have been satisfied in advance of trade promotions.

Rule-base systems can also be used to model complex rules that do not have a legislative basis. In the insurance market, for example, they can assist with quoting and determining insurance premiums commensurate with the associated risk. Other uses of rule-base systems are diagnostic risk assessment and airline scheduling. 'XpertRule'⁷, provided by ATTAR, is a rule-base system that does not have a legislative basis.

1.4.2 Decision-support systems

Decision-support systems are research tools designed to support decisions taken and advice given by human experts.⁸ The term is sometimes used interchangeably with rule-base systems or as a 'catch-all' that encompasses both rule-base systems and decision-support elements. It appears, however, that there is a clear distinction between rule-base systems and decision-support systems.⁹ Rule-base systems generally lead to definite conclusions, whereas decision-support systems tend to provide information to enable a human to make a decision – without actually indicating what the outcome should be. 'Decision-support system' can also be used to refer to management information systems.¹⁰

This issues paper maintains the distinction between rule-base systems and decision-support systems.

⁶ Among the agencies that use or have used the SoftLaw product are the Department of Family and Community Services, Centrelink, the Department of Veterans' Affairs, the Australian Taxation Office, Comcare, Environment Australia, the New South Wales Premier's Department, and the South Australian Community Housing Authority. Comcare has developed a rule-base in house using an off-the-shelf product called 'J-rules'.

⁷ Used by the Australian Taxation Office.

⁸ Greinke A., 'Legal expert systems: a humanistic critique of mechanical legal inference', *Elaw*, vol. 1, no. 4, 1994, p. 2.

⁹ See, for example, *ibid*.

¹⁰ Johnson P., SoftLaw demonstration, 13 December 2001.

1.4.3 Numeric weighting

Numeric weighting involves an assessor attributing a weighting to each factor in a calculation and then a judgment being either guided or made by computer calculation after all the factors have been considered.¹¹ The approach can be supplemented by the use of 'fuzzy logic' (see Section 1.4.4) in the calculation.¹² The numeric-weighting approach is numerically precise but only allows the categorisation of cases in broad bands.¹³ It can be used in conjunction with a rule-base system.¹⁴

1.4.4 Fuzzy logic

Fuzzy logic is used to turn continuous or approximate concepts into terms amenable to computer deduction.¹⁵ It offers a formal way of speaking about imprecise concepts such as 'large' and 'small'¹⁶ and is most easily described by contrasting it with Boolean logic: in Boolean logic there are only two possible values (true or false, yes or no, 1 or 0), whereas in fuzzy logic there is a 'degree' of truthfulness (and a statement can therefore be partially true). The concept is best demonstrated by an example:

The statement 'X is a valid legal principle' may be 80 per cent true, given variable factors such as location, court or tribunal, decision maker and judicial precedents.

1.4.5 Case-based reasoning

Case-based reasoning relies on inductive processes whereby the system internally discerns patterns from cases with different characteristics.¹⁷ For this approach to be reliable, a large body of cases must be sampled and the circumstances of each case must be analysed with reference to a consistent set of criteria.¹⁸

1.4.6 Neural networks

Neural networks attempt to replicate the structure of the human brain.¹⁹ Such a network scans a series of examples and the weight attached to each of the aspects that make up the decision and then generalises a rule.

¹¹ Johnson & Dayal, *op. cit.*, p. 21.

¹² *ibid.*

¹³ *ibid.*

¹⁴ *ibid.*

¹⁵ Greinke, *op. cit.*, p. 6.

¹⁶ *ibid.*

¹⁷ Johnson & Dayal, *op. cit.*, p. 21.

¹⁸ *ibid.*

¹⁹ Lim A., *Information Technology Support for Legislative Development: tools for the legislative engineer*, <<http://www.dpa.act.gov.au/ag/Expert/dev/legtool/legtool.htm>>, p. 11.

1.5 Administrative decision making

Administrative decision making covers a wide variety of matters, from simple mechanical decisions made by government to more complex decisions involving multiple factors and the exercise of discretion—for example, assessment of entitlements (such as income-support entitlements) when all the criteria are present. For the purposes of this project, the Council is interested in decisions that are reviewable under the *Administrative Appeals Tribunal Act 1975* or the *Administrative Decisions (Judicial Review) Act 1977*, or both. The questions raised in this issues paper may, however, be equally applicable to decisions that are not reviewable under those Acts.

A decision involves the following stages:

- identification of the applicant's claims and needs and the appropriate area of government decision making
- collection of the relevant evidence in support of the criteria associated with the decision
- consideration of that evidence
- application of the law (criteria) and relevant policy to the facts of the case, including the exercise of any discretion—that is, the determination.²⁰

1.5.1 The value of expert systems in administrative decision making

There are differing views about the desirability of using expert-systems technology in decision making.²¹

It has been argued that legal reasoning necessarily involves resort to social context and purpose and that as a result application of the law is not suited to a legal expert system. Proponents of this view suggest that the development of legal expert systems should be abandoned and the focus should move to computerising more mechanical tasks such as legal retrieval and litigation support.²²

A second view is that rule-base systems have a legitimate role in making simple judgments and otherwise guiding people making decisions that involve multiple factors or the use of discretion.²³ This view emphasises the benefits of consistency in decision making, which rule-base systems can bring.

²⁰ See Johnson & Dayal, op. cit, p. 2

²¹ See Putnis A., *Rule-base Systems and Government Decision-making: a preliminary issues paper*, 2001, p. 2.

²² See Greinke, op. cit., pp. 17–20.

²³ See Johnson & Dayal, op. cit.

Some advocates of the use of legal expert systems are more ambitious: they suggest that other programming techniques, such as case-based reasoning and neural networks, could be added to rule-based systems to improve computers' ability to make sophisticated decisions.²⁴

1.5.2 Use of expert systems in administrative decision making

It has been suggested that the use of expert systems other than rule-based systems in the administration of legislation may not be consistent with the principles of administrative law.²⁵

Numeric weighting is inherently imprecise²⁶ and does not take account of qualitative factors. It tries to reduce matters to an algorithm and is thus unsuited to any determination of entitlements that involves the exercise of judgment.²⁷ Nevertheless, it has been noted that this type of expert system can be useful in guiding a decision maker.²⁸ Fuzzy logic is useful if one wants to identify a tendency one way or another – for example, to analyse social trends. However, because it identifies tendencies rather than producing a result, it can be similarly unsuited to determining entitlements.

Case-based reasoning is inappropriate for representing statute law.²⁹ It is fact based, not conceptual. If the circumstances of a case were exactly the same as those of an earlier case, it could be used for administrative decision making, but as soon as the circumstances vary it is not reliable.³⁰ Neural networks are inductive and over time distinguish the relevant combination of facts. Such networks are unsuited to administrative decision making for the same reason that makes case-based reasoning unsuitable.³¹ It has also been suggested that systems that apply learnt knowledge – including neural networks and case-based reasoning – are inappropriate for use in making legal determinations 'because it is not possible to be certain that the rules they create and apply correspond to accepted legal norms'.³²

Although the Council is interested in the use of expert systems other than rule-based systems in administrative decision making, its initial consultations have not revealed widespread use of other expert systems in this context. Consequently,

²⁴ See Stranieri A., Zeleznikow J., Gawler M. & Lewis B., 'A hybrid rule-neural approach for the automation of legal reasoning in the discretionary domain of family law in Australia', *Artificial Intelligence and the Law*, vol. 7, 1999, pp. 153–83.

²⁵ Johnson & Dayal, *op. cit.*, p. 21.

²⁶ *ibid.*

²⁷ Johnson, *op. cit.*

²⁸ Johnson & Dayal, *op. cit.*, p. 21. It is noted that numeric weighting is also used in manual decision making.

²⁹ Popple J., *A Pragmatic Legal Expert System*, Dartmouth Publishing Company, Brookfield, US, 1996, p. 65. See also Johnson & Dayal, *op. cit.*, p. 21.

³⁰ Johnson, *op. cit.*

³¹ *ibid.*

³² Baker, *op. cit.*, p. 9.

given the prominence of rule-base systems in high-volume administrative decision making, this issues paper focuses on the use of such systems in administrative decision making and particularly in determining entitlements.

1.6 Government and rule-base systems

Government has executive and administrative functions. One of its executive functions involves formulating policy on various matters. Policy can be debated and implemented through legislation; in turn, policy emerges to assist with implementation of the legislation. The related administrative function involves application of that legislation and policy to an individual's particular circumstances. Administrative law processes have an important role in the relationship between government and the citizen or applicant. At the micro level, adherence to these processes ensures that decisions are properly made and that the rights of applicants are protected in their dealings with government agencies. At the macro level, adherence to administrative law processes improves the quality of government decision making generally.³³

With advances in technology and the increase in the quantity and complexity of administrative decisions, technology can be used to facilitate and possibly improve the administrative process. Use of technology in this way is part of a broader 'knowledge-management' framework.

Knowledge management has been defined in a number of ways. For example, it used to mean 'creating, using, sharing and learning from knowledge in order to improve an organisation's capacity to act'.³⁴ It has also been defined as 'getting the right knowledge to the right people at the right time to serve the right objectives'.³⁵ Rule-base systems are one element of a knowledge-management framework in that they provide a means whereby agencies can codify and promulgate a consistent interpretation of complex rules and policy.

Rule-base systems are not new, but using them to make, or help with making, administrative decisions by modelling various legislative paths is a new application of the technology. These systems have the potential to make decision making more accurate, consistent and efficient, and their use will also allow government to develop innovative service delivery options, including self-assessment.

³³ See Creyke R. & McMillan J., *Control of Government Action*, Butterworths, Sydney, (forthcoming), p. 1.

³⁴ Bennett G, Human Resources Director, AMP Financial Services, quoted in Moodie A., 'Knowledge management', in *Agenda*, Australian Institute of Management, Canberra, July 2002, p. 1.

³⁵ Stephens D., 'Knowledge management in the APS: a stocktake and a prospectus', Paper presented at Institute of Public Administration Australia conference 'Five Years of Reform', Canberra, November 2000, p. 4, cited in Edwards M., 'Public sector governance – future issues for Australia', *Australian Journal of Public Administration*, vol. 61, no. 2, p. 55.

However, despite the opportunities that rule-base systems provide, care must be taken to ensure that their use supports administrative law values and that administrative review mechanisms keep pace with technological change.

1.7 Administrative law values

The Council has previously identified five values as critical elements of the administrative review system:

- lawfulness
- fairness
- rationality
- openness – that is, transparency
- efficiency.³⁶

The Council considers that it may be beneficial to test the operation of rule-base systems in administrative decision making against these values. For example, the extent to which the rule-base accurately reflects the law is relevant to lawfulness, and whether there is an opportunity for independent scrutiny of the rule-base is relevant to openness. The issues paper outlines these considerations and the Council will consider them further when preparing its final report.

The concept of administrative justice is also pertinent in this regard. That concept has been described by Justice French as being ‘justice according to law’.³⁷ Justice French identifies four basic requirements for just decision making in a society governed by the rule of law – lawfulness, fairness, rationality and intelligibility.³⁸ He adds that accessibility, affordability and timeliness are also important from the perspective of the applicant and the general community.³⁹ Among the mechanisms for achieving administrative justice are education of decision makers, internal review by superior officers, and external administrative review.⁴⁰

³⁶ See the Council’s 1996 submission to the Senate Legal and Constitutional Affairs Committee Inquiry into Certain Matters Relating to the Role and Functions of the Administrative Review Council, paragraph 27, and the Council’s *A Guide to Standards of Conduct for Tribunal Members*, ARC, Canberra, 2001, p. 13.

³⁷ French Justice R., ‘Judicial review rights’, *AIAL Forum*, no. 28, p. 30.

³⁸ *ibid.*

³⁹ *ibid.*, p. 31.

⁴⁰ *ibid.*, pp. 31–2.

1.8 Preliminary observations

Some preliminary observations may be useful at this stage.

The first relates to the operation of rule-base systems. A decision cannot be made by the rule-base alone. A decision maker is required to judge or assign weight to any evidence on which the rule-base will make its decision, although the rule-base can guide the consideration of evidence. If discretion needs to be exercised in the making of a decision, the decision maker must perform that role, although again the rule-base can assist. (This is discussed further in Chapter 3.)

A related question concerns whether an operator can override the decision produced or recommended by a rule-base system. If the operator can, the system is being used as a *decision-support* tool rather than a tool to actually *make* the decision. However, the issues that arise when a rule-base system is used as a decision-support tool are also relevant when a rule-base system is used to make a decision.

The second observation is that some of the difficulties that arise in manual administrative decision making might also arise where rule-base (or other expert) systems are used in such decision making. For example, if a decision maker has a view about the desired outcome when making an administrative decision manually, that person could also manipulate a rule-base system to reach the desired result. Rule-base systems can produce accurate and consistent decision making, but they rely on the information entered and cannot eliminate the potential for human direction or error. Human direction could occur for a number of reasons, including bias or, as is probably more likely, because the decision maker genuinely believes that the rule-base needs to be manipulated to give the correct or preferable decision.

The third observation is that, where a rule-base system has been commissioned by a government agency, this has inevitably been a part of a broader change-management process. The agency's business activity has been redesigned and the use of rule-base technology has been one element of that strategy. This paper is limited to consideration of the operation of rule-base systems and does not deal with the broader change-management processes that may accompany implementation of such systems.

Finally, the issues paper uses the term 'applicant' to describe the person applying for the benefit and the term 'officer' or 'decision maker' to describe the government official who is entering information on the rule-base and exercising any available discretion.

2 The Council's stocktake of expert systems

The Council conducted a stocktake of the current and proposed use of expert systems by Commonwealth agencies. The following questions were asked:

- Are expert systems currently used within your agency to make administrative decisions? If so, what decisions are the systems used to make?
- Does your agency propose to use other expert systems in the future or to expand the categories of decisions currently made using existing expert systems? If so, please provide details.

The results for rule-base systems are presented in this chapter; details of other expert systems identified in the stocktake are provided in Appendix B. Commonwealth agencies were advised that the results of the stocktake would be published in the issues paper.

The Council is also aware that some state government agencies use rule-base systems; that is also noted in this chapter.

