

From Task to Goal Orientation

Changing the Culture of Public Sector Agencies A System Dynamics Approach

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Abstract

Over the past decade, the Australian Labor Government has cut the size of the Australian federal budget sector from some 32% to around 24% of Gross Domestic Product. This cut in public sector intervention in the market-place has been achieved while the Government has continued to focus on achievement of its social justice objectives.

Central to these changes has been the Financial Management Improvement Program (FMIP), initiated in 1984 with the establishment of a small management reform team drawn from the Department of Finance and the Public Service Board.

Fundamentally, the FMIP sought to effect a change in bureaucratic and government culture, shifting the prevailing paradigm from input accounting to output and outcomes management. In responding to this challenge, the FMIP unit in the Department of Finance adopted a 'systems thinking' approach, initially using qualitative causal loop analyses and subsequently dynamic simulation modelling, to identify high value leverage points in bureaucratic and government processes. Qualitative and quantitative system dynamics modelling is now starting to be used in the broader policy advising areas of government.

This paper presents an overview of key elements of the Australian federal public sector reforms from the perspective of systems thinking and summarises significant recent uses of system dynamics modelling in public sector management and policy analysis.

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Australia 1984-1994 - A decade of structural change

With the change of Government in the 1983 Federal election the incoming Labor administration faced serious economic and budgetary problems.

The macro-economic pressures on the Federal Government included:

- a catastrophic slump in resource markets cutting Australia's export earnings from mining and agriculture;
- high and increasing inflation;
- high and increasing unemployment rates;
- high domestic interest rates;
- increasing international indebtedness; and
- decreasing competitiveness in world markets for our manufactured products.

At the same time, the Governments Budget flexibility was constrained by:

- increasing community opposition to high marginal tax rates;
- increasing social security outlays due to rising unemployment; and
- internationalisation of budget reaction (i.e. the international money market was becoming quicker to react to perceived fiscal irresponsibility).

In 1984 the Minister for Finance established a task force, the Financial Management Improvement Program (FMIP) with a charter to reform the public service, focusing particularly on "value for money". In particular, FMIP sought to reorient management from its traditional focus of system *efficiency* (doing the job right), towards system *effectiveness* (doing the right job).

Over the subsequent decade the changes wrought by FMIP have transformed the face of the Australian federal public sector through:

- the reform of Cabinet and parliamentary oversight of the public sector, particularly
 - widespread rationalisation of federal audit and financial legislation, and
 - introduction of goal oriented program budgeting;
- introduction of a rigorous framework for public sector wide program evaluation;
- the corporatisation or privatisation of government business enterprises;
- wide-ranging reform of departmental corporate planning, management and administrative practices.

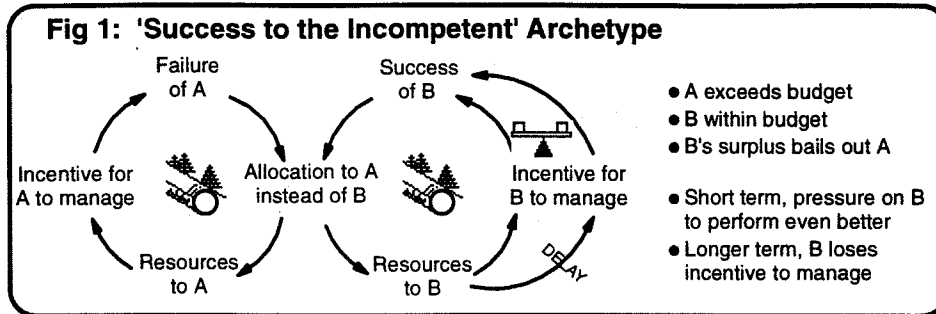
A systems thinking approach

A basic premise of the FMIP team's approach was that managers do not make stupid decision because they like doing stupid things. Rather, where pathological behaviour was seen to exist, we looked for those aspects of the "System" which encouraged, rewarded or reinforced this pattern of behaviour.

