**Independent Review of the Australian Federal Public Service**

**Submission from Dr John P Weldon**

**Introduction**

This submission addresses APS

* accountability for use of methods and techniques in management control, tactical and strategic planning, budgeting and coordination etc;
* effectiveness and efficiency of agencies and public-sector functions, plus risks attached to their day-to-day operations;
* relations with ministers and parliamentary committees etc, particularly the processes and effectiveness of those relations.

The submission draws the Review's attention to a best-practice technical approach that is

* sixty years old (1957);
* employed by many (perhaps most) large companies and corporations as the main tool for their management control, tactical and strategic planning, budgeting and coordination;
* apparently not used by Australian government agencies (federal, state and territory), or for management control etc of public-sector functions,
* essential for achieving modern standards of effectiveness/efficiency and reduction of operating risks, owing to high system complexity in government agencies and public-sector functions.

A managed system is basically the same whether it is private- or public-sector, civilian or military. Principal reasons are accordingly discussed as to why the above best-practice approach is not used in the APS. Responsibility for the situation is also identified.

The techniques are briefly explained. Then necessary reforms are discussed that would enhance APS effectiveness/efficiency, and reduce its operating risks, in line with modern standards.

No doubt many measures can be introduced to improve the APS. Without the best-practice techniques, however, such measures will be largely nullified by the low ceilings imposed on effectiveness and efficiency etc by manual management in the face of high system complexity in agencies and functions.

1. **Problems and reasons**

Two related main reasons can be identified for absence of the above modern, best-practice techniques from government agencies and public-sector functions.

* During the past six decades politicians have failed to make their bureaucracies accountable for (non-)use of methods and techniques. The bureaucracies do as they please in this vital area, and have elected to conduct management control, and planning etc *manually* – supported only by general computerisation. It is impossible to perform these functions well on that basis, owing to high system complexity in agencies and public-sector functions.

Politicians are evidently of the view that methods and techniques.are not their concern. This is irresponsible, and is incompatible with the public interest.

* The ‘macroeconomic orthodoxy’, led in Australia by the Federal Treasury and the Reserve Bank, always excludes anything inconsistent with, or external to, its ideology and processes – not only in Australia. This behaviour was documented in the economic literature forty-five years ago.

The orthodoxy is believed to be the most-influential and -powerful vested interest in many countries, including Australia.

Many or most APS members who should be using the management-control techniques have probably not even heard of them, after six decades. The situation is self-perpetuating. Even if they are acquainted with the techniques when they join the APS, bureaucratic attitudes and culture mean that members do not get an opportunity to apply that knowledge.

The international situation is not favourable. Causal corporate models are developed for many or most large companies and corporations by specialist firms. The large corporates then never publicise their models. Three reasons explain this.

* Corporate models are among those companies’ most-secret properties; in terms of model content and both input and output data.
* These models are the main tool for (legal but officially unpopular) international corporate tax avoidance.
* The models can be used for commercial/industrial espionage and intelligence gathering and processing. (The same applies to military and national security purposes).

In sixty years only one corporate application is known to have been publicised, and that in an academic journal. Publication happened because use of the particular model made legal history as the first (but not the last) occasion on which a model provided the main basis of proof in major civil litigation. It is known as the Ingalls case. (Interfaces, *Naval ship production: a claim settled and a framework built,* Kenneth G Cooper, 1980).

The techniques have not been extensively marketed to public sectors, and probably not at all in Australia. As any government contractor knows, when there is no customer demand for a product or service, it soon ceases to be offered.

Hence most APS members have never heard of the techniques that should be a main tool for their work. Given that many large companies use the best-practice management-control techniques, there is no good reason for APS agencies and public-sector functions not to do so.

The APS will never introduce the techniques voluntarily and willingly. Bureaucratic attitudes and culture are inimical to that initiative. Also, there is no real pressure to do so. Politicians are mostly unaware of the real situation, and do nothing about that situation if they are aware of it.

When problems arise that would have been avoided or nipped in the bud under a more-modern régime those problems are either ignored, or are handled politically. The media and the general public are also unaware of the underlying situation. At most a senior person will fall on his/her sword. Media and public attention soon moves elsewhere.

Politicians need to seriously rethink their longstanding approach – that methods and techniques used in agencies are not their concern. The quality of advice received from their bureaucracies is inevitably much lower than it could and should be.

Causal corporate models of agencies and public-sector functions would enable politicians to ask, and to have accurately answered (by means of ‘what if’ experimentation and system-wide analysis of reasons for things), pertinent questions that affect the quality of policy formulation and public administration. Relations between politicians and their bureaucracies would be enriched, as would national effectiveness and efficiency.

An essential part of improving APS effectiveness and efficiency involves curbing the entrenched control, influence and power of the macroeconomic authorities over the wider APS. Their main priorities are incompatible with an efficient APS. Moreover, APS effectiveness and efficiency are a matter of professional management science, not economics. The macroeconomic authorities have no background in the management-control techniques.

