PUBLIC ACCOUNTS AND EXPENDITURE REVIEW COMMITTEE

Report on the

CURRENT AND FUTURE USE OF EDP FACILITIES AND TECHNIQUES IN THE VICTORIAN PUBLIC SECTOR

PARLIAMENT OF VICTORIA
1981

D—No. 8
PUBLIC ACCOUNTS AND EXPENDITURE REVIEW COMMITTEE

REPORT ON THE

CURRENT AND FUTURE USE
OF EDP FACILITIES AND TECHNIQUES
IN THE VICTORIAN PUBLIC SECTOR

Ordered to be printed

D-No. 8/1981
PUBLIC ACCOUNTS AND EXPENDITURE REVIEW COMMITTEE

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Mr. F. Belli, Chief Director of Audits, Auditor-General's Office.
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*Mr. Remington appointed as an alternate member to the Hon. G.A.S. Butler.
12 PUBLIC ACCOUNTS AND EXPENDITURE REVIEW COMMITTEE - The Honourable A.J. Hunt moved, by leave, That the Honourables Clive Bubb, G.A.S. Butler, D.K. Hayward and N.F. Stacey be members of the Public Accounts and Expenditure Review Committee and that the said Committee have power to send for persons, papers and records.

Question-put and resolved in the affirmative

16 PUBLIC ACCOUNTS AND EXPENDITURE REVIEW COMMITTEE - Motion made, by leave and question-That-(a)Mr. Evans (Gippsland East), Mr. Mackinnon, Mr. Mathews, Mr. Remington, Mr. Richardson, Mr. Rowe, Mr. Walsh and Mr. Williams be Members of the Public Accounts and Expenditure Review Committee; and (b) the Committee have power to— (i) send for persons, papers and records; and (ii) commission any person or persons to investigate and report to the Committee on any aspect of the subject-matter under investigation by the Committee (Mr. Thompson)— put and agreed to.
TERMS OF REFERENCE

PARLIAMENTARY COMMITTEES (PUBLIC ACCOUNTS AND EXPENDITURE REVIEW COMMITTEE) ACT 1979

SECTION 5

5 The functions of the Committee shall be -

(a) to examine the accounts of the receipts and expenditure of the State and to bring to the notice of the Parliament any items in those accounts, or any circumstances connected with them which it may consider appropriate;

(b) to inquire into and report to the Parliament on any question in connexion with public expenditure which is referred to it by the Council or the Assembly;

(c) to consider and report to the Parliament how, if at all, the administration of Government programmes and policies may be carried out more efficiently, effectively and economically; and

(d) to report to the Parliament any alteration which may appear desirable to be introduced in the form or method of keeping and presenting the Public Accounts, or in the mode of receipt, control, issue or payment of the public money.
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CHAPTER 1

INTRODUCTION AND SUMMARY

1.1 BACKGROUND TO INQUIRY

1.1.1 The Public Accounts and Expenditure Review Committee resolved to undertake an inquiry into the current and future use of EDP facilities and techniques. On 19 March 1981, a sub-committee was appointed and given the following objectives and terms of reference for the inquiry:

(a) to report to Parliament on the current level of use of computers within the Victorian public sector and the extent to which management is efficiently using and properly controlling these and related resources;

(b) to make general recommendations regarding the future effective acquisition and utilization of data processing resources and the future role of information systems in the Victorian public sector;

(c) to establish by survey:
   - Victorian public sector computing facilities in terms of quality and cost; and
   - the manner and extent of current use of these and related resources;

(d) to review and make general recommendations in respect of management procedures for:
   - planning data processing requirements and controlling acquisition of resources;
   - ensuring economic use of these resources while at the same time providing a service to users;
- setting and monitoring standards for the development, documentation, and maintenance of applications; and

- ensuring satisfactory controls have been instituted to maintain the integrity and to guard against the fraudulent or irregular use of data;

(e) to make general recommendations as to the future role of information systems in the Victorian public sector; and

(f) recommendations on the future role and use of computers should include consideration of such matters as:

- effective use of information in the control and planning of Government operations;

- possible areas where information or facilities may be shared and economies achieved; and

- trends in technology in the areas of equipment, facilities and applications, systems, and their possible effects on Government and the public.