2.1 Rule-base systems used by Commonwealth agencies

2.1.1 Agriculture, Fisheries and Forestry—Australia

AFFA appears to have at least four rule-base systems. The Australian Quarantine and Inspection Service Import Management System, or AIMS, is used to make decisions on whether imported commodities should be subject to inspection at the border and to provide advice on the appropriate tests to apply. AIMS has a component called the Automatic Entry Processing System, which collects information from an import entry and uses a set of rules to apply quarantine directions allowing movement of cargo.

The Import Conditions Database is used to make decisions to permit or reject an import under the *Quarantine Act 1908*. The Phyto Internet-Grains/Horticulture Expert System and the Live Animal Exports System are used to make decisions to permit or to reject an export under the *Export Control Act 1982*.

2.1.2 The Australian Fisheries Management Authority

AFMA does not use rule-base or other expert systems to make administrative decisions that are reviewable under the *Fisheries Management Act 1991*, but it does use a rule-base system when making some decisions about whether to prosecute

under that Act. The decisions are those in which Vessel Monitoring System information is available: the VMS tracks fishing vessels and can be used to provide evidence about breaches of fisheries regulations and permit conditions.

2.1.3 The Australian Taxation Office

Use of automated systems in the ATO is not new: a large number of rule-base and other expert systems are used. The rule-base systems are used, for example, to determine the rate of shortfall penalty, residency status⁴¹, whether a scholarship is taxable, whether to use the discount or indexation method for declaring a capital gain, and entitlement to the family tax benefit and the 'baby bonus'. Systems have also been installed on the internet for clients' use. Over 30 other rule-base applications are being developed. It is thought there will be a high and growing demand for rule-base and other expert systems from all areas of the ATO.

It was noted in the course of the Council's discussions with the ATO that *TaxPack* (in both paper and electronic form) is essentially a rule-base system in that the questions in it form a decision tree (see Section 1.4.1).

2.1.4 Centrelink and the Department of Family and Community Services

As with the ATO, the use of automated systems is not new in Centrelink and FaCS. Under a business partnership agreement FaCS contracts Centrelink to administer specific payments. Centrelink and FaCS are implementing the Edge Project, which has two expert system applications – the Claims Processing Application and the Policy Development Application.

The Claims Processing Application uses a rule-base system in the administration of family tax and childcare benefits, maternity allowances, and maternity immunisation allowances; it is administered by Centrelink on behalf of FaCS and began operating on 15 July 2002.

The Policy Development Application enables officers to model proposed changes in legislation within the rule-base, in order to determine the impact of the changes on different sections of their customer base⁴² and to identify any unintended consequences. From an administrative perspective, this application also helps FaCS identify the various policy areas that need to be consulted in relation to the proposed change. FaCS is currently developing a strategy for deploying the application to other suitable areas of the department.

⁴¹ Numeric weighting is also used for determining residency status.

⁴² Foreman L. & Kos M., 'Using expert systems to deliver better public services', *Canberra Bulletin of Public Administration*, no. 100, June 2001, p. 12.

2.1.5 Comcare

In 1998 Comcare implemented a rule-base system, the Initial Liability Module, for determining the Commonwealth's initial liability in relation to workers compensation claims under the *Safety, Rehabilitation and Compensation Act 1988*. The system requires an officer to answer a series of questions in order to establish the employment relationship of the applicant employee to the employer, the medical relationship of the injury or disease to the employment, the nature of the injury or disease, and a number of other technical questions. Answering the questions requires judgment and skill. The system makes no decisions; rather, it prompts the user to follow a structured approach to arriving at a decision. A recommendation based on the answers to the questions is offered by the system but can be overridden by the officer.

A document-assembly system operates in conjunction with the rule-base system, allowing standard letters to be generated. The system has been used for all initial liability decisions since 1998, amounting to approximately 6500 claims a year.

At this stage Comcare has no plans to expand the use of expert-systems technology to support other decision-making processes.

2.1.6 The Department of Veterans' Affairs

DVA has been at the forefront of the development of rule-base systems in Commonwealth government agencies. In 1994 it introduced a rule-base system known as the Compensation Claims Processing System to support decision makers in determining veterans' entitlements under the *Veterans' Entitlements Act 1986*. The system was progressively introduced in all states and territories between March and September 1994, and in 1998-99 it was extended to cover internal review. DVA also uses another rule-base system, the Above General Rate stand-alone module, which determines eligibility for rates of pension that depend on employability. The module will be integrated into the Compensation Claims Processing System.

DVA also has two rule-base systems that are accessible via the internet. ELMNET (Eligibility Module Net) is a self-assessment tool that determines whether a veteran's military service entitles him or her to benefits. The second system, Just-in-Case, is a self-assessment tool built by DVA and the Department of Defence. It allows veterans and members of the Australian Defence Force to determine the Act under which they are eligible to lodge a claim – that is, either the Veterans' Entitlements Act or the *Safety, Rehabilitation and Compensation Act 1988*.

2.1.7 The Department of Defence

Defence uses rule-base systems to determine initial liability for workers compensation, compensation payments, degrees of permanent incapacity and ensuing payments and to administer its occupational health and safety system.

Administrative responsibility for the determination of compensation and invalidity payments was transferred to the Department of Veterans' Affairs in 1999; Defence retains policy responsibility for the function.

Rule-base systems are also used in Defence for guiding engineering decision making as part of the Integrated Logistic Support process and for career planning. With the systems used for career planning, numeric weighting is applied to assess human input and then predefined rules are applied to produce a ranking of officers eligible for promotion.

2.1.8 Department of Health and Ageing

Health operates a rule-base system called COMPASS, which assists in making decisions about approved providers' compliance with the *Aged Care Act 1997*. Some of the most critical approved-provider responsibilities relate to the quality of care the providers must offer to residents of their homes and users of their services. When there is a breach of those responsibilities the Department can impose sanctions. COMPASS includes a document-assembly system that assists the preparation of complex sanctions notices. The relevant decisions—including the decision whether to issue a sanctions notice and a notice that actually imposes sanctions—are made by delegates of the Secretary of the department, and COMPASS assists in this.

COMPASS covers very prescriptive legislative provisions and was developed to foster a nationally consistent approach to compliance action. After a decision has been made with COMPASS assistance, it is checked by a quality assurance officer and then by a legal officer. The system was developed in house because the department had officers with detailed knowledge of the legislation and sufficient in-house IT expertise.

It is proposed to expand COMPASS to assist with decision making in relation to other areas coming within the Aged Care Act—including decisions about the transfer of places from one approved provider to another and the renewal of extra service status (see Divisions 16 and 34 of the Act).

2.1.9 Environment Australia

Environment Australia has two rule-base systems. One system helps administer the *Environment Protection and Biodiversity Conservation Act 1999*; it operates online and allows applicants to determine whether their proposed development will affect land protected under the Act and whether they therefore need to make an application under the Act.

The National Heritage List Decision-Support Tool is a rule-base system that uses a query on a large body of mapped environmental information to return a map-based answer. It is used to help identify regions of Australia in which to conduct more detailed natural heritage identification work using conventional means. It is

expected that the system will ultimately be expanded to return an estimate of the comparative level of natural heritage significance for the vicinity of heritage nominations and referrals under the Environment Protection and Biodiversity Conservation Act.

Environment Australia is also considering the use of a rule-base system in the corporate management area. A review of current Antarctic science approvals is being conducted. The department would like to provide a 'one-stop shop' in which the relevant legislation can be identified and a person's application assessed. It is possible that an expert system will be introduced in this context.

2.1.10 The Therapeutic Goods Administration

The TGA has a Listed Medicines Assessment Engine that is used in the assessment of listed medicine submissions for entry on the Australian Register of Therapeutic Goods. The system does a preliminary assessment of a submission, to check rule-based information such as combinations of ingredients and the upper limits of concentrations. The results are then considered as part of the manual decision-making process. The system is used only for analysis of scientific data submitted as part of an application for marketing approval for lower risk (listed) medicines such as vitamins, minerals and herbal products. It is intended that it will be extended to fully automate the decision-making process, with random and targeted manual reviews of a subset of submissions. The system will be available online to sponsors wishing to market a listed medicine product in Australia.

2.2 Rule-base systems used by state agencies

2.2.1 The South Australian Community Housing Authority

SACHA, a statutory body within the South Australian Government's Human Services portfolio, operates a rule-base system. In South Australia community housing properties are managed by community housing organisations, which are generally run by volunteers. SACHA's rule-base system – the Community Housing Eligibility Register, or CHER – is accessed by community housing organisations and facilitates their assessment of applicants' eligibility for housing. CHER is used as a decision-support tool: judgments are left for human decision makers. It is envisaged that CHER could ultimately be used by referral bodies and that self-assessment by applicants will become possible.⁴³ SACHA has suggested that it may be able to use rule-base systems to determine whether the eligibility process is misunderstood by community housing organisations and, if so, conduct education sessions to remedy that. In recognition that community housing

⁴³ Ainsworth S., 'Conducting complex business processes such as rent and tenancy management on-line: cyber-relating government and community', Paper presented at 13th National Technology in Government Conference, Canberra, March 2000, p. 7.

organisations need to retain control of the process within their organisations, use of the rule-base system by the organisations is voluntary.

2.2.2 The New South Wales Roads and Traffic Authority

The New South Wales RTA uses a rule-base system to make decisions on licences, vehicle registrations, and the allocation of penalties for traffic infringements. The rules embody relevant legislation, regulations, policy and practice. A customer service operator can override the system in certain circumstances; the reason for overriding it is documented and audited.

2.2.3 The New South Wales Premier's Department

The New South Wales Premier's Department is piloting a rule-base system that will deal with injuries to personnel and advise on extended leave and retirement matters in relation to the state's public servants. The rules embody the relevant parts of the *Public Sector Management Act 1988* (NSW) and the regulations and policies that apply to this area. The impetus for piloting a rule-base system comes from the cost of processing leave forms – particularly given error rates, the time and resources needed to deal with inquiries, and the possibility of inconsistent advice being given. It is expected that the system will be made available via the internet to managers in the New South Wales Public Service.

ISSUE

Are you aware of the use of rule-base systems in administrative decision making in situations other than those identified here? If so, please provide details.

2.3 Post-stocktake discussions

Following the stocktake, the Council decided to engage in further discussions with Commonwealth agencies using rule-base systems to assist in making a large number of decisions that have a significant impact on individuals. The agencies with whom discussions were held were Comcare, the Department of Veterans' Affairs, the Department of Family and Community Services, Centrelink and the Australian Taxation Office. Where relevant, matters canvassed during those discussions are included in this issues paper.

3 Design and development of rule-base systems

The Council is particularly interested in the design and development of rule-base systems and the impact this can have on applicants and the accuracy of the processes involved. For example, if the system is not appropriately designed or an error is made at the development stage, a large number of applicants could be affected. In contrast, an error made in manual decision making might affect only one applicant. This chapter considers the motivation for rule-base systems and attempts to elucidate the factors that have led agencies to decide to use these systems. It also discusses the skills that designers of rule-base systems should have, the processes for testing the accuracy of the rules, and possible approaches to the exercise of discretion when the systems are being used.

3.1 The motivation for rule-base systems

Most agencies that have introduced rule-base systems seem to have been motivated by a desire to increase the accuracy and consistency of their decision making and to reduce the time and costs associated with that function. This motivation is particularly apparent in the case of agencies required to make a high volume of administrative decisions. One agency noted that among the factors that prompted it to implement a rule-base system were the desire for a system that could model legislation and identify unintended consequences of legislative change and the need to ensure that the payments made reflect the legislation and government's e-business policy direction.⁴⁴

ISSUE

What were the factors that led your agency to decide to use rule-base systems in decision making – volume of decisions, reliability and consistency of decision making, and so on – and what weight did those factors carry in the decision?

3.2 System designers

The skills and qualifications of people who design rule-base systems are also of interest to the Council. In some cases policy and legal officers from an agency have formulated the rules together with technical officers from the company

⁴⁴ The goal of *Government On-line – the Commonwealth Government's strategy* is to ensure that all appropriate government services are available online: see the media release by Senator the Hon. Ian Campbell, 6 April 2000.

supplying the product. In other cases, the entire process has taken place in house, the expertise being available within the agency. Neither approach is necessarily preferable: it simply depends on the skill mix and proficiency within a particular agency at the time. It would, however, seem desirable for system designers to have both technical knowledge of rule-base systems and legal and policy skills.

ISSUE

What are the qualifications of the people who developed your agency's rule-base systems? What knowledge, if any, are they required to have of the relevant legislation and policy framework?

3.3 The accuracy of the rules

The accuracy with which the rules reflect the legislation is crucial to the fair operation of a rule-base system. The administrative law values of lawfulness, rationality and fairness are at issue in this connection.

In some rule-bases the rules are written in plain English before being translated into a computer language. This means that the text of the rules can be readily discerned by those who are not computer technicians, which would appear to be a significant advantage in checking the accuracy of the rules. The administrative law values of fairness and openness are at issue here.

ISSUE

What procedures did your agency employ for developing and testing your rule-base systems to ensure that they corresponded with relevant legislation and policy?

Regardless of how accurate a rule-base is, it can be only an approximate representation of the law. It has been noted that

It is rare that there can be a 'verbatim representation' of the logical structure of a section or subsection because the natural language of legislation does not restrict itself to the limited range of key words ... and the limited range of logical forms of expression allowed by any representation.⁴⁵

Further, the legislation is interpreted by the author of the rule-base and the content of the rules reflects that interpretation. Consequently, 'the best that can be achieved is usually a logically equivalent paraphrase'⁴⁶, and the content of the

⁴⁵ Greenleaf G., Mowbray A. & van Dijk P., 'Representing and using legal knowledge in integrated decision support systems: DataLex Workstations', [1995] COL 1 at 9.

⁴⁶ *ibid.*, p. 9.

rules once constructed may differ from the legislation.⁴⁷ It has also been suggested that factors other than interpretation of the legislation may engender that difference. Among those factors are a preference for rules with reduced discretion and the goal of making self-assessment possible (see Chapter 5).⁴⁸

3.4 Discretion in the rule-base

The way any discretion in making a decision is dealt with in the rule-base is important. SoftLaw has identified three main approaches to dealing with discretion⁴⁹:

- *Approach 1 – direct.* Using this approach, the discretion to be exercised is asked as a base-level fact (to which the response is yes or no) and the officer exercises the discretion whilst being guided by the commentary. The officer can record the reasons for the exercise of a discretion in what SoftLaw calls a ‘reason box’, which can be used to collect audit information. This is SoftLaw’s default approach. It is appropriate where questions of fact and value are inseparable in the exercise of a discretion, so that a decision maker attaches value to a matter of fact even in choosing to have regard to that matter of fact. This is the main approach used in the FaCS–Centrelink Edge Project.