Let me give a simple example. Both within and between Departments a "success to the incompetent archetype" was endemic. An administrative breakdown would occur in Agency X. The Agency would claim it occurred because of insufficient staff or resources. The press and lobby groups would demand more resources for the service concerned. Government would comply, reallocating resource

from well managed Agencies. Clearly, they were over-endowed if they had no problems! Thus, the incompetent managers were rewarded and the competent were penalised. This is depicted in Figure 1.

Such "fixes" worked in the short term, indeed it often served to spur good managers to do better with less. Over time, however, well managed areas would build in pathological responses to protect "their" budget.



Breaking this pathological cycle required mechanisms which rewarded the good and penalised the bad manager. Analysis of this and associated feedback loops suggested a package of changes to budgetary practices which have now largely eliminated this "success to the incompetent archetype" at the inter-departmental level. These changes included:

- withdrawal of Department of Finance from micro level oversight of Agency estimates;
- introduction of global "cash limited budgets" for each Agency;
- permitting Agencies to reallocate funds, subject to the cash limit, between the various areas of operating expenditures, including salaries;

In 1986 the Minister of Finance was asked by a Department Head if there were any circumstances where additional funds would be given to cover any budget "blow-out". The Minister replied to the effect: "If you write detailing the circumstances, and attach your letter of resignation on grounds on incompetence, I will see that your successor has the additional funds necessary to get things back on track." 8 years later, "cash limited expenditures are simply part of the orthodoxy. The pathological cycle has been broken.

From the outset, then, the FMIP focused on the "System", rather than on individual problems, in order to identify pathological behaviour within or between Departments; to analyse the systemic processes that encouraged or reinforced this pathological behaviour; to identify possible leverage points for change; and to recommend related system changes.

The following sections examine a further five examples of archetypal pathological behaviour, drawn from our review of the budgetary and regulatory environment, departmental management systems and public service wide "accepted" practices.

**TABLE 1: FIVE EXAMPLES OF PATHOLOGICAL SYSTEMIC BEHAVIOUR
IN AUSTRALIAN PUBLIC SECTOR AGENCIES**

1. Managers focused primarily on program inputs rather than on the purpose that the programs were established to achieve.
2. Management information systems were not geared to performance reporting;
3. Program evaluation was seen as a weapon to beat managers with, rather than as a tool to assist the managers to be effective;
4. There was excessive and wasteful use of inter-departmental services;
5. The centuries of accretion in procurement regulations were estimated to cost the tax-payer some \$500 million per year.

Reorienting from inputs to outcomes

A 1984 FMIP survey of every senior executive in the federal bureaucracy revealed that 94% saw as their primary role to ensure that their budget was spent and that their staff numbers were at the authorised levels. Few saw as a high priority the achievement of program objectives. A 1985 FMIP survey of the Deputy Heads of 55 federal government departments and statutory authorities found that fewer than 70% included achievement of objectives amongst their top *seven* critical success factors! Probing this further, the 1985 FMIP survey of management information systems across the federal public sector found that "no agencies have executive information systems which permit integration of financial and staffing data . . . with data on outputs."

Our assessment of the systemic forces which had led to this exaggerated focus on inputs suggested the following causal chain:

1. The key sources of budget information provided to Ministers, Parliament and the public were the input based annual Appropriation Bills and the supporting Budget Papers. These provided comparative year-by-year expenditures by category of agency operational spending (e.g salaries, travel, office equipment, stationary etc);
 - there was no data linking operational spending with achievement of results.
2. Because changes in inputs spending are easy to understand, parliamentarians and the press would focus attention on changes or seeming anomalies in spending patterns.
4. Having experienced such scrutiny, Departments developed management information systems to give detailed data on input items.
5. Responding to the parliamentary and ministerial focus, the Department of Finance and the Public Service Board monitored resource inputs closely.
6. Lacking any pressure or incentive to provide detailed analyses of outputs or outcomes, few Departments developed information systems to track outcomes.