1.1.2 In July 1981 the Committee published a discussion paper entitled "Current and Future Use of EDP Facilities and Techniques in the Victorian Public Sector. The paper aroused considerable interest, resulting in 46 written submissions (see Appendix A) from departments of the public service and public bodies and 13 from the private sector. It may thus be concluded that the discussion paper has achieved its objective of stimulating the submission of a range of views. Most of these submissions have supported the thrust of its recommendations.

1.1.3 This report is intended to conclude the Committee's current review of EDP by selecting major issues from among those raised in the discussion paper and developing more detailed recommendations.
1.1.4 It is based upon the written submissions received and evidence taken at 10 public hearings with 19 organizations and individuals (see Appendix B). These hearings took place between 11 September and 19 October 1981. In addition discussions were held with representatives of two computer suppliers and one EDP personnel service firm, and with the Computer and Systems Division of the Public Service Board. The Committee has also drawn on EDP practices in the Commonwealth Government and the governments of the United Kingdom, Canada, the U.S.A. and the State of California, where these were considered relevant to Victoria.

1.1.5 The Committee wishes to acknowledge the highly professional work of its consultant for this stage of the inquiry, Mr. P.K. MacGregor of P.K. MacGregor and Associates. It also wishes to gratefully acknowledge the valuable assistance of its two external advisors for the inquiry, Dr. B. Garner, Professor of Computing at Deakin University, and Mr. F. Belli, Chief Director of Audits in the Auditor-General's Office.

1.2 SCOPE AND GENERAL THEME OF INQUIRY

1.2.1 The Committee is aware of the wide range of issues in the terms of reference of the present inquiry which are not dealt with in this report. The Committee has concentrated on recommending a broad framework for the management of EDP resources. If this framework is implemented, many of the difficulties experienced in the past should be eliminated or reduced. Other aspects of the terms of reference will be investigated by the Committee in due course.

1.2.2 The report identifies required changes in the administrative processes, organization structure and required resource levels for the management of information technology, particularly EDP, in the Victorian Public Service. Specific weaknesses in departments are used to illustrate the need for procedural change and greater managerial involvement.

1.2.3 Some of the recommendations made also apply directly to statutory authorities. In other cases recommendations are made for change in procedures or organization of the public service specifically. The Committee expects public bodies generally to note these recommendations and implement them to the extent that they are applicable.

* Submissions and Minutes of Evidence not printed.
1.2.4 The Committee may investigate further the use of EDP facilities and techniques in municipal authorities, local government, statutory bodies and health services during 1982. Of particular interest in this later phase will be the rationalization of the collection, processing and storage of land ownership and valuation information between the various bodies which collect and use it.

Statutory Authorities and Agencies

1.2.5 The Auditor-General expressed the view that the discussion paper paid insufficient attention to EDP problems within statutory authorities and agencies. He pointed out that:

Audit Office past experience would tend to show that difficulties existed in a number of the statutory authorities to almost the same degree as is disclosed in the report on the departments and Government Computing Service.

1.2.6 The Committee's view is that the remedy for this must lie largely with the authorities themselves. In this report the Committee advocates:

- increased visibility for Parliament of proposed EDP developments within authorities, through the submission of rolling plans;

- periodic efficiency audits and effectiveness reviews by the Auditor-General of EDP systems in statutory authorities, with reports to Parliament of results; and

- facilities for statutory authorities to obtain the help of central agencies such as the Computer and Systems Division of the Public Service Board, and the Government Computing Service, when the authorities request such assistance.

1.2.7 Although there are exceptions, statutory authorities appear to be able to recruit and retain qualified EDP staff more readily than departments. They have easier access to funds, greater flexibility in setting salary ranges, establishing positions, redeploying staff within the organization, and hiring and firing.
They need not, for example, suffer the delays in recruiting that sometimes cause applicants for public service positions to take other jobs outside the service while awaiting advice from the Public Service Board.

1.2.8 The Committee does not consider it appropriate for the Public Service Board or any other public service agency to control EDP developments in the statutory authorities.