This approach was adopted in the question ‘Has the decision maker determined that Katie is to be taken as a family tax benefit child of Sarah for the purposes of the childcare benefit?’ This question relates to ss. 42(2), 44(3) and 45(3) of the *A New Tax System (Family Assistance) Act 1999*, which provide that the Secretary may determine that a child who is not a family tax benefit child of an individual at a particular time is taken to be such a child of the individual at that time for the purposes of certain childcare benefits.

- *Approach 2 – recommendation.* When this approach is used the rule-base collects data related to the discretion and then makes a recommendation to the officer. The officer is asked to confirm or override the decision and to fill in the reason box for audit purposes. This approach is used in limited situations where questions of fact and value are separate but must be reconciled by a decision maker in the exercise of discretion. When it is used, the decision maker is required to attach a value to each matter of fact before exercising the discretion. The commentary might suggest the value to be attached to each matter of fact.

An example of this approach is an officer’s decision as to whether initial liability should be accepted under s. 14 of the *Safety, Rehabilitation and Compensation Act 1988*. The rule-base system makes a recommendation and

⁴⁷ See Baker, op. cit., pp. 23–47.

⁴⁸ *ibid.*, pp. 44–6.

⁴⁹ The descriptions of these approaches were provided by SoftLaw.

then it is open to the officer to override that conclusion. There is a facility that allows the officer to provide any additional reasons or supporting explanation.

- *Approach 3 – guided.* This approach is appropriate when questions of fact and value are entirely separate, such that the only question of value in the exercise of a discretion is whether it be exercised at all. For example, the discretionary provision sets out the matters of fact that must be considered if the discretion is to be exercised. The approach offers alternatives: the officer can exercise discretion as a base fact or can choose to be guided through the various factors that must be considered in exercising the discretion, a process that ensures the officer has considered all the factors relevant to exercising the discretion and the factors can be reviewed for audit purposes. The officer is then presented with a question, as in Approach 1, that requires them to enter the discretion as a base-level fact. There is also a reason box.

An example of this approach is a taxation prototype being developed for the Australian Taxation Office but not currently in use. The prototype relates to s. 87-65 of the *Income Tax Assessment Act 1997*. Where a business fails a test for a ‘personal services business’, the Commissioner has a residual discretion. Subsection 87-65(3) limits the exercise of that discretion but refers to the consideration of ‘exceptional circumstances’, which are further defined in s. 87-65(4). Where the ‘unusual circumstances’ are immediately obvious to the officer – because of their nature or the officer’s expertise – the discretion can be exercised immediately and the reasons collected. If, however, the officer wants to consider further the statutory limitations on the exercise of the discretion, the rule-base takes him or her through the relevant screens.⁵⁰ SoftLaw notes, ‘The availability of an “immediate” discretion may be limited to users above a particular level of experience. In this manner ... rule-bases may be developed for less experienced users’.⁵¹

Presumably there are other possible approaches. For example, the rule-base might not deal with or guide the exercise of discretion at all and, where discretion needs to be exercised, the matter is ejected from the system.

ISSUE

Are you aware of any of these approaches being used in your agency’s rule-base or by an agency with whom you have contact? If so, please identify which approach is used for which decisions. If not, what other approach does the agency employ?

Although the rule-base can assist in the exercise of discretion, care needs to be taken to ensure that it does not inappropriately narrow the available discretion. If

⁵⁰ Information provided by SoftLaw on 26 September 2002, pp. 1–2.

⁵¹ *ibid.*, p. 3.

a rule-base incorporates policy that narrows the available discretion without appropriate authority, the exercise of that discretion may impinge on the administrative law values by being unlawful, unfair, irrational and not transparent. Any policy that limits the way in which discretion might be exercised should also be readily available to an applicant or their representative.

ISSUE

To what extent were administrative justice⁵² and values⁵³ taken into account in the design of the rule-base system used in your agency?

3.5 Initial scrutiny of the rule-base

It seems clear that the developers of a rule-base system should not be responsible for its final testing. Rigorous testing of the system should be done by individuals independent of the system developers.

One way of testing the accuracy of the rules in the rule-base and the way the rule-base deals with the exercise of discretion is to arrange independent scrutiny of the rule-base before it becomes operational.⁵⁴

ISSUE

Did your agency have the rule-base system independently scrutinised before it became operational? If so, who did this?

Did the agency engage in some other type of applicant assurance process? If so, what kind?

3.6 System maintenance

The system needs to be maintained to ensure its accuracy. Agencies might elect to rely on the system supplier to service the system or they might wish to ensure that they have sufficient expertise in house. Depending on the terms of the contract, a system supplier might charge a fee for maintaining the rule-base. There will also obviously be a cost if that expertise is maintained in house.⁵⁵

⁵² This concept is discussed in Chapter 1.

⁵³ These values are listed in Chapter 1.

⁵⁴ The need for continued scrutiny of rule-base systems is discussed in Chapter 5.

⁵⁵ See Chapter 4 for further discussion of this.

ISSUE

Is your rule-base maintained by the system supplier or in house? Which option is preferable and why? If it is maintained by both the system supplier and in-house expertise, who does what?

Regardless of whether an agency's rule-base system is maintained in house or by an external supplier, it appears that those responsible for maintenance need a detailed knowledge of the original development of the system, to ensure that modifications are consistent with the original model.

ISSUE

Do you agree that satisfactory system maintenance requires knowledge of the system's development? What steps has your agency taken to ensure that such knowledge is not lost?

3.7 Security

Personal information stored in rule-base systems needs to be secure and access to it strictly regulated. Security measures should be such that both agencies and applicants can have confidence in the system.

ISSUE

What security measures does your agency have in operation to protect the integrity of the personal information stored in your agency's rule-base system? Is officers' access to personal information logged?

4 Arguments for and against rule-base systems

There are many perceived benefits in using rule-base systems in administrative decision making, among them increased accuracy and consistency in decision making, improvements in client service, and cost efficiencies. Rule-base systems also provide an audit facility and allow for scenario planning and data collection. Potential problems with the use of the systems in administrative decision making include the possibility of decision makers becoming 'de-skilled', applicants' non-acceptance of the systems, non-compliance with administrative law values, and the continuing need to maintain the accuracy of the rule-base.

4.1 Accuracy and consistency in decision making

As noted one of the perceived benefits of using rule-base systems is that the systems promote accuracy and consistency in decision making.⁵⁶ It is also claimed that they eliminate human prejudice from decision making.⁵⁷

The complexity of legislation creates an environment where error is likely. Forty-nine per cent of agencies that responded to a questionnaire issued as part of the Management Advisory Board's Quality in Customer Service Project identified the complexity of legislation and regulations as an inhibitor to the provision of quality customer service by the Australian Public Service.⁵⁸ This complexity is compounded by ambiguity or uncertainty in legislation, frequent changes to legislation, the need to administer different provisions for different cases at different times, high staff turnover, pressure of work, limitations on training, and reliance on staff keeping up to date with the legislation.⁵⁹

People making decisions may not consult the relevant legislation in processing an application but instead use policy manuals that attempt to summarise the law and may not include all recent legislative amendments and changes in policy. Determinations can also require consideration of matters that arise infrequently

⁵⁶ See Australian Law Reform Commission, *Review of the Federal Civil Justice System*, Discussion Paper 62, ALRC, Sydney, 1999, p. 181; Johnson & Dayal, op. cit., p. 1.

⁵⁷ Sutherland & Johnson, op. cit., p. 15.

⁵⁸ Management Advisory Board, *Quality in Customer Service in the Australian Public Service*, Commonwealth of Australia, Canberra, 1997, p. 7.

⁵⁹ Sutherland & Dayal, op. cit., p. 13.

and are not commonly understood by decision makers. Evidence suggests that as a result of these factors the level of accuracy in decision making can be quite low.⁶⁰

Recent Australian National Audit Office audit reports have provided evidence of the extent of incorrect payment of government benefits.⁶¹ While the Council does not wish to single out particular agencies, ANAO's Age Pension Entitlements Audit⁶² is illustrative. In this audit, ANAO assessed the controls used by the Department of Family and Community Services and Centrelink to ensure the correctness of payments made under the Age Pension. This involved reviewing statistics used by Centrelink itself to assure FaCS that payments, and therefore program outlays, have been made in accordance with Social Security Law.⁶³ Centrelink uses a system of random sample surveys to obtain performance information on the integrity of the outlays.

According to the 2000–01 Age Pension random sample survey, 28 per cent of age pensioners were receiving an incorrect entitlement. The survey attributes this error to the following sources: 13 per cent to customer error; 1 per cent to Centrelink error; 2 per cent to Centrelink and customer error; and 12 per cent to other causes.⁶⁴ On the basis of these figures, FaCS estimated that the net impact on outlays arising from these incorrect payments was approximately 1 per cent of total program outlays. The ANAO audit report re-attributed the source of some errors, finding that 3 per cent of errors resulted from Centrelink processing errors and 22 per cent resulted from customer error.⁶⁵ Most customer error was found to be the result of customers not informing Centrelink of changes in their circumstances, which they are required by law to do.⁶⁶

The ANAO report concluded that, although attributing errors to particular sources can be valuable in identifying problem areas, FaCS and Centrelink should also address the overall error rate – that is, Centrelink error plus customer error. It was suggested that Centrelink should consider ways of improving customer service so as to ensure that customers adhere to their obligations.⁶⁷ Both FaCS and

⁶⁰ Australian National Audit Office, *Special Benefit*, Audit Report no. 20 1999–2000, ANAO, Canberra, 1999, p. 13. In response to that report, Centrelink implemented a number of strategies to improve the quality of decision making – see Centrelink, *Annual Report 2000–2001*, p. 61 <www.centrelink.gov.au>. See also Australian National Audit Office, *Compensation Pensions to Veterans and War Widows*, Audit Report no. 3 1996–1997, p. xiii, and *Review of Veterans' Appeals against Disability Compensation Entitlement Decisions*, Audit Report no. 29 2000–2001, pp. 36–9, which commented on the improvements made by the Department of Veterans' Affairs in its decision making.

⁶¹ See also Australian National Audit Office, *Assessment of New Claims for the Age Pension by Centrelink*, Audit Report no. 34 2000–01, ANAO, Canberra, 2001.

⁶² Australian National Audit Office, *Age Pension Entitlements*, Audit Report no. 17 2002–03, ANAO, Canberra, 2002.

⁶³ FaCS and Centrelink have developed an agreed Business Assurance Framework to measure performance – *ibid* p. 6.

⁶⁴ *ibid*.

⁶⁵ *ibid*.

⁶⁶ *ibid*.

⁶⁷ *ibid*.

Centrelink acknowledged the challenge of increasing complexity in customers' circumstances and in legislation and processing requirements. FaCS agreed with ANAO that more needed to be done to reduce customer error.⁶⁸ Centrelink considered that better targeting of reviews of customer circumstances and the use of other decision-support tools should lead to reductions in processing errors and an increase in overall payment accuracy.⁶⁹

More broadly, Centrelink's *Annual Report 2000–2001* notes that the agency

... is committed to ensuring that wherever possible we pay the right person the correct entitlement at the right rate. To support this objective six priority areas were identified:

- following correct procedures for establishing proof of identity
- keeping better records of customer information
- improving documentation of customer contacts on our payment systems
- ensuring that we record reasons for decisions
- keeping technical knowledge and skills current
- improving checking of the decisions made on customer payments.⁷⁰

4.1.1 Areas of decision making that can affect accuracy and consistency

It is possible to identify four areas in which an error can be made in the application of legislation to the determination of an entitlement:

- the substance and breadth of the legislation
- the structural complexity of the legislation
- semantic complexity in the legislation
- the exercise of discretion.⁷¹

The first area of potential error – the substance and breadth of the legislation – relates to the fact that the relevant provisions can often be found at various locations throughout a statute, and a correct determination is dependent on identification and application of all those provisions; for example, definitions and clarifying terms might be inserted at the front of the statute and not near the operative provision. The second potential problem – structural complexity –

⁶⁸ *ibid.*, p. 8.

⁶⁹ *ibid.*, p. 9.

⁷⁰ Centrelink, *Annual Report 2000–2001*, op. cit., p. 230.

⁷¹ Johnson, op. cit.

relates to the form of the relevant provision; for example, preconditions can be conjunctive or disjunctive or there may be exceptions to preconditions. There are numerous instances of provisions with those characteristics (see, for example, s. 94 of the *Social Security Act 1991*). The third potential problem – semantic complexity – relates to the interpretation of certain terms.

It has been suggested that the use of rule-base systems can eliminate the potential for error in the first two areas.⁷² Potential errors in relation to semantic complexity and the exercise of discretion can also be minimised through the use of appropriate commentary, which codifies relevant policies and rules, as an adjunct to the rule-base system. A rule-base system cannot directly support the making of a judgment in a complex case, but it can automate and control the process used by the decision maker to reach a judgment.⁷³ It can improve the accuracy and consistency of decision making by facilitating the same interpretation of the rules in each case.

An interview using a rule-base system can help with gathering information from a client; it can determine the facts on which a decision will be based and thus identify what requires proof and then provide the client with a list of the evidence required.⁷⁴ Once the necessary evidence has been identified, a rule-base system can be a useful adjunct to the consideration of evidence. It can load the case and begin a tailored evidentiary investigation⁷⁵; it can focus the assessor's mind on the consideration of each item of evidence, the requirements for that item, and the need for accountability in the consideration of evidence.⁷⁶ However, it '... cannot and should not attempt to automate the judgment of the quality of evidence'⁷⁷; this should be the primary task of assessment staff.⁷⁸

The rule-base can also provide a comprehensive record of the consideration of the evidence, as well as the basis for monitoring and auditing.⁷⁹

Comcare advised the Council that an external audit of its decision making was conducted six months after the rule-base system was implemented. The audit focused on accuracy and consistency in decision making and found that there was a 70 per cent improvement in those areas following introduction of the system.

4.1.2 Consistency

Using a rule-base system promotes consistency in decision making across jurisdictions. The process of developing a rule-base and the accompanying

⁷² *ibid.*

⁷³ Johnson & Dayal, *op. cit.*, p. 20.

⁷⁴ *ibid.*

⁷⁵ *ibid.*

⁷⁶ *ibid.*, p. 11.