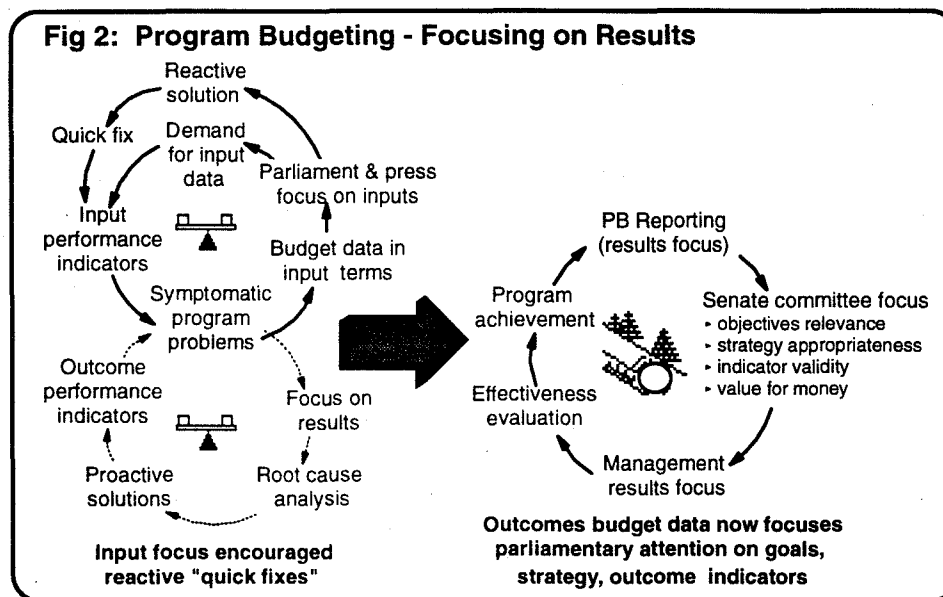
Let me put this in perspective. In the early 1980's I was head of the resources branch of the Commonwealth Schools Commission. At that stage the Commission was responsible for a budget, it

1983 prices, of some \$1,700 million. Along with executives of other government agencies I was obliged to appear before a budget committee of the Australian Senate, to give an account of our stewardship.

For 3 hours I was grilled by the Senate Committee - on input items only. Why had the Commission's library expenditure gone from \$8,000 to \$16,000; but not a word about the \$20 million annual schools' library program. Why had the Commission's computer services expenditure risen from \$80,000 to \$200,000; but not a word on the \$25 million schools' computing program. Was it really necessary for 3 people to attend an international conference? Why was our postage bill so high? There was intense questioning on the Commission's internal administrative expenditure, but not a single question on the other \$1,665 million dollars of schools' programs.

This input focus was mirrored in the Senate reviews of all other Government Departments and Agencies and in the corresponding reviews by the Joint Parliamentary Committee on Public Accounts and by the Auditor General's Office.

Our analysis of this pathological behaviour at a global level, and the interacting forces responsible for it, are depicted in the upper portion of the causal loop diagram on the left side of Figure 2. The input focus encouraged reactive "quick fixes" rather than examination of the root cause of program problems. But how do you change 80 years of ingrained habit.



The causal loop diagram suggested the key leverage points: the focus of parliamentary scrutiny and the nature and format of the Budget Papers and the Appropriation Bills. The Department of Finance (and prior to the mid 70's the Treasury) was responsible to the Government for oversight of Government expenditure and for preparation of the budget documentation and legislation. For some 80 years it had been presenting Parliament with details of Government expenditure, focusing on the input items. One of the first successes of FMIP was gaining Cabinet approval to change the way this critical information was presented.

From 1986 all departmental expenditure data was presented in program budgeting format, with a focus on outcomes. Input data was abbreviated and closely aligned with the program functions. Thus, for every program the Parliament and the press were given detailed statements of:

- the goals and objectives of each program
- the strategies intended to achieve the objectives