2. **The techniques**

The best-practice management-control techniques enable a comprehensive and detailed ‘copy’ of an actual system to be developed. The copy is a ‘virtual system’. It looks like the actual system in the computer, in terms of its parameters and variables etc.

When provided with input data (numbers) for the particular actual system the copy can behave as that actual system will or may (if given experimental changes to parameters and variables), in a specified future period. Alternatively it can behave as the actual system has behaved in a specified past period. The past behaviour (outcomes) is ‘replicated’ (reproduced).

These copies are causal simulation models. That distinguishes the models from traditional mathstats modeling, and from discrete (non-continuous), next-event simulation. Neither of those approaches could support the modeling of APS agencies and public-sector functions.

‘Causal’ means that the models are developed from information about system structure and operation – particularly including

* dependency links between variables (internal and external): conveyed by large numbers of feedback loops;
* impacts of individual parameters or constants on variables;
* interactions between actual and desired/expected/needed versions of variables;
* delays, lead times, nonlinearities, and time-distributed effects, etc.

In technical terms an APS agency or public-sector function is a closed-loop, information-feedback managed system. The model enables the managed system to be managed as a system. That has great advantages for effectiveness and efficiency, and for reduction of operating risk and staff time. ‘Risk’ is the probability of downside effects or events. Management in this form is also essential for effective regulation.

The word ‘system’ is defined in terms of a (large) collection of (interacting) feedback loops, and of an identifiable boundary between the system and its external environment.

A ‘loop’ is a closed or endless ‘daisy chain’ of variables, at least one of which must be a ‘stock’ or inventory. Variable ‘A’ affects or determines variable ‘B’, which affects or determines variable ‘C’, and so on, until the variable that affects or determines variable ‘A’ is reached. Loops transmit the internal and external dynamics of all managed systems. Within a managed system everything is causally linked to everything else directly and/or indirectly.

The causal approach (the loops etc) is indispensable for resolving and preventing the problems that typify manual management of the APS. At present APS managements cannot even see their systems, as systems.

Considerable detail can be incorporated in these models. Analysis of simulation output approaches problems from various complementary angles. In most cases problem causes and effects are also separated in time. A corporate model includes all delays and lead times in the system concerned.

Many performance measures for effectiveness and efficiency can be built into these models. Such measures are then calculated as output time series whenever the models are run.

3. **A future APS scenario**

Each APS agency and public-sector function would have its own validated causal corporate model – to support

* management control (physical and financial, human and matériel),
* tactical and strategic planning,
* budgeting and
* coordination etc.

Most decisions and recommendations would be made as a matter of course on the basis of real prediction, ‘what if’ experimentation and system-wide analysis with these models. That approach would introduce real accountability, in place of charades and lip service to that objective.

Ministers and parliamentary committees etc would have access to these models, which would be run for them. The models would become a main basis for relations between ministers etc and their departments.

The corporate models would support interactions between APS agencies, and between public-sector functions. Some agencies are ‘systems of systems’. These agencies would operate a causal model for each constituent functional system. The models would then support interactions within those agencies.

The Department of Finance would need access to the models of other agencies. Those models would be the main basis for interactions between Finance and other agencies. The days of the mindless ‘slash and burn’ razor gang would be over.

Agencies would be more cost efficient than in the past. This would reduce the need for, and appropriateness of, periodic cost savings. Any ‘adjustments’ to agency activities and resources would be made on a system-oriented basis; with accurate information about future effects of any changes – both within an agency and in public-sector functions for which it is responsible.

These reforms would necessitate considerable changes in agency cultures, processes, procedures, and skillsets. Requisite professional experience and knowledge probably do not currently exist to a significant extent within the APS, or even in Australia. That situation is not the fault of the techniques.

The necessary makeover would not be quick, and would need to be carefully managed. Vested interests would remain ever ready to ‘white ant’ the initiatives. Politicians must never take their eyes off this particular ball.

The payoff would be a beneficially-transformed APS; with enhanced accountability, effectiveness and efficiency and reduced operating risks. Individual corporate models would pay for themselves in what otherwise would be a bad week for an agency and the country. Politics would no longer have to address matters for which it is ill-suited.

4. **The writer**

I am a professional practitioner of the causal simulation modeling techniques, with thirty-five years’ experience.

Professional applications undertaken include, among others, two for public sectors. One is an entire hospital. The other is a major military and national security application. Each can be used by any actual instance of the system type, once the actual system’s input data have been provided to the models.

My qualifications are:

* B.Sc(Econ.): London School of Economics.
* M.Ec. by thesis (ANU). ‘Managerial real investment incentives under corporate income taxation’.
* Ph.D. by thesis (ANU). A professional application of the causal simulation modeling techniques.
* FCA: fellow of the Institute of Chartered Accountants in England and Wales.

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