⁷⁷ *ibid.*, p. 10.

⁷⁸ *ibid.*

⁷⁹ *ibid.*

commentary also throws up matters in relation to which an agency's policy has not been recorded, is limited or does not exist. This prompts the agency to develop policies on those matters and thereby promotes consistency.

'Workarounds' and potential manipulation of the system also affect consistency. A 'workaround' describes a formal or informal process whereby the rule-base is not followed because, for example, it is out of date or the user does not consider it produces the correct result. This is discussed in greater detail in Section 4.2.

The accuracy and consistency rule-base systems can offer is relevant to the administrative law values of fairness and rationality.

4.1.3 Changes to the rule-base

If legislation that the rule-base models is amended or errors in the rule-base are detected, the rule-base needs to be amended quickly.

Rule-base systems can readily accommodate legislative change. They can also show the legislative rules as they were at a particular time in the past, obviating the need for the relevant legislation to be reconstructed by an officer. This is particularly useful with old cases.

If an error is identified in a rule-base, those affected can be identified and the appropriate determination then made. The rule-base can be corrected and officers using it from then on will be relying on an accurate, consistent set of rules. The difference between this and a manual system is that with the latter there is less guarantee that all officers will become aware of the error quickly and modify their practices; there is also no easy way of identifying past erroneous decisions. With the rule-base, there is no need to send memos or circulars advising of a change or error because amending the rule-base performs that function.

ISSUE

What has been the effect of the use of rule-base systems on the accuracy and the consistency of primary decisions?

Can you provide statistics on the accuracy and consistency of primary decisions made before and after implementation of the rule-base system?

Has your agency's decision-making ability pre- and post-introduction been scrutinised in an external audit like that undergone by Comcare?

4.2 Time and cost

Rule-base systems can decrease the time and cost associated with making administrative decisions; this is relevant to the administrative law value of efficiency. At the Department of Veterans' Affairs, use of the Compensation

Claims Processing System enabled the department to substantially improve its performance in finalising primary claims.⁸⁰ In 1996 the department evaluated the system's implementation; the report of the evaluation noted that the average time taken to process primary-level decisions fell from 157 days in 1991–92 to 102 days in 1995–96.⁸¹ (The average time taken to process primary claims fell further, to around 73 days).⁸² Between 1991–92 and 1995–96 the average cost per case dropped from \$868 to \$541.⁸³

On the other hand, rule-base systems can be time-consuming and expensive to create and difficult to maintain.⁸⁴ Each time a legislative amendment is passed or a new court or tribunal decision affects the interpretation of an existing provision, the rule-base needs to be amended. If this is not done the rule-base is inaccurate. At least one agency noted that cost was an inhibiting factor in keeping the rule-base up to date. Some agencies are building the capability to maintain the rule-base in house because they think that will be more cost efficient.

If errors in the system are identified and cannot be fixed immediately because of the cost involved, management-initiated workarounds can be developed whereby officers are advised of the problem and given instructions for remedying it. It is also possible, however, that more informal workarounds could be developed by individual officers: this practice would undermine one of the inherent advantages in using a rule-base – namely, the accuracy and consistency of the criteria used as the basis for decision making. One agency informed the Council that it has a dedicated budget for updating the rule-base. A dedicated budget for maintaining the rule-base or retention of sufficient support in house, or both, would seem to be the optimum way of ensuring that a rule-base remains up to date.

ISSUE

Does your agency have a dedicated budget for maintaining its rule-base? How often is the rule-base updated?

How soon after a legislative change is made or a relevant decision handed down is the amendment incorporated in the rule-base? If there are delays, what causes those delays?

⁸⁰ Australian National Audit Office, *Review of Veterans' Appeals against Disability Compensation Entitlement Decisions*, op. cit., p. 36.

⁸¹ *ibid.*, pp. 42–3.

⁸² *ibid.*, p. 43.

⁸³ *ibid.*

⁸⁴ See Parliament of Victoria Law Reform Committee, *Technology and the Law*, Government Printer, Melbourne, 1999, p. 239.

ISSUE

What has been the effect of the use of a rule-base system on the cost of primary decision making? Can you provide statistics on the cost of primary decisions made before and after implementation of the system?

ISSUE

What has been the effect of the use of a rule-base system on the time taken to make primary decisions? Can you provide statistics on the time taken to make primary decisions before and after implementation of the system?

ISSUE

What performance indicators should be used to measure rule-base systems – for example, accuracy, consistency, cost and time?

4.3 ‘Skilling’ or ‘de-skilling’ decision makers?

Proponents of rule-base systems argue that the systems relieve decision makers of routine work. The decision makers must still make the human judgments – that is, consider the evidence and exercise any discretion – but the rule-base system can perform the remainder of the decision-making task, including preparation of the statement of reasons. It has been suggested that this increases the skills of decision makers by allowing them to develop expertise in a broader number of areas, conduct research, focus on and negotiate with clients, and provide referral services.⁸⁵ There are also continuity benefits for the applicant and the officer, in that one officer is usually involved in the matter from beginning to end.

It can be argued, however, that using rule-base systems will diminish the skills of decision makers if they effectively become data processors entering yes or no in response to questions and are not required to exercise any judgment in the process. Corporate knowledge of alternative or more complex paths through the legislation may be lost.⁸⁶ Further, the ability to draft accurate statements of

⁸⁵ In this context, there is an issue in relation to the extent of inquiries that officers should reasonably be expected to make. As one agency noted, should an agency test applicants for every possible benefit or should it just focus on the benefit the applicant is seeking? The law on this is canvassed in Creyke’s paper ‘The impact of judicial review on tribunals – recent developments’, which was presented to the Australian Institute of Judicial Administration Tribunals conference on 7 June 2002. The paper notes that, generally speaking, courts are slow to impose an obligation on a tribunal to undertake independent inquiries and that this reluctance reflects the need to balance efficient administration with administrative justice. It also notes that to date the courts have been reluctant to expand the duty.

⁸⁶ One agency head noted, however, that its legislation is so complex that the only way officers can deal with the complexity is to rely on expert systems.

reasons may also be lost. Some agencies said they considered decision makers might be de-skilled through the use of rule-base systems. If officers are de-skilled and corporate knowledge is lost, this may adversely affect the administrative law value of efficiency.

The use of rule-base and other expert systems could result in over-reliance on information technology in decision making. If a computer system crashes, for example, officers need to be able to make decisions manually.

In some agencies, use of rule-base systems has resulted in the responsibility for certain decisions being delegated to officers at more junior levels than was previously the case. The Department of Veterans' Affairs noted that use of its Compensation Claims Processing System has led to reduced classification and numbers of decision makers⁸⁷, which in turn has resulted in cost savings. The use of such systems can thus also provide an opportunity for organisational restructuring and a capacity to achieve organisational goals.⁸⁸

Alternatively, it has been suggested that decision makers should be retained at the level as they were at before the rule-base system was implemented and that their output should be higher, which should still result in cost savings.

Although the use of rule-base systems can provide benefits in terms of the accuracy and consistency of administrative decision making and can reduce the time and costs associated with such activity, the systems are no substitute for comprehensive, regular training of officers engaged in decision making. Officers still need to be able to explain a decision to an applicant, and this includes an explanation of the relevant legislation and policy and any changes to it. These skills are especially important when applicants are not entitled to benefits or are no longer entitled to benefits or the same level of benefits. This training should be conducted in advance of legislative and policy changes.⁸⁹ One agency head noted in the course of discussions that, although rule-base systems provide useful assistance in the determination of entitlements, highly skilled officers are still the most critical element in the process. The goal is to reduce the cost of and time taken in decision making without there being a diminution in discretion or skills.

⁸⁷ O'Sullivan K., 'Creating world's best practice in compensation claims processing', p. 7. This is also due to the fact that, following the introduction of the statements of principles (SOPs), there is now a lesser requirement for the evaluation of medical contentions at primary decision-making levels. The SOPs state exclusively the factors that, when related to service, must exist to establish a causal connection between disease, injuries or death and service. The SOPs are binding on decision makers and review bodies. See Johnston N., 'The role of legislative instruments in clarifying the objectives and enhancing the effectiveness of public decision-making', Paper presented to Administrative Law Conference, 21-22 November 1996, pp. 5, 9.

⁸⁸ Johnson & Sutherland, *op. cit.*, p. 13.

⁸⁹ See Management Advisory Board, *op. cit.*, p. 10.

ISSUE

Has the number of decision makers or the level of those decision makers, or both, in your agency decreased since rule-base systems became operational?

Do you consider that officers using rule-base systems are becoming 'de-skilled'? If so, what steps need to be taken to avoid this?

ISSUE

Do you or your organisation consider that officers using rule-base systems are more involved in research, client contact, and so on, than they were before the systems were introduced?

Is continuing training on the relevant legislation, decision making, interpersonal skills, and so on, provided to officers using rule-base systems?

There can also be difficulties associated with officers' acceptance of a rule-base system. For example, people who are experts in the field may be resistant to such systems because they see them as undervaluing their expertise and their place in the organisation. Industrial problems arose in at least one organisation when a rule-base system was introduced.

4.4 Human error and manipulation

One danger with rule-base systems is that if a question is answered incorrectly – for example, because the officer did not read the accompanying material or made an error when responding to the question – the rule-base puts the case on a particular path and the officer may then not see another relevant path.

A further disadvantage identified by some agencies is that officers can become attuned to the system and learn to manipulate it in order to produce a desired result. The same potential exists with manual processing but perhaps not to the same extent. Further, an officer might use a rule-base system to give a decision legitimacy that it otherwise would not have. In informal discussions between the Council Secretariat and agencies it was noted that this potential disadvantage can be minimised by ensuring that officers are regularly rotated within organisations. Auditing may also be helpful.

4.5 The audit facility

Every decision made using a rule-base system has an instant and documented audit trail for every step taken or 'mini-decision' made in order to reach the ultimate decision. With manual processes, it is highly likely that some of the steps taken on the way to the ultimate decision will not be documented. The audit

facility provided by rule-base systems is a significant advantage in terms of transparency. However, given the volume of decisions made by agencies, one must query whether this facility is fully used. If not, for what proportion of cases is it used?

ISSUE

What system – internal or external, or both – does your agency have in operation for auditing decisions that have been made using a rule-base system? If it is external, who conducts the audit?

What is the skill base of the (internal or external) auditors?

What proportion of decisions made using a rule-base are audited?

Do the auditors check the accuracy of the system or the accuracy of the decision, or both?

How are errors identified and what is the error rate?

How are results considered and acted upon if necessary?

What action is taken if an unacceptable level of error is detected?

4.6 Policy development and scenario planning

Preparation of the rule-base may assist with policy development; for example, the Australian Taxation Office has used a rule-base system to test the proposed legislation to implement the ‘baby bonus’ proposal. As noted, use of rule-base systems can also result in the identification of areas where an agency’s policy on a particular matter has not been recorded, is inadequate or does not exist. Use of such systems can thus increase the rigour of the policy process.

Use of a rule-base system also facilitates scenario planning by both applicants and agencies. For example, an applicant can amend their responses to see how a change in circumstances – a change in income, for example – would affect an entitlement. This will be further facilitated if rule-base systems are made available on internet sites.⁹⁰ By using rule-base systems, agencies can quickly ascertain whether changing the preconditions for receipt of a benefit will increase or decrease the number of people receiving the benefit as well as the cost of the change.

⁹⁰ Rule-base systems are currently available on the Department of Veterans’ Affairs website, and Centrelink is considering making Edge available on its site. It was noted that putting a rule-base system on an internet site makes the effect of legislation and policy on entitlements much more visible. This could lead to an increase in the number of times an applicant contacts a government agency in relation to his or her entitlements.

4.7 Data collection and privacy

The use of rule-base systems offers significant capacity for data collection.⁹¹ For example, information can be searched to find the number of applicants who are receiving a particular benefit and have a child under a specific age. A rule-base system allows for interactive data collection that can be highly personalised⁹² and removes the need to 'genericise' the process.⁹³ In this context, it has been noted that,

Because every data collection exercise can be tailored to the situation of the specific client, it is possible to collect a far broader range of information. The implications of this fact are profound. This enables far more precise targeting of policy and service delivery as well as far more detailed collection of management information than has traditionally been dreamt of, let alone possible.⁹⁴

It has also been noted that an electronic data process can make use of data already held by an agency, minimising both inconvenience and the risk of inaccurate data.⁹⁵

This does, however, raise privacy questions that need to be resolved. Agencies should not collect a broader range of information than what is required for the decision to be made. If data already held by an agency are used for another purpose, rather than minimising the risk of inaccurate data it may increase the risk of inaccurate data being used again. Further, if personal information that has been collected is to be used for a purpose other than that for which it was collected, an agency would have to ensure that the individual concerned had consented to the use of the information for that other purpose.⁹⁶ Additionally, before using the information, the agency would have to check its accuracy.⁹⁷

On the other hand, the use of rule-base systems can assist in breaking down 'silos' that could adversely affect applicants. For example, an applicant in receipt of a payment might communicate a change in circumstances to the area that administers that payment. If payment systems are not linked, that change in circumstances might not be recorded in another area that administers a different payment to the applicant or his or her family. Rule-base systems can help in such circumstances because they can identify rules that are common to different types of payments. They are also able to explore the flow-on effects of a change in circumstances.

⁹¹ See Australian Law Reform Commission, *op. cit.*, p. 181.

⁹² Johnson & Dayal, *op. cit.*, p. 8.

⁹³ *ibid.*, p. 6.

⁹⁴ *ibid.*

⁹⁵ *ibid.*

⁹⁶ See s. 14 of the *Privacy Act 1988* and Information Privacy Principle 10.

⁹⁷ See Information Privacy Principle 8.

This consideration is relevant to the administrative law values of lawfulness, fairness and openness.

ISSUE

What privacy guidelines pertaining to rule-base systems does your agency have in operation?

For community organisations, does your organisation have a view on privacy and the use of rule-base systems?

4.8 The views of applicants

The Australian Law Reform Commission noted that applicants at trials of rule-base systems felt it was an open and fair process because they could see the reasons for questions, it was speedy⁹⁸, and it provided immediate information about entitlements.⁹⁹

It has also been suggested that use of a rule-base system creates a more empowering environment because the applicant and the officer go through the rule-base together and the applicant can ask to see the commentary about a particular aspect of it.¹⁰⁰ Another advantage is that more explanatory material can be made available to the applicant than when the information is provided in hard-copy form.¹⁰¹

Rule-base systems can also overcome the potential problem of some applicants feeling disadvantaged by their relationship with the government officers concerned. If a rule-base system is used it is less likely that the result will be perceived as dependent on whether the officer likes the applicant or knows the rules that need to be applied.