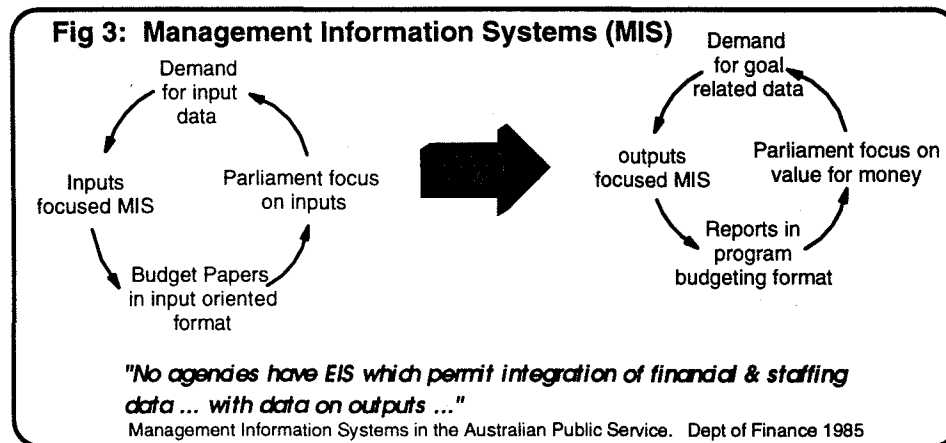
- outcome indicators used to determine whether these objectives were achieved
- performance indicators of the achievements to date, and
- the departmental input expenditures used to achieve these results.

The right side of Figure 2 illustrates the intended logic.

Initially, parliamentarians were slow to change their traditional questioning. By 1988, however Senators started to realise the potential advantages of using the goals oriented information in the Portfolio Program Performance Statements. They could focus on the fundamental political issues of value for money. They questioned trivial performance indicators. They homed in on the reported levels of performance. They started to address the appropriateness of objectives. Understandably Ministers and their senior executives wished to avoid embarrassment in the face of this new line of questioning, so they in turn began to demand better (output) information. A powerful reinforcing loop had been established for focusing attention on value for money.

Output oriented management information systems

Today, the Program Performance Statements are invaluable corporate documents for internal departmental planning and for external accountability. Critical to these documents has been the development of outcomes oriented management information systems. As noted above, in 1985 no Australian Government agencies had management information systems which integrated input and output data for their various programs. Figure 3 illustrates how the change in parliamentary focus discussed above drove the changes in information systems. Today most federal programs are supported by comprehensive input/output based MIS.



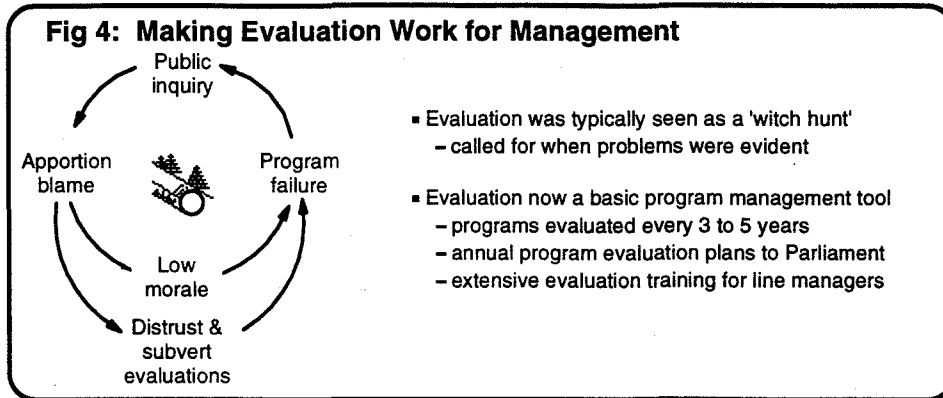
Making evaluation work for program managers

Prior to 1987 over \$100 million was spent each year on external evaluation of federal government programs. A significant portion of this related to Royal Commissions or Commissions of Inquiry which had been prompted by major administrative breakdowns. Generally, evaluation was undertaken when there was reason to suspect there were problems. Managers of programs being evaluated felt that they were under the spotlight, and were often very defensive. Figure 4 illustrates very simplified picture of the feedback loop mechanisms.

The challenge was to break the cycle of distrust, which was difficult given that the adverse finding of such evaluations were generally warranted. The FMIP team focused on marketing the concept that evaluation was part of normal every day management. This had limited success. Then a major

management training program was initiated . . . again with limited initial success. It was decided that a different approach was called for.