Agency heads commented that use of a rule-base system can improve relations between an agency and its client group because the client group views the system as fairer. Use of such systems can also raise the standard of debate about particular matters because the focus of debate is directed to the central concerns, rather than argument about perceived inconsistencies in the interpretation of certain rules.

The alternative argument is that the idea of rule-base systems offering empowerment is relevant only to applicants who are at ease with the use of an automated system in the decision-making process. Rule-base systems could be

⁹⁸ See Australian Law Reform Commission, *op. cit.*, p. 181, footnote 112.

⁹⁹ *ibid.*, p. 181.

¹⁰⁰ Johnson, *op. cit.*

¹⁰¹ Johnson & Dayal, *op. cit.*, p. 8.

viewed as impersonal and disempowering if applicants are less willing to challenge a decision made using a computer as opposed to one made by a human. As noted, some agencies are considering the possibility of rule-base systems being used by applicants themselves in the online interview process or for total self-assessment. That may lead to increasingly less human contact in administrative decision making.

A related question that arises concerns whether people should be advised that a decision is being made with the assistance of an automated system.

There is also a possibility that applicants will feel uncomfortable about having their personal information stored on a computer. The South Australian Community Housing Authority, which operates the Community Housing Eligibility Register (see Section 2.2), noted that, 'particularly for people with little experience of computers and misinformation about the Internet, the perception of the visibility of their records to SACHA is common'.¹⁰² SACHA has attempted to allay these concerns by correcting misinformation, establishing protocols for access, logging access, identifying its own powers in relation to access under a manual system, and making community housing organisations' use of the register voluntary.¹⁰³

Another perceived benefit of using a rule-base is that

... a rulebase-driven data collection process is a process made up of relatively small chunks. The client does not see the extent of the process before starting it, in the way that a client can pick up a 10-page form and feel their heart sink. Self-contained screens can mask the extent and complexity of a potentially lengthy process. Each of us knows that one of the effects of a lengthy and unfamiliar form is an immediate desire to postpone completing it.¹⁰⁴

This perceived advantage is arguable: although using a rule-base (where only the relevant questions are posed) rather than a form may shorten the process, the applicant might still feel frustrated about the length of the process.

¹⁰² Ainsworth, *op. cit.*, p. 7.

¹⁰³ *ibid.*

¹⁰⁴ Johnson & Dayal, *op. cit.*, p. 8.

ISSUE

What is the nature of the information given to applicants about the rule-base system in use in your agency?

Do you have arrangements for surveying applicants where rule-base systems have been used in decision making? If so, what views have the applicants expressed? If not, do you plan to survey applicants?

For community groups, what views have applicants expressed about the use of rule-base systems?

4.9 Other access and equity considerations

Applicants' views about agencies' use of rule-base systems can be influenced by access and equity considerations.

In its report, *Accessibility of Electronic Commerce and New Service and Information Technologies for Older Australians and People with a Disability*, the Human Rights and Equal Opportunity Commission noted there was a danger that older Australians and people with a disability would not be able to gain access to particular services because they were on the wrong side of the 'digital divide'.¹⁰⁵ The commission recommended the following measure, among others, for consideration by the Commonwealth and other parties concerned: 'increased efforts by relevant government agencies in co-operation with industry associations and community organisations to ensure that people developing and implementing new technologies are aware of access issues'.¹⁰⁶

ISSUE

Did your agency consider access and equity before implementing its rule-base system? If not, how has it dealt with any access and equity problems that have arisen from the use of the system?

Where applicants do not speak English, do the arrangements that apply to non-rule-base transactions – interpreters, and so on – also apply to interviews conducted using rule-base systems?

For community organisations, what are your views on the access and equity considerations associated with rule-base systems?

¹⁰⁵ The term 'digital divide' describes the social implications of unequal access of some sections of society to information technology – see Putnis, op. cit., p. 18.

¹⁰⁶ Human Rights and Equal Opportunity Commission, *Accessibility of Electronic Commerce and New Service and Information Technologies for Older Australians and People with a Disability*, HREOC, Sydney, March 2000, p. 6.

As noted, rule-base systems are particularly useful for improving consistency in decision making across regions, thereby improving access and equity. For example, provided the rule-base is accurate, an applicant in a country area will not be disadvantaged relative to an applicant in a city area just because the latest agency circular on recent amendments to the relevant provisions has not yet arrived. There is, however, still the capacity for the system to be used in different ways by different officers.

4.10 Diverse service delivery mechanisms

The use of rule-base systems offers the potential for diverse service delivery mechanisms¹⁰⁷, which could make applying for benefits easier and more accessible. This is discussed in Chapter 6.

ISSUE

Comments are invited on the advantages and disadvantages of using rule-base systems. Do the advantages outweigh the disadvantages or is the reverse the case?

What are the critical issues from the perspective of your agency or community organisation?

Are there things that in hindsight your agency or organisation would have done differently in the implementation of its rule-base system(s)?

¹⁰⁷ See Sutherland & Johnson, *op. cit.*, p. 13.

5 Administrative review and other issues

Early in 2000 the Australian Law Reform Commission noted that the relationship between expert systems and administrative review was yet to be explored.¹⁰⁸ To the Council's knowledge, this is the first project that considers the operation of rule-base systems and administrative review. Sutherland and Johnson noted the need for consideration of the matter:

There is both a need and an opportunity for new administrative review techniques. These techniques could include the proper auditing of computer programs, review of computer-enabled administrative structures and techniques, or review of administrative methods and policy that provide the structure for automated decision-making processes.¹⁰⁹

5.1 Authority for using rule-base systems

The motivation for introducing rule-base systems appears to have arisen from a desire to increase the accuracy and consistency of administrative decision making and reduce the time and cost associated with it. The decision to introduce them appears to have generally been an executive one, made to assist in the performance of statutory functions.

ISSUE

What is the legal basis for the use of rule-base systems in your agency – for example, ministerial, executive or statutory authority?

5.2 Questions of legislative authority and responsibility

When a rule-base system is used to make a decision or an element of a decision, some interesting questions arise concerning who actually makes that decision or element of it and whether there is a need for specific legislation permitting a decision or element of it to be made by a computer.

Both the *Social Security (Administration) Act 1999* and the *A New Tax System (Family Assistance) (Administration) Act 1999* contain statements to the effect that computer

¹⁰⁸ Australian Law Reform Commission, *Managing Justice: a review of the federal civil justice system*, Report no. 89, ALRC, Sydney, 2000, p. 368.

¹⁰⁹ Sutherland & Johnson, op. cit., p. 18.

programs may be used in decision making and that the resultant decisions are deemed to have been made by the Secretary of the relevant department. The Acts provide as follows¹¹⁰:

- (1) The Secretary may arrange for the use, under the Secretary's control, of computer programs for any purposes for which the Secretary may make decisions under the social security [or family assistance] law.
- (2) A decision made by the operation of a computer program under an arrangement made under subsection (1) is taken to be a decision made by the Secretary.

The Department of Family and Community Services advised the Council that, while those provisions do facilitate the use of a rule-base or other expert system, they were not introduced to give effect to the rule-base system currently being implemented through the department's Edge Project.

ISSUE

Does there need to be statutory recognition of the fact that computer programs (including rule-base systems) may be used to make decisions or elements of decisions?

5.3 Can an officer override a rule-base?

An officer's capacity to override a rule-base is an important consideration that is relevant to the administrative law value of fairness. If the officer can do this, the rule-base is being used only as a tool to support the officer in making a decision. If the officer cannot override the rule-base, the system is 'responsible'¹¹¹ for the result, which is based on the data entered by the officer. There are advantages and disadvantages if an officer retains the right of veto over the result produced by a rule-base. An officer's right of veto may be useful where the rule-base result does not adequately take into account the particular circumstances of an applicant. The disadvantage is that the accuracy and consistency that are the hallmarks of rule-base systems might be compromised if an officer is able to override decisions he or she thinks are inappropriate.

Practice appears to differ between agencies. For example, in Comcare an officer can override a recommendation of the rule-base system by discussing the matter with his or her team leader and documenting the reasons for overruling the decision. The action in overruling the decision would have to be justified to the

¹¹⁰ See s. 6A of the Social Security (Administration) Act and s. 223 of the A New Tax System (Family Assistance) (Administration) Act.

¹¹¹ Note the earlier discussion about the circumstances in which decisions have been deemed to have been made by a designated individual.

quality assurance officer. Failure to accept the rule-base's decision means that Comcare's quality assurance process begins automatically.

In the Department of Veterans' Affairs an officer cannot override a decision made by the rule-base system. An officer who believes a decision is incorrect is advised by management to check the accuracy of the information that has been entered. If the officer is still concerned about the result, the matter is discussed with the supervisor and a course of action is decided. The department also encourages officers to ring National Office about matters of concern.

In Centrelink an officer can override a decision of the rule-base system if the decision requires the exercise of discretion, although they must provide reasons for not accepting the decision. An officer cannot override a decision made by the rule-base system if the decision relates to a factual matter.

If the decision requires the exercise of discretion, it is the Council's view that an officer should be able, subject to supervision, to overrule the rule-base system's decision. If the question is one of fact, it may be appropriate that there is no facility whereby the decision can be overruled, but there should be a formal process that can be initiated if an officer believes the rule-base is producing incorrect results, possibly because of inadequacies in the rule-base or because of inadequate information. If such a process exists but is informal, it should be formalised.

ISSUE

In your agency can an officer override a decision made by a rule-base system? If so, in what circumstances? If not, are there formal processes whereby an officer can advance a matter when he or she believes the incorrect result has been given by the rule-base system? What steps are taken to identify and correct the cause of the incorrect result?

5.4 Diminishing discretion in decisions?

There is a tendency for the statutory criteria governing decisions to be increasingly strict, with little room for the exercise of discretion.¹¹² The tendency is more apparent in high-volume areas of government decision making.¹¹³ Decisions with strict criteria are particularly suited to rule-base systems because once the evidence has been assessed the system can make the decision.

¹¹² Contrast this with the 'impossibly' wide discretions of the early 1970s : see the commentary in McNee B., '2001 Blackburn Lecture "Administrative review—observations and reflections"', published in *Admin Review*, September 2001, p. 11.

¹¹³ Carney, T., 'Cloaking the bureaucratic dagger: administrative law in the welfare state', *Canberra Bulletin of Public Administration*, vol. 58, April 1989, p. 123.

The Hon. Deirdre O'Connor, former President of the Administrative Appeals Tribunal and former ex officio member of the Council, identified this practice, noting that in the last twenty years '... there have been significant changes in the nature of reviewable decisions. In particular, discretionary powers have largely been removed from legislation conferring benefits or regulating activity including immigration and social security law'.¹¹⁴

Justice O'Connor noted that among the reasons for this are a desire for the scope of legislation to be clearer and a desire to improve the targeting of benefits.¹¹⁵ She noted that the practice

... removes any flexibility for tribunals to deal with those difficult cases in which strict legislative criteria fail to make provision for the unique and otherwise legitimate circumstances of a specific individual. The tendency to remove all discretion from primary decision making or to shield the exercise of discretionary decision making from merits review disadvantages individuals and diminishes the utility of administrative tribunals.¹¹⁶

It would be highly undesirable if the perceived savings and other benefits offered by the use of rule-base systems led to an increased tendency for discretion to be removed from administrative decision making.

Also relevant in this context is the previously mentioned undesirability of a rule-base system incorporating policy that inappropriately narrows the available discretion. Further, there is a need to ensure that any commentary or other supporting materials on the rule-base system do not give undue weight to material that does not have appropriate authority. In short, the system should reflect policy rather than determine it. These considerations are relevant to the administrative law values of lawfulness, fairness, rationality and openness.

It has been argued that there is a discretion in all cases because of the indeterminacy of facts – that is, not all the facts required to determine a result will be entirely clear-cut¹¹⁷ and the facts that are used to compose the rules in a rule-base may be sufficiently open-textured to allow significant discretion.¹¹⁸ In this regard, it has been suggested that attempts to reduce the discretion in law will result in the potential for discretion to be transformed into an implicit discretion in the determination of the facts, making it less visible and less accountable.¹¹⁹ This has implications for the administrative law values of fairness and

¹¹⁴ 'Lessons from the past/challenges for the future: merits review in the new millennium', in *Sunrise or Sunset? Administrative law in the new millennium: papers presented at the 2000 National Law Forum*, C. Finn (ed.), Australian Institute of Administrative Law, Canberra, 2000, p. 6.

¹¹⁵ *ibid.*

¹¹⁶ *ibid.*

¹¹⁷ Baker, *op. cit.*, p. 29.

¹¹⁸ *ibid.*, p. 23.

¹¹⁹ *ibid.*, pp. 30–1, 47.

transparency. Careful system design may, however, obviate this potential problem.¹²⁰

ISSUE

Do you think the use of rule-base systems has the capacity to reduce discretion? If so, is this effected by incorporating policy limitations in the rule-base or by shaping the questions that prompt the eliciting of facts? If not, how does your agency ensure that your rule-base system does not remove or inhibit individual discretion?

5.4.1 Inappropriate exercise of discretion

There is recent evidence to suggest that discretion in administrative decision making is not always exercised appropriately in that the circumstances that affect the way the discretion is exercised are not always sufficiently investigated. The report of the Independent Review of Breaches and Penalties in the Social Security System states, in relation to the imposition of breaches and penalties on job seekers who do not meet their obligations, that

The existence of phrases such as ‘reasonable steps’, ‘reasonable excuse’, ‘without sufficient reason’ and ‘special circumstances’ in the relevant legislation indicates that the Parliament intended to guard against arbitrary and unfair imposition of penalties. In practice, however, insufficient investigation and consideration of reasons and surrounding circumstances have often prevented achievement of this intention.¹²¹

Officers using rule-base systems to guide in the exercise of discretion need to be mindful of the relevant legislative requirements and ensure that the matter has been adequately investigated before any discretion is exercised.