In 1988 Cabinet agreed to that all programs should be subject to a review every 3 to 5 years. It further directed every Department to prepare annual Program Evaluation Plans detailing what programs had been evaluated and the schedule and nature of proposed evaluations. Now, after some 6 years, evaluation is seen as an integral aspect of good program management. The pathological loop has been broken.



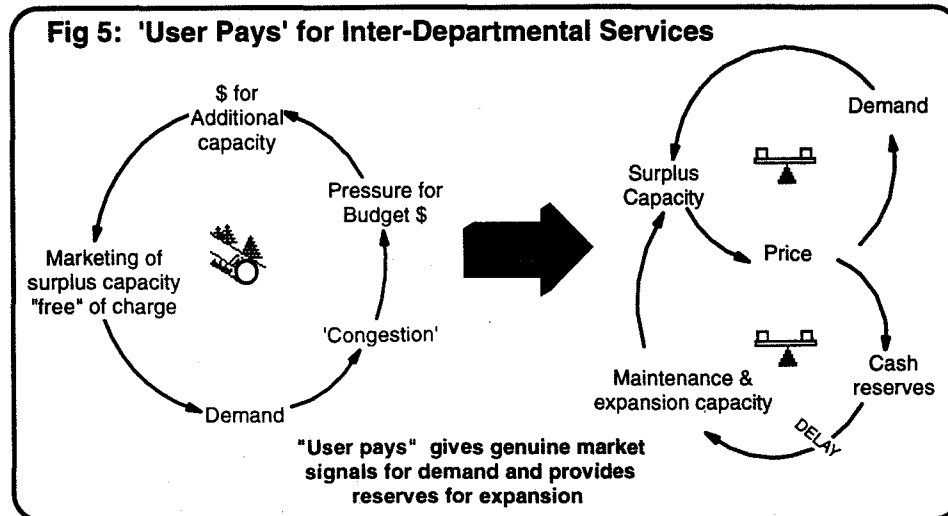
Eliminating the "free lunch"

The only certain aspect to "free lunches" is that someone eventually finishes up paying. Over the years many inter-departmental services had developed. On the rationale that it was merely a "book entry" for one Department to pay another Department for services provided, these services were provided free of charge. Such services included:

- government catering services which, among other things, provided tea-to-desk services throughout all departments;
- government hire car service;
- central property services;
- central payroll service;
- central computer bureau services.

Where any service is provided free of charge, individuals and organisations tend to demand more of the service than they really need. The real costs are hidden, and local managers have no need to contain costs. On the down side, the service recipients have little ability to influence the quality of service especially when, as so often happened, Departments were required to use the Government service provider.

On the supply side, the service managers are only too happy to oblige with extra services, as this enables them to justify a case for more staff, and higher status for themselves. Figure 5 depicts the mutually reinforcing causal loops. The resultant pathological behaviour was very costly.



The approach to this situation under FMIP has included:

- full user charging for a large range of services;
- allocation to user Departments (and away from the supplying agency) of the assessed annual service budgets;
- removing restrictions on acquisition of services from private sector competitors;
- corporatisation or privatisation of supplier agencies.

In other words, a genuine marketplace has been established where market forces of supply and demand can work to achieve an appropriate balance.

Addressing centuries of accretion in procurement regulations

Government procurement was dictated by an incredible morass of laws, regulations, guidelines etc. The official purchasing manual was about 3 inches thick. Add to that the Finance manual, another 3 inches, plus the departmental guidelines. You finish up with a rule based, low status, hack job.