5.5 Requirements for valid decisions

Decisions made using rule-base systems should satisfy the requirements for valid decisions (see s. 5 of the *Administrative Decisions (Judicial Review) Act 1977*—and that the decision be the ‘correct or preferable’ decision).¹²² Section 5 of the Act provides as follows:

- (1) A person who is aggrieved by a decision to which this Act applies that is made after the commencement of this Act may apply to the Federal Court or the Federal Magistrates Court for an order of

¹²⁰ *ibid.*, p. 48.

¹²¹ Pearce D., Disney J. & Ridout H., *Report of the Independent Review of Breaches and Penalties in the Social Security System*, Independent Review of Breaches and Penalties in the Social Security System, Canberra, 2002—see paragraph 28 of the summary and p. 51 of the report.

¹²² See *Drake v. Minister for Immigration and Ethnic Affairs* (1979) 2 ALD 60.

review in respect of the decision on any one or more of the following grounds:

- (a) that a breach of the rules of natural justice occurred in connection with the making of the decision;
- (b) that procedures that were required by law to be observed in connection with the making of the decision were not observed;
- (c) that the person who purported to make the decision did not have jurisdiction to make the decision;
- (d) that the decision was not authorised by the enactment in pursuance of which it was purported to be made;
- (e) that the making of the decision was an improper exercise of the power conferred by the enactment in pursuance of which it was purported to be made;
- (f) that the decision involved an error of law, whether or not the error appears on the record of the decision;
- (g) that the decision was induced or affected by fraud;
- (h) that there was no evidence or other material to justify making the decision;
- (i) that the decision was otherwise contrary to law.

It is useful to take this section of the Act as a starting point for considering the requirements for valid decisions made using rule-base systems. These considerations relate to the administrative law values of lawfulness, fairness and rationality.

5.5.1 Procedural fairness

The three principles of procedural fairness are the hearing rule¹²³, the bias rule and the probative evidence rule.¹²⁴ The first principle requires that a decision maker afford an opportunity to be heard to a person whose interests will be adversely affected by a decision. The second principle requires that a decision maker be disinterested, or unbiased, in relation to the matter to be decided. The third principle requires that a decision be based on logically probative evidence.¹²⁵

If data entered via a rule-base were used with other information obtained through either data matching or the use of another expert system, the applicant might not

¹²³ See par. 5(1)(a) and s. 6(1)(a) of the ADJR Act.

¹²⁴ See Allars M., *Introduction to Australian Administrative Law*, Butterworths, Sydney, 1990, p. 236. See also pars 5(1)(h) and 6(1)(h) and s. 5(3) and 6(3) of the ADJR Act.

¹²⁵ See Allars, *op. cit.*

be aware of all the information being used to make a decision and therefore not have the opportunity to respond to it.

ISSUE

Would the auditing processes your agency uses be able to determine whether information that was not entered during the rule-base interview but obtained through data matching or other means was used in the decision-making process?

Would your auditing processes be able to determine whether the individual applicant had been given an opportunity to respond to that additional information?

In relation to bias, rule-base systems might appear to reduce the possibility of bias on the part of the decision maker. There may, however, be inherent bias in a rule-base—for example, in the way questions are phrased. There is also a possibility that officers could use rule-base systems to legitimise their own biases. It has been suggested that some officers might enter certain data to produce their desired outcome and that use of the rule-base to produce the result can allow officers to shroud their decisions in legitimacy.

As noted, the veracity of any evidence provided in support of a decision is considered by a human when a rule-base system is used, but the rule-base guides the consideration of that evidence. A rule-base system treats all evidence provided as probative, so auditing the quality of the factual information on which the decision is based is critical to the accuracy of the outcome.

5.5.2 Compliance with procedures required by law

A statute can provide that a power is to be exercised in a certain way or only after certain preconditions have been satisfied.¹²⁶ When there is a legal requirement to observe a procedure, the question that arises is when does non-compliance with that procedure render administrative action *ultra vires*?¹²⁷ When a rule-base is involved, such a question may concern whether the decision has been made by a nominated decision maker or wholly by the rule-base.

The Administrative Decisions (Judicial Review) Act and the Administrative Appeals Tribunal Act assume that the decision maker is a person.¹²⁸ The fact that

¹²⁶ See par. 5(1)(b) and 6(1)(b) of the ADJR Act.

¹²⁷ Allars, *op. cit.*, p. 172.

¹²⁸ See ss. 5, 6 and 13 of the ADJR Act and s. 25 of the AAT Act.

the decision maker must be a person may require in some circumstances that deeming provisions similar to those described in Section 5.2 be enacted.¹²⁹

5.5.3 Improper exercise of power

Improper exercise of power is also a ground for review.¹³⁰ Taking an irrelevant consideration into account and failing to take a relevant consideration into account are examples of an improper exercise of power.¹³¹ Whether these issues arise in the use of a rule-base system will depend on the comprehensiveness of the rules and the extent to which the outcome can be influenced by a human. The decision maker can use the rule-base to work his or her way through complex legislation and then, when discretion needs to be exercised, take an irrelevant consideration into account. The difficulties that arise in this context are the same as those that arise in manual administrative decision making.

The exercise of a personal discretionary power at the direction or behest of another person is a further example of an improper exercise of power.¹³² Rule-base systems could result in decision makers acting under dictation if a decision maker fails to query a decision of the rule-base when he or she considers it incorrect. Decision makers could potentially be acting at the behest of another if the rule-base system guides the exercise of discretion but does not clearly convey to a decision maker that he or she has discretion in relation to the matter. Decision makers could also potentially be acting at the behest of another if the rule-base has inappropriately narrowed the policy in question.

The exercise of a discretionary power in accordance with a rule or policy but without regard to the merits of the case is another instance of an improper exercise of power.¹³³ Indiscriminate use of rule-base systems could fall foul of the 'improper exercise' ground of review on this basis. On the other hand, however, the merits of the case are taken into account by virtue of the fact that the applicant's circumstances are entered into the rule-base system.

The exercise of a power that is so unreasonable that no reasonable person could have exercised that power in that manner is also an example of an improper exercise of power.¹³⁴ If the rule-base is accurate, those components of the decision

¹²⁹ Note *Re Bowron and Secretary, Department of Social Security* (1990) 21 ALD 333 and *Re Dimitrievski and Secretary, Department of Social Security* (1993) 31 ALD 140 (which dealt with automatic or self-executing provisions), where the automatic cancellation of a pension for failure to supply certain information and where the cancellation was notified by a computer-generated letter was not a decision by an officer and therefore could not be a reviewable decision. Section 6A of the Social Security (Administration) Act—which deems such decisions to be made by the Secretary—has been enacted since that time. See also *Trajkovski v. Telstra Corporation Ltd* (1998) 153 ALR 248.

¹³⁰ See pars 5(1)(e) and 6(1)(e) of the ADJR Act. That ground of review is amplified in ss. 5(2) and 6(2) of the Act.

¹³¹ See pars 5(2)(a), 5(2)(b), 6(2)(a) and 6(2)(b) of the ADJR Act.

¹³² See pars 5(2)(e) and 6(2)(e) of the ADJR Act.

¹³³ See pars 5(2)(f) and 6(2)(f) of the ADJR Act.

¹³⁴ See pars 5(2)(g) and 6(2)(g) of the ADJR Act.

that are based on fact may not result in an exercise of power that is unreasonable.¹³⁵ However, an exercise of power that is unreasonable could result if a decision maker exercises discretion in an unreasonable manner by, for example, ignoring certain options offered by the rule-base.

5.5.4 Delegation of part of the decision-making function?

When a rule-base system is being used, does each decision maker have a duty to decide whether the structural logic of the rule-base is correct? If this were necessary, it would exclude many of the advantages offered by rule-base systems. If not, the decision maker has effectively delegated one aspect of the decision-making function – that is, checking the accuracy of the rule-base.

One way of dealing with this situation could be to have one officer who is responsible for deciding whether the rule-base is correct. Then, if it is certified correct, other decision makers would not be required to perform this task and need only apply the rule-base to the facts of the particular case, without questioning the accuracy of the rule-base on each occasion.

ISSUE

How has your agency dealt with the question of delegation of part of the decision-making function – that is, determining the accuracy of the rule-base – where a rule-base system is in use?

5.5.5 The ‘correct or preferable’ decision

Assuming that the rule-base adequately reflects the legislation and that any discretion has been appropriately exercised, the decision should be the ‘correct or preferable’ decision.¹³⁶

ISSUE

What steps does your agency take to ensure that traditional administrative law safeguards are preserved when rule-base systems are used?

How well do the rule-base systems reflect administrative law values?

¹³⁵ But note the indeterminacy of facts discussed earlier.

¹³⁶ See *Drake v. Minister for Immigration and Ethnic Affairs* (1979) 2 ALD 60.

5.6 A statement of reasons

If a decision could be subject to review by the Administrative Appeals Tribunal and/or if a provision of the Administrative Decisions (Judicial Review) Act applies to a decision, a person applying for review of the decision can seek reasons for the decision.¹³⁷ An obligation to provide reasons also arises where legislation that confers the power to make a decision requires that the decision maker give reasons for the decision when notifying the affected person.

The Council has previously stated its view that a statement of reasons should do the following:

- set out the decision
- contain the findings on material questions of fact¹³⁸
- refer to the evidence or other material on which those findings were based
- give the real reasons for the decision.¹³⁹

In relation to the last requirement, the statement should detail the relevant considerations and indicate, either expressly or by necessary implication, how the reasoning process took account of each consideration.¹⁴⁰ It should also detail the extent to which policy statements and guidelines were taken into account in the reasoning process.¹⁴¹ A clear statement of reasons can reduce the prospect of an applicant seeking review.

It is argued that one of the advantages of rule-based systems is their capacity to produce comprehensive reasons for a decision, including a detailed step-by-step analysis of an applicant's circumstances against the criteria relevant to the particular decision (for example, the payment of a benefit). This may, however, result in decision makers becoming less capable of explaining the reasons for a decision to an applicant.

The adequacy of statements of reasons relates to all five administrative law values – lawfulness, fairness, rationality, openness and efficiency.

¹³⁷ See s. 28 of the AAT Act and s. 13 of the ADJR Act.

¹³⁸ This is dependent on the subjective thought processes of the decision maker: see *Minister for Immigration and Multicultural Affairs v. Yusuf* (2001) 280 ALR 1.

¹³⁹ Administrative Review Council, *Commentary on the Practical Guidelines for Preparing Statements of Reasons*, ARC, Canberra, 2000, p. 26.

¹⁴⁰ *ibid.*, p. 29. See *Allen Allen & Hemsley v. Australian Securities Commission* (1992) 27 ALD 296.

¹⁴¹ *ibid.*

ISSUE

Do the statements of reasons produced by your agency's rule-base system fulfil the requirements just listed – that is, set out the decision, contain the findings on material questions of fact, refer to the evidence or other material on which those findings were based, and give the real reasons for the decision?

Could you please provide for the Council an example of the statements produced by your rule-base system?

For community organisations, are you satisfied with the statements of reasons you have seen that have been generated by rule-base systems?

ISSUE

For agencies, given that statements of reasons are generated automatically by a rule-base system, how do you ensure that your decision makers are able to fully explain the reasons for a decision to an applicant?

For community organisations, do you consider that, where statements of reasons have been generated automatically, decision makers are able to explain fully the reasons for a decision to applicants?

5.7 Administrative review and independent advice

Independent expert advice is essential if applicants are to exercise their review rights effectively.¹⁴²

The report of the Independent Review of Breaches and Penalties in the Social Security System noted in relation to job seekers that

Effective operation of the administrative review system, even before reaching the SSAT [Social Security Appeals Tribunal] stage, depends heavily on job seekers having access to an adequate supply of independent advisers. Involvement of these advisers is frequently essential if a job seeker's case is to obtain adequate review. Many job seekers do not have the personal resources to put their own case by reference to the criteria that are relevant to a review. Many are unwilling or unable to communicate effectively with Centrelink officers whom they may regard as unduly hostile, suspicious or unnerving. The involvement of independent advisers can substantially overcome these difficulties, thereby not only helping to achieve correct outcomes but also saving considerable time for Centrelink officers and review tribunals.

¹⁴² Sutherland P., 'Expert system technology: implications for social welfare delivery', *Alternative Law Journal*, vol. 17, no. 6, 1992, p. 282.

The need for adequate access to independent advisers of this kind has been increasingly recognised by governments and tribunal members; indeed, several years ago the government substantially increased its funding for them. Our inquiries have demonstrated, however, that a severe shortage of such advisers continues to weaken substantially the effectiveness and fairness of the breaches and penalties system. A very high priority, in our view, should be to improve the supply of these advisers ...¹⁴³

Independent expert advice in relation to review rights is vital for all administrative decisions, and especially those made using rule-based systems because the use of such systems is relatively new and needs to be tested to allow assessment of their accuracy.

5.8 Internal review

The Council has stated, 'Agencies should offer internal review mechanisms for decisions that affect the interests of a person, unless they are legislation-like decisions of broad application, or decisions that automatically follow from the happening of a set of circumstances'.¹⁴⁴ In her foreword to the Council's *Internal Review of Agency Decision Making: a best practice guide*, the former President of the Council, the late Mrs Bettie McNee, noted,

A good system of internal review is one which is transparent in process and affords a quick, inexpensive and independent review of decisions. Such a system is beneficial both to applicants and agencies. Its aim should be to encourage better primary decision making by agencies, and the delivery of a cost effective and time efficient review process to applicants.¹⁴⁵

There are two options for conducting an internal review of a decision made using a rule-based system: an internal review using the system or an internal review that is performed manually and does not use the system. The former could involve revision of the information put into the system to check for errors, insertion of any additional information not available when the original decision was made¹⁴⁶, reconsideration of the evidence supplied, and reconsideration of any exercise of discretion. Such a review is likely to lead to the same result if the information inserted is not checked and if necessary amended or added to. In comparison, a manual internal review conducted without reference to the system would be more likely to uncover errors in the rule-base. It is also likely to be perceived as more comprehensive and credible.

¹⁴³ Pearce, Disney & Ridout, op. cit., p. 66.

¹⁴⁴ Administrative Review Council, *Internal Review of Agency Decision Making: a best practice guide*, ARC, Canberra, 2000, p. 7.

¹⁴⁵ *ibid.*, p. iv.

¹⁴⁶ *ibid.*, p. 13.

Agencies appear to have different practices in this regard. For example, officers conducting internal reviews of decisions made by the rule-base system at Comcare conduct the review manually. In contrast, the rule-base system is used in internal reviews by the Department of Veterans' Affairs. The department noted that additional material (such as a new medical report) is sometimes submitted by veterans at the time of the review.