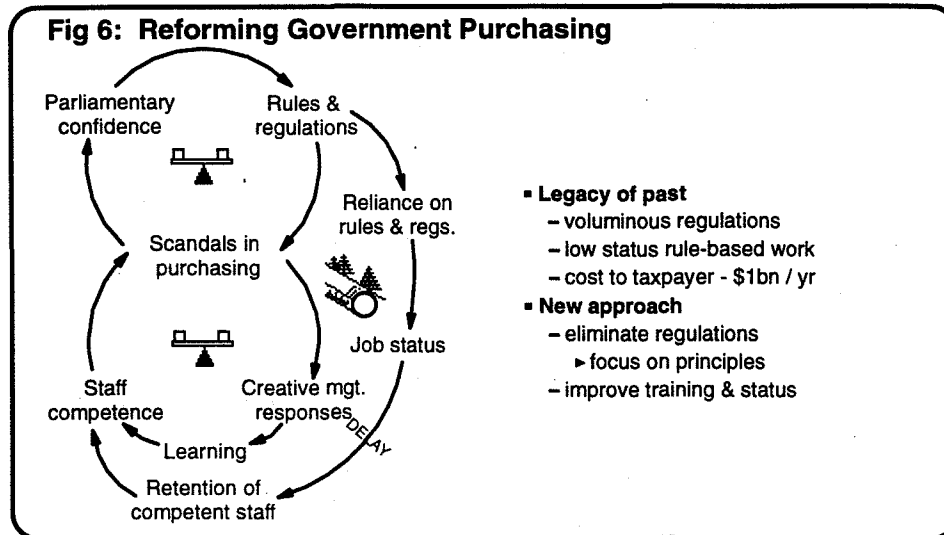
In 1987 the Division Head responsible for all Australian Government procurement policy came to the FMIP unit for help to reform the entire process. He estimated that the cost of excessive regulation was costing the Australian Government between \$500 million and \$800 million a year.

We started by examining how the purchasing system became the way it was. Where had the basic principles originated. Why had the various laws and regulations been developed in the way they had. This excursion into history provides a case study of how pathological systemic practices build up over time, without intention, and without people noticing.

In essence, most of the principles, and many of the actual rules, went back to a rotten potato scandal perpetrated on the British Navy in the 1670's. Following the sale of these rotten potatoes to the Royal Navy, Samuel Pepys, First Lord of the Admiralty, personally penned rule after rule to ensure that the fighting men were not so treated again.

When the colony of New South Wales was established in 1788, a British Naval Captain was appointed Governor. Naturally he brought his naval standing orders with him, built on Samuel Pepys' procurement rules of a century earlier. Eventually, with self government, then independence, these procurement rules found their way into State and the Commonwealth legislation. It's always easier to use the tried and true than to start from scratch.

The end result was that we were managing multi-million dollar procurement contracts in today's high tech era using a system governed largely by principles and practices established 3 centuries ago to prevent the sale of rotten potatoes to the British navy. Figure 6 illustrates some of the further consequences of this. The rule based approach had led to purchasing being regarded as low status. It was difficult to recruit and keep competent staff. The lack of skilled people inevitably resulted in scandals, which in turn led to more rules being added.



The FMIP procurement review threw out the rule books and started again. What were the fundamental principles that we wanted managers to follow. The review identified 13 key principles, such as

- probity and fair dealing
- value for money
- openness to public scrutiny, and
- equality of opportunity to potential contractors.

These principles were each supplemented by an 8 to 10 page booklet, in very simple English, which explained the rationale behind these principles. Departments were then given the authority to develop, based on these principles, their own guidelines attuned to their particular needs.

Finally, within the broad principles so established and the framework of the audit act, responsibility for government procurement was largely devolved from the central agencies to the respective departments.

The result has been a significant upgrade in the status of the procurement function, which reflects the importance of the work, and significant savings in government expenditure. Of course, under the cash limited budget approach discussed previously, departmental managers have a very strong incentive now to get value for their spending dollar. As a result top management is now much more concerned about procurement policy than previously, which further enhances the status of the job and which ensures much stronger feedback mechanisms. *So we see the different reforms reinforcing each other.*

The spreading of system dynamics concepts across the federal public sector

Largely through the work of former members of the FMIP unit, there has been a slow but steady percolation of system dynamics concepts through the wider bureaucracy. A constraint on the rate of adoption of system dynamics modelling techniques has been the lack of graphically oriented system

dynamics software for the IBM-PC compatible environment. The release of the PC version of IThink and the recent release of PowerSim and a much enhanced version of VENSIM will catalyse action across the federal public sector.

Personnel modelling in the Australian Taxation Office (ATO)

The ATO has, at the corporate management level, adopted a systemic perspective to planning with the use of computer based system dynamics simulation models. One such model is PRISM (Planning, Resourcing, Integrating, Staffing Model) which models the supply and demand of people to do the work of the ATO. This model received an enterprise innovation award in 1993 from the Victorian Government.

The ATO is a major employer which has suffered significant industrial relations problems over the past decade. An ingredient to these problems has been career promotional prospects. The simulation tools that have been developed have enabled such qualitative factors to be addressed along with the traditional ATO focus on numbers.

PRISM, which was developed using the IThink software, has been designed as a learning laboratory which allows managers to test the impact of their staffing proposals in the short, medium and long term. Empirical studies in ATO relating to average staff development times and staff attitudes to career advancement have made it possible for PRISM to model both the adequacy of the supply of trained staff to meet future requirements and the adequacy of promotional opportunities for staff to meet their aspirations.

Personnel modelling in the Australian Army

The Australian Army is undergoing a major "downsizing" over the next 6 years. By the end of the century there will be a cut in the number of officers by some 24%, with approximately 14% cut overall. This is occurring at a time when Australia's unemployment rate is around 10%, and voluntary retirement rates from the Army have fallen to an all time low.

Management of this process is extremely complex because Army is an organisation whose elements have complex inter-relationships. It has some 146 'trades' (using the term trade in the broadest sense, many of them very specialised and relatively small. And it must have an appropriate mix of trained and experienced personnel.

In 1993 Army Personnel Division embarked on the development of a system dynamics model of the regular Army which would identify the key performance and feedback mechanisms and the high value leverage points to enable the achievement of Government targets whilst:

- maintaining an appropriate mix of experience
- maintaining a rapid mobilisation capability and,
- causing least disruption to the ongoing management of the Army.

The model, which is now fully operational, was developed in IThink. It encompasses the rank promotion progression of all 146 trades, and the key interactions between these trades

The success of this venture resulted in approval in November 1993 to expand the staff planning model coverage to include Army reservists, civilian personnel, consultants and contractors.

Army strategic planning

In December 1993 the deputy Chief of the General Staff was given a formal presentation of a series of prototype strategic planning models, utilising system dynamics concepts and built with IThink and VENSIM software. These prototypes explored ways of linking strategic guidance, budget constraints and funding options with resultant force readiness and force capability. The DCGS has since given approval for the Army Research and Analysis unit to pursue the development of such planning tools.

Commonwealth health policy

The Federal Health Department has been using IThink software since 1991 to develop policy advising models of both the Medicare (free public health care) system and the Commonwealth-State Hospitals Agreement.

In the case of Medicare, a fully interactive policy model has been developed to test the budgetary and social implications of alternative policy options. The model is now a basic tool in policy development in the annual federal budget process. Indeed, in 1993, all staff in the section in the Department of Finance responsible for overseeing the Health Portfolio undertook training in system dynamics modelling and acquired the Department of Health model so that they can provide the same level of advice to their Minister and to the Cabinet. Prior to the 1992 Federal election, the Medicare section in Health had developed dynamic models of the election policies of both major political Parties in order to be ready to give instant advice to the new Government . . . whatever its complexion.

Similarly, a separate unit in the Health Department have developed dynamic models of the politically sensitive, and financially significant, Commonwealth-State Hospitals Agreement. The model has been used extensively to brief the both the federal Minister and the Commonwealth negotiators of the budgetary and social implications of the various options proffered by the respective States.

Conclusion

Over the past decade there have been extensive overhauling of the public sector in most countries of the developed world. The Australian public sector reform process certainly drew on the experience of Canada, the United Kingdom, New Zealand and the United States. Arguably, the reforms effected through the FMIP to Australian public sector have been among the more successful, in terms of the gains in effectiveness and in terms of the minimisation of workplace industrial disputation and social impact on the wider community. The role of systems thinking in the development of ideas and in the marketing of proposals to the policy makers and to those affected played no small role in this success.