ISSUE

Are internal reviews of decisions made using a rule-base system conducted manually in your agency or is the rule-base used?

Is there a hard-copy file that can be considered by the reviewer or is material stored only in the rule-base?

What percentage of errors are identified? Does that percentage differ from the percentage identified before a rule-base system was used? If so, how would you explain the difference?

ISSUE

Should internal reviews be conducted using the rule-base system or should they be conducted manually, without recourse to the rule-base system?

ISSUE

Can your agency measure whether use of a rule-base system has had an effect on the number of applications for internal review of the decisions made using the system? If so, how many applications were made before and after introduction of the rule-base?

Post-decision auditing¹⁴⁷ differs from internal review in that the latter is requested by the applicant and the former is an agency practice. Post-decision auditing, or quality assurance, might only be carried out on a sample of cases.

Proponents of rule-base systems argue that the systems and the auditing facilities they contain allow the focus to be on the accuracy of the primary decision. The Council agrees that the focus should be on best-practice primary decision making supported by effective auditing.

¹⁴⁷ Auditing is discussed in further detail in Chapter 4.

5.9 External review

The Council is not aware of any court decisions or significant tribunal decisions that have commented on the use of expert systems in administrative decision making.

It may be difficult to discern whether any increase or decrease in applications for external review is attributable to the use of rule-base systems because of the interaction of other factors.

ISSUE

Can your agency measure whether the use of a rule-base system has had an effect on the number of applications for external review of decisions made using the system? If so, how many applications were made before and after introduction of the rule-base?

The Administrative Appeals Tribunal can consider any matter that is relevant to the decision under review.¹⁴⁸ Thus, in reviewing a decision made using a rule-base system, it could take into account the composition of the rule-base – that is, the rules making up the decision tree – as well as the relevant documentation.

Use of a rule-base could also be a consideration in an application for review under the Administrative Decisions (Judicial Review) Act if its composition was relevant to any of the grounds of review.

5.10 New administrative review processes for rule-base systems?

New administrative review processes might be needed to cater for the use of rule-base systems.

5.10.1 Independent scrutiny of the rules

The rules in rule-base systems should be subject to independent scrutiny. Such scrutiny should 'be directed to ensuring that government rule bases are accurate and fair and that they reflect principles of public law and proper administration'.¹⁴⁹

If, as some products allow, the rules in rule-base systems are written in normal language and not a computer language they can be independently scrutinised for accuracy by people who are not computer programmers. It is desirable that organisations representing those affected by the decisions made using rule-base systems – for example the Australian Council of Social Service and the Welfare

¹⁴⁸ See *Re Greenham and Minister for Capital Territory* (1979) 2 ALD 137.

¹⁴⁹ Sutherland, *op. cit.*, p. 282.

Rights Centre – are able to scrutinise a rule-base before it becomes operational.¹⁵⁰ This would give those organisations an opportunity to consider the accuracy of the rules and, if the rule-base guides the exercise of discretion, whether it does so appropriately or narrows the discretion. There should also be opportunities for ongoing independent scrutiny of the rule-base – for example, after major legislative or policy change.

Organisations that are likely to have an interest in testing the rule-base might have limited resources, so consideration should be given to how their participation can be most effectively facilitated. If government wishes to increasingly use rule-base systems in the determination of entitlements (with the savings that brings) it should be prepared to fund independent scrutiny of the rule-base by relevant interest groups.

Among other bodies that could be given the role of scrutinising the rule-base, either instead of or in addition to those just identified, are the Australian National Audit Office (in a ‘legal’ audit as opposed to a ‘procedural’ audit) or a new Rule-base Ombudsman (possibly operating from the Ombudsman’s Office). It has been suggested that the Council is a body that could take this role¹⁵¹, but the Council does not currently have sufficient resources to do so.

The large number of Commonwealth agencies now using rule-base systems and the potential impact on applicants if there is a mistake in a rule-base might justify resources being devoted to this function.

One agency noted that review of decisions by tribunals and courts is one form of independent external scrutiny of rule-base systems. Another opportunity for external scrutiny arises when agencies place their rule-base systems on the internet for general viewing, as the Department of Veterans’ Affairs has done.

Scrutiny of the rule-base is relevant to the administrative law values of lawfulness, fairness, rationality and openness.

ISSUE

Are there any current opportunities for independent, regular scrutiny of rule-base systems once they are operational? If so, who conducts such scrutiny? How is the independence of the scrutiny assured?

5.10.2 Rule-bases that guide the exercise of discretion

Chapter 3 describes the approaches that can be used in rule-base systems to guide the exercise of discretion. In order to ensure that decision makers are aware of the

¹⁵⁰ This issue is also referred to in Chapter 3.

¹⁵¹ Sutherland, *op. cit.*, p. 282.

questions and commentary pertaining to the exercise of discretion, those questions should be clearly identified on the rule-base. A decision maker should take personal responsibility for the exercise of any discretion. If they decide not to exercise discretion, the system should ask them to confirm that decision.

This is relevant to the administrative law values of rationality and openness.

5.10.3 Complex cases

As noted in Chapter 4, implementation of rule-base systems can result in discretion being exercised and decisions made by officers who are more junior than was previously the case. There may, however, be a need for difficult cases involving complex discretionary factors or the balancing of competing interests, or both, to be considered (or at least checked) by senior, more experienced officers.

ISSUE

Where initial consideration of a complex case is undertaken using a rule-base system, how does your agency ensure that the decision is ultimately made by a sufficiently senior and experienced officer?

5.10.4 Review of officers' interaction with rule-base systems

Officers' interaction with rule-base systems should also be considered. Agencies could conduct confidential surveys of officers who use the systems to see whether they use them as a means of obtaining the result they consider appropriate. Allowing officers to remain anonymous in a survey would increase the likelihood of obtaining frank responses. If it were found that officers were misusing the system, the problem could be dealt with through training and regular rotation of officers. If an officer was identified as manipulating the system and the matter was sufficiently serious, disciplinary sanctions could be imposed. A review of system manipulation could also be incorporated in agencies' fraud-control plans.

Any inappropriate interaction of personnel with the rule-base affects the administrative law values of lawfulness and fairness.

ISSUE

Has your agency conducted surveys of officers who use rule-base systems to ascertain how they use them and whether, for example, they are using them to obtain the result they consider appropriate?

Issue

Are there other alterations to processes required for the review of decisions made using rule-base systems? If so, please specify.

5.11 Other expert systems

Although this issues paper focuses on the operation of rule-base systems, the Council is interested in considering any administrative review questions that might be raised by the use of expert systems other than rule-base systems.

ISSUE

What administrative review questions might be raised by the use of expert systems other than rule-base systems?

6 New service delivery options

In Section 4.10 the diverse service delivery options made possible by the use of rule-base systems are pointed to as an advantage of using these systems. Among those options are facilitating community access; the involvement, to varying degrees, of community workers in the decision-making process; and self-assessment.

6.1 Community access to rule-base systems

Rule-base systems could be placed in premises that are associated with the particular benefit. For example, systems relating to family and childcare benefits could be placed in maternity hospitals and childcare centres; systems relating to age pensions could be placed in senior citizens organisations; and systems relating to Austudy could be placed in student unions. Rule-base systems could also be placed in post offices, which would facilitate access in rural and regional Australia, and in shopping centres. Measures that will increase accessibility are relevant to the administrative law values of fairness and efficiency.

Government officers could be placed at those sites to help make the determination. Alternatively, that function could be allocated to community workers. Or, if the determination could not be made on site, applicants could check their eligibility for a benefit before lodging a formal application.

There are also potential benefits in community workers having access to relevant rule-base systems. They would be able to help applicants by providing general advice, verifying the correctness of departmental decisions, and preparing appeals.¹⁵² Sutherland noted, however, that a viable strategy for implementation of expert system technology in the community sector is difficult to envisage because of the sector's chronic shortage of resources.¹⁵³ He also noted that public sector agencies should provide the relevant expert system applications, together with support and resources, to the community sector because this will advance the interests of applicants and further the agencies' own corporate goals by improving access to services.¹⁵⁴ But he concluded, 'This is inherently unlikely except as an attempt to shift resource-intensive pre-processing work to community agencies without a transfer of the necessary resources'.¹⁵⁵

¹⁵² See Sutherland, *op. cit.*, p. 282.

¹⁵³ *ibid.*

¹⁵⁴ *ibid.*

¹⁵⁵ *ibid.*

One example of where resources have been provided to assist with advice and advocacy for applicants is the Department of Veterans' Affairs Training and Information Program. The program trains ex-service organisation advocates and welfare officers in how to help veterans prepare applications. It is designed to increase veterans' and war widows' awareness of entitlements, to improve liaison with ex-service organisations, and to ensure that applications are completed accurately and provide all the supporting information required for processing.¹⁵⁶ The program operates at three levels: training advocates to lodge applications at the primary level; training in relation to internal review and arguing a matter before the Veterans' Review Board; and, at the final level, instruction in running matters before the Administrative Appeals Tribunal.

6.2 Involving community workers in the decision-making process

Rule-base systems could allow community workers to be involved in the decision-making process to varying degrees.

One possibility is that the community workers could ensure, by using the rule-base as a checklist, that an application and all the supporting evidence are submitted to a government officer for consideration of the evidence and a decision in relation to the exercise of discretion. This would relieve the government officer of the task of collating the supporting evidence.

Alternatively, the community worker could be given the task of taking the case through the rule-base system and considering the evidence, so that the only part of the decision left for the government officer is the exercise of any discretion. Where there is no discretion, the community worker could consider the evidence and then implement the decision recommended by the rule-base system.

Another possibility is to allow the community worker to consider the evidence submitted and, after following the rule-base, make a decision in relation to the benefit, including exercising any discretion involved in the decision. Exercise of that discretion could be guided by the rule-base.¹⁵⁷ If the community worker were to decide to exercise discretion, this would effectively amount to contracting out a government service. The Council published a report on this subject in 1998, noting in it, 'The Council considers that the contracting out of government services should not result in a loss or diminution of government accountability or the ability of members of the public to seek redress where they have been affected by the actions of a contractor delivering a government service'.¹⁵⁸

If community workers were given the task of considering evidence or exercising discretion, or both, a statutory basis and statutory review process would be

¹⁵⁶ See Australian National Audit Office, Audit Report no. 3, op. cit., p. 9.

¹⁵⁷ See the approaches outlined in Chapter 3.

¹⁵⁸ Administrative Review Council, *The Contracting out of Government Services*, ARC, Canberra, 1998, p. vii.

required – for example, the *Employment Services Act 1994*. Regular auditing of the decisions made by those workers would also be necessary. Further, if community workers were to be involved in determining entitlements (through the use of either rule-base systems or other means), standards and sanctions would need to be formulated to regulate the exercise of those powers by non-government officers.

ISSUE

Do you have a view on the potential for rule-base systems to be used when placing greater reliance on community workers to make decisions in relation to entitlements? If so, please outline your view.

6.3 Self-assessment

Australians are familiar with self-assessment in the taxation context and with the concept that the taxpayer must have evidence to justify a claim. That experience may be helpful in gaining public acceptance of self-assessment in other spheres. The potential for rule-base systems to be used in self-assessment in the welfare area does, however, raise some questions.

Self-assessment is dependent on applicants having online access, on their being able to read the questions asked by the rule-base, and on the assumption that they want to apply for benefits online. But not everyone has access to the internet; others are not at ease using it; and not everyone can read. These difficulties can be overcome if self-assessment is simply one option available and it is still possible to apply for benefits in the traditional way. The question of comprehension arises regardless of whether an applicant applies for a benefit in the traditional way or online. In both cases this problem needs to be remedied by the provision of advice and assistance to the applicant.

The increased accuracy and consistency that rule-base systems can offer is obviously unavailable if such systems are not used. Although the process does not rely on self-assessment, a case in point is the rule-base system used by some community housing organisations to determine eligibility for housing in South Australia (see Section 2.2). Some of these organisations do not have a computer (and some do not want to have a computer) and therefore do not use the rule-base system to assess eligibility. As a result, the benefits of rule-base decision making are unavailable to people who apply for housing through an organisation that does not use the system. However, as is recognised by the South Australian Community Housing Authority, using the system needs to be voluntary in order to ensure that community housing organisations retain control of the processes they use.

If self-assessment in the welfare area were to become an option, any evidence required to support the payment of a benefit might still need to be evaluated by

someone other than the applicant. The onus could, nevertheless, be placed on the applicant to produce the evidence on request, as is the case with taxation matters.

Furthermore, if self-assessment were to occur, the questions in some rule-base systems would need to be reconsidered. For instance, it would be inappropriate to ask an applicant to answer a question about the quality of their social skills.

Self-assessment is probably best suited to decisions that do not involve an exercise of discretion. If a question involves an exercise of discretion, the applicant would obviously, and understandably, be likely to respond in the manner that is most favourable to him or her. There is, however, a view that decisions that involve an exercise of discretion could still be made by a self-assessing applicant using the commentary that accompanies the rule-base. The onus could be placed on the individual to answer the questions correctly, as is the case with taxation matters (see the earlier discussion about the need for support for the applicant, either by a departmental officer or a community worker, to improve the accuracy and adequacy of the information supplied as input to the rule-base system).

The considerations relating to self-assessment vary for different interest groups. For example, tertiary students and some recipients of welfare benefits might be more likely than others to have access to the internet and be at ease using it. Older Australians might be less likely to want to use such a system¹⁵⁹ without any support. Migrants, people with poor reading skills and the disabled might need support in order to understand and answer the questions.

Any system to be used in self-assessment would have to be carefully designed to take account of access and equity.¹⁶⁰ The access and equity issues associated with use of rule-base systems are less apparent when a government officer is the interface with the system.

In its report, *Accessibility of Electronic Commerce and New Service and Information Technologies for Older Australians and People with a Disability*, the Human Rights and Equal Opportunity Commission recommended the following measure, among others, for consideration by the Commonwealth and other interested parties:

ensuring as far as possible that on line and automated services are used to complement and enhance availability of direct human service rather than

¹⁵⁹ Australian Bureau of Statistics data show that in the 12 months to November 2000 as age increased the likelihood that an adult was either a computer user or an internet user decreased (see 'Use of the internet by householders, Australia', 16 February 2001, <<http://www.abs.gov.au>>), although internet use among people over 55 years is increasing (see Human Rights and Equal Opportunity Commission, op. cit., p. 9).

¹⁶⁰ The banking industry standards, particularly those dealing with internet access, which were launched on 15 April 2002 by the Australian Bankers Association, the Human Rights and Equal Opportunity Commission and Blind Citizens Australia, are a useful reference in this regard.

completely substituting for it, and that information on available alternatives to automated services is effectively available.¹⁶¹

That recommendation is relevant in this context. Some agencies with whom self-assessment has been discussed noted that, if it were introduced, it would be only one option and applicants could still choose to apply for a benefit in the traditional way.

Any move towards self-assessment would need to be accompanied by access to computer facilities and support in places such as government shopfronts, post offices, and welfare rights and community centres. The administrative law values relevant in this context are fairness and efficiency.

Self-assessment would also need to be accompanied by independent advice¹⁶² to applicants. In community centres, welfare rights centres and other public places where terminals could be located for applications to be made, government-funded training could be provided to community workers, so that they can help applicants with the online interview process. As noted, those workers could be involved in the process as decision makers to varying degrees. Grants could be given to centres to fund their involvement in this process.

Supported online self-assessment could also include an email helpline to respond to queries and a voice-activated application process to assist visually impaired applicants.

¹⁶¹ Human Rights and Equal Opportunity Commission, *op. cit.*, p. 6.

¹⁶² Note the view expressed in the report of the Independent Review of Breaches and Penalties in the Social Security System about the need for independent expert advice (see Chapter 5).

7 Concluding comments

7.1 Rule-base systems as part of a broader process

Rule-base systems should not be seen as a panacea for all the difficulties associated with administering complex legislation and making administrative decisions. They operate as part of a broader change-management process and in conjunction with specific service delivery models. For example, agencies such as Centrelink use the 'life events' model and the 'one main contact' model in the delivery of services:

The premise of this [life events] model is that the customer's responsibility will be to come to Centrelink with a knowledge of their circumstances and a willingness to present an honest account of who they are, their financial circumstances and their needs. The model reflects a position that the customer is not expected to know what questions to ask, or the full range of services or entitlements available. Centrelink's responsibility will be to ensure that it seeks out and records the customer's circumstances and then determines all of the potential services and entitlements it can offer the customer.¹⁶³

The one main contact model aims to ensure that customers do not have to provide information more than once; that they receive consistent and comprehensive advice; and that decisions are more consistent and of a higher quality. It also aims to provide staff with greater control over their work, a more professional relationship with customers, and improved development opportunities. A major principle underpinning this model ... is that the officer will take greater responsibility for ensuring that the agency obtains all relevant information from the customer and provides correct advice about all appropriate payments and services.¹⁶⁴

The Commonwealth Ombudsman noted that relevant service delivery models need to be incorporated in the operation of rule-base systems:

We do not believe ... that rule-base computer systems provide a magic solution to the problems that customers face in dealing with a complex welfare system. In our view, they can be effective only if they operate in concert with other important measures, such as the shift in focus of

¹⁶³ See Commonwealth Ombudsman, *Balancing the Risks: own motion investigation into the role of agencies in providing adequate information to customers in a complex income support system*, Commonwealth Ombudsman's Office, Canberra, September 1999, p. 27.

¹⁶⁴ *ibid.*, p. 28. The Department of Veterans' Affairs has adopted a method of operation similar to the 'one main contact' model.

officers to one of seeking holistic solutions to customers' needs, as reflected by the one main contact model.¹⁶⁵

7.2 Optimum features of rule-base systems

While preparing this issues paper the Council identified some optimum features of rule-base systems:

- software applications that allow the rule-base to be written in such a way as to allow the accuracy of the rules to be more easily checked – for example, plain English
- facilities for independent scrutiny of the rule-base before it becomes operational and for independent continuing scrutiny once it becomes operational
- clear identification of those questions for which the decision maker is required to exercise discretion
- a facility for identifying more complex cases and ensuring that they are considered – or at least checked – by senior and experienced officers
- a system design that meets administrative law standards and embodies administrative law values and administrative justice
- a dedicated budget for maintaining the rule-base
- ongoing training of officers who use rule-base systems – including training in the operation of the relevant legislation and in decision making and interpersonal skills
- internal and external auditing of decisions made using rule-base systems and supervision of officers to ensure that the systems are being used properly – including auditing of the quality of the factual information on which a decision is based
- ongoing examination of how the implementation of rule-base systems affects applications for internal and external review.

These findings are preliminary.

ISSUE

What are the optimum features of rule-base systems used in administrative decision making?

¹⁶⁵ *ibid.*, p. 54.

Agencies that use rule-base systems and other expert systems should implement measures for gathering information about how applicants perceive these systems and about any access and equity problems that arise from the use of the systems. Government should also ensure that applicants have access to independent expert advice on their review rights.

7.3 Information sharing

Agencies noted in the course of discussions that, although individual officers share information on the operation of rule-base and other expert systems across Commonwealth government agencies, there is no formal network for information exchange. The Council considers that it could be beneficial if agencies that use rule-base systems were to share information at the operational and policy levels. The Council hopes that its consultations, in the past and the future, will be helpful. Nevertheless, establishment of a permanent network could also be useful.

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Do you consider that there would be benefit in establishing an information-sharing network? If so, which would be the appropriate agency to coordinate the network and act as its secretariat?

7.4 The potential offered by rule-base systems

Rule-base and other expert systems have the potential to have a profound effect on the delivery of government services. In Chapter 4 it is noted that the Australian National Audit Office has found the level of accuracy in administrative decision making to be quite low. It is therefore desirable to use technology to improve the quality of decision making.

In the context of legal services it has been noted,

By automating standard elements of the legal process, even among high-value legal matters, lawyers can be freed to concentrate on the more complex parts of the process that require high-level thinking. And the more routine tasks can be pushed to a lower cost resource – one armed with the knowledge appropriate to carry out the task. In this manner, we can deliver a higher and more consistent quality product faster and cheaper.¹⁶⁶

The same applies to the provision of government services.

The use of rule-base systems and other technology could also change the nature of the interaction between government and its citizens:

¹⁶⁶ Broderick E., 'Legal advice at your fingertips', *The Age*, 19 March 2002, p. 6.

There may emerge a new kind of societal contract, with governments providing to citizens the infrastructure of interactive connectivity, and access to it; distributing the information and processing systems which are the core of so many government services; laying down the ground rules for true e-government; and, most importantly of all, placing trust in the ability of individuals to play a much bigger role ... Citizens would benefit from cheaper, more efficient government; the convenience of access 'anywhere, anytime'; the enhanced customisation and choice; and the satisfaction of empowerment, with responsibility.¹⁶⁷

7.5 Administrative law values and standards

In Chapter 1, the Council notes the five values it has previously identified as critical elements of the administrative review system – lawfulness, fairness, rationality, openness (transparency) and efficiency. The Council will test the use of rule-base systems in administrative decision making against those values following consideration of the results of the proposed consultative forum and of the submissions made in response to this issues paper.

In constructing and implementing rule-base systems – or indeed other expert systems – government agencies and system designers need to be mindful of the administrative law values. They also need to ensure that the process by which a system is constructed and its continuing operation reflect those values.

The Council welcomes submissions on this issues paper.

¹⁶⁷ Long M., 'Beyond traditional boundaries: government in the information age', *Australian Journal of Public Administration*, 'Community Consultation – Coombs: 25 years on', vol. 61, no. 1, March 2002, p. 12.

Appendix A Section 51 of Administrative Appeals Tribunal Act

Section 51 of the *Administrative Appeals Tribunal Act 1975* provides as follows:

- (1) The functions of the [Administrative Review] Council are:
 - (aa) to keep the Commonwealth administrative law system under review, monitor developments in administrative law and recommend to the Minister improvements that might be made to the system; and
 - (ab) to inquire into the adequacy of the procedures used by authorities of the Commonwealth and other persons who exercise administrative discretions or make administrative decisions, and consult with and advise them about those procedures, for the purpose of ensuring that the discretions are exercised, or the decisions are made, in a just and equitable manner; and
 - (a) to ascertain, and keep under review, the classes of administrative decisions that are not the subject of review by a court, tribunal or other body; and
 - (b) to make recommendations to the Minister as to whether any of those classes of decisions should be the subject of review by a court, tribunal or other body and, if so, as to the appropriate court, tribunal or other body to make that review; and
 - (c) to inquire into the adequacy of the law and practice relating to the review by courts of administrative decisions and to make recommendations to the Minister as to any improvements that might be made in that law or practice; and
 - (d) to inquire into:
 - (i) the qualification required for membership of authorities of the Commonwealth, and the qualifications required by other persons, engaged in the review of administrative decisions; and
 - (ii) the extent of the jurisdiction to review administrative decisions that is conferred on those authorities and other persons; and

- (iii) the adequacy of the procedures used by those authorities and other persons in the exercise of that jurisdiction;

and to consult with and advise those authorities and other persons about the procedures used by them as mentioned in subparagraph (iii) and recommend to the Minister any improvements that might be made in respect of any of the matters referred to in subparagraphs (i), (ii) and (iii); and

- (e) to make recommendations to the Minister as to the manner in which tribunals engaged in the review of administrative decisions should be constituted; and
 - (f) to make recommendations to the Minister as to the desirability of administrative decisions that are the subject of review by tribunals other than the Administrative Appeals Tribunal being made the subject of review by the Administrative Appeals Tribunal; and
 - (g) to facilitate the training of members of authorities of the Commonwealth and other persons in exercising administrative discretions or making administrative decisions; and
 - (h) to promote knowledge about the Commonwealth administrative law system; and
 - (i) to consider, and report to the Minister on, matters referred to the Council by the Minister.
- (2) The Council may do all things necessary or convenient to be done for or in connexion with the performance of its functions.
- (3) If the Council holds an inquiry, or gives any advice, referred to in paragraph (1)(ab), the Council must give the Minister a copy of any findings made by the Council in the inquiry or a copy of the advice, as the case may be.

Appendix B Use of expert systems other than rule-based systems

Agencies provided the following information in response to the Council's stocktake.

The Australian Competition and Consumer Commission

The ACCC does not use expert systems.

The Australian Electoral Commission

The AEC does not use expert systems and its plans for the future are uncertain.

Austrade

Austrade does not use expert systems and does not propose to do so in the future.

Food Standards Australia New Zealand

FSANZ does not use expert systems and does not have any plans to do so in the short or medium term.

The Australian Customs Service

ACS has no current or proposed use of expert systems.

The Australian Taxation Office

The ATO uses a neural network system called 'Netrisk'. This system is a debt risk-profiling application that uses 'client circumstances and past behaviour to predict the level of intervention required to best resolve an outstanding [tax] obligation'.¹⁶⁸ The ATO advised the Council that it expects neural networks to become increasingly relevant to its work. The ATO also uses case-based reasoning.

Agriculture Fisheries and Forestry—Australia

AFFA uses a number of other expert systems:

¹⁶⁸ Australian Taxation Office, *Technology in Receivables Management: NetRisk and predictive risk profiling*, ATO, Canberra, September 2001, p. 1.

- the Ballast Water Decision Support System – a risk-assessment tool that enables vessels to undertake a risk assessment on their ballast water intended for discharge in Australian ports or waters
- the Vessel Monitoring System – a risk-assessment tool used in conjunction with vessels' pre-arrival reports to determine the level of inspection required
- the EXDOC system, which is used to validate importing country requirements on Australian exports of meat, fish, dairy, grain and horticulture products
- systems used by the Dairy Adjustment Authority in its administration of the Dairy Structural Adjustment Program and the Supplementary Dairy Assistance scheme for determining dairy farmers' eligibility for payment
- the Australian Special Information Systems, which include a database for levy-payer management and use numeric weighting to determine the risk associated with each case.

In terms of expert systems to be used in the future, the Quarantine Risk Indicator (QRI) project will determine the risk associated with goods of quarantine interest (both commodity and non-commodity items) approaching or detected at the barrier. This will allow a comparative ranking of risk. The Australian Quarantine and Inspection Service is in the process of conducting a pilot using QRIs. The pilot requires the development of an electronic system to store the risk data and apply the decision rules required to calculate the QRIs. AQIS is currently developing a model of the likelihood and consequences of particular threats associated with those goods. The outcomes of the pilot will determine the direction the project takes.¹⁶⁹

AQIS also advised the Council that an expert system that will assist with border risk-management decisions is being developed by it in collaboration with Biosecurity Australia.

The Department of Communications, Information Technology and the Arts

DCITA advised the Council that it does not currently use any expert systems in administrative decision making but has made use of such systems in the past and proposes to do so in the future.

Numeric weighting was used to make decisions in the Federation Cultural and Heritage Projects grant program in 2000. DCITA is also developing a web-based grant-management system to assist in application assessment and ongoing administration for the various grant programs the department manages. The system will allow grant managers to include their reasoning for decisions at various stages of the process.

¹⁶⁹ *ibid.*, p. 2.

The Department of Education, Science and Training

DEST does not currently use expert systems to make administrative decisions. It advised the Council that the types of administrative decisions made by departmental decision makers are relatively straightforward – for example, decisions about whether or not to remit Higher Education Contribution Scheme debts under s. 106L of the *Higher Education Funding Act 1988*. When this is combined with the relatively low number of such decisions, DEST does not consider that the use of expert systems is justified at present.

The Department of Employment and Workplace Relations

DEWR does not currently use expert systems to make administrative decisions. Application of such systems is, however, being contemplated in strategic enterprise management and in the continuing implementation of the Job Seeker Classification Instrument. DEWR advised the Council that an expert system could be developed in this context to include the administrative rules relevant to the Job Network policy.

The Department of Finance and Administration

Finance advised the Council that benchmarking is used as a self-assessment system by Comcover fund member agencies to assess their level of risk-management implementation and to benchmark with other Commonwealth and non-Commonwealth public and private sector agencies. Finance also uses a tender-evaluation system that evaluates the relative ranking of tenders for the provision of risk-management services. Finance advised the Council that at this stage there is no definite intention to pursue a rules-based or other expert system solution within the department.

The Department of Foreign Affairs and Trade

DFAT advised the Council that expert systems are not in general use for administrative decision making and nor is their use under consideration at present.

The Department of Transport and Regional Services

DOTARS does not currently use expert systems to support its decision making. It is implementing an extensive program of IT projects aimed at improving support to its various business units. These projects will improve the department's ability to make informed and strategic administrative and policy decisions.