Relevance of Social Issues

1.2.9 The Victorian Public Service Association (VPSA) has said that social issues such as retraining, occupational health, and privacy of personal information should be addressed as matters of importance by this review. The Committee is primarily concerned with how the administration of Government programmes and policies may be carried out more efficiently, effectively and economically. While the Committee agrees that attention should be given to the matters mentioned by the Victorian Public Service Association, detailed consideration of these issues is beyond the scope of this report. The Committee may deal with some aspects of social issues in a later inquiry.

1.2.10 The Commonwealth Law Reform Commission has made some tentative proposals(14) on the privacy of personal information. It is important that policies and laws on the protection of the privacy of personal information should be consistent between the States. Anomalies between State laws are likely to make them difficult to enforce, since data can easily be stored in one State and accessed on-line from another.

1.2.11 Laws governing the protection of privacy of personal data are expected to have a significant impact on the design of some data bases in the Victorian Public Service. Uniform guidelines on privacy are therefore urgently required. However, for the reasons given above, such guidelines should be consistent with the expected recommendations of the Law Reform Commission; hence the progress by the latter will control the pace of development of uniform State guidelines.

1.3 EDP AND INFORMATION TECHNOLOGY

1.3.1 Because of the rapid convergence of computer and communications technologies, the Committee believes that it is necessary to interpret the term EDP broadly. The barriers between information processing technologies are breaking down and there is little point in formulating or recommending
policies for the management of data processing separately from word processing, text storage, text retrieval, and data communications. Tools for the effective management of recorded information are becoming increasingly integrated through electronics and total system planning; they should therefore be considered together. Throughout this report, the terms "EDP" and "information technology" may be regarded as interchangeable for most purposes.

1.4 INFORMATION TECHNOLOGY AND PUBLIC ADMINISTRATION

New Areas of Application for Information Technology

1.4.1 The modern electronic digital computer first appeared over 30 years ago. The US Federal Government has used computers in administrative processing since the early fifties, and the Commonwealth since 1962. The Victorian Public Service has been relatively slow to take advantage of computing equipment. It installed its first centralized system for administrative processing in 1968.

1.4.2 Until recently the major application of computers in the Victorian Public Service has been in accounting, carried out by batch processing. More recently moves have been made into on-line data storage and retrieval functions to assist in operational management; e.g. GENIUS, WREN and the LANDTAX systems (see Chapter 6).

1.4.3 In future, senior public servants may make extensive on-line use of management information derived from large stored data bases and complex models of government processes. This may introduce qualitative changes in the way government administration works which are quite independent of currently debated issues of centralization versus decentralization, and which indeed could make that debate irrelevant (see ref. 19 and SIMON in ref. 18). The importance of information technology to public administration does not lie merely in automating existing functions in the interests of efficiency. It is equally important that one anticipates, evaluates and capitalizes on the potential changes in government processes which the technology makes possible and perhaps, in some cases, inevitable.

1.4.4 Opportunities for the application of information technology which have been suggested to the Committee include the planning of education needs by the State; the sharing of data by Motor Registration Branch, drivers' licence records, insurance records, and the Police; and bringing the TAB on-course.
Modern information technology provides the opportunity for the decentralization of some government functions to cities or towns out of Melbourne, particularly to areas which currently have high unemployment.

More Vigorous Programmes are Required for the Exploitation of Information Technology

1.4.5 The Committee believes that the Victorian Government is irrevocably committed to the increasing use of information technology to manage the State's resources, perform its administrative functions and provide service to the public. Not all departments appear to appreciate the likely extent of their dependence in the near future on information technology. The potential benefit from the application of computers in some departments, such as Minerals and Energy and Community Welfare Services, seems obvious, yet these departments appear to have given low priority to carrying out even an initial investigation of such potential.

1.4.6 The absence in many departments of vigorous programmes to take advantage of information technology may be due in part to a lack of understanding of systems or EDP by the management of those departments. A likely contributing factor is the frustration often experienced in the past in obtaining even modest human resources to carry out systems studies. It appears to the Committee that the philosophies of the EDP Policy Committee may have tended to dampen enthusiasm for EDP developments rather than encourage critical examination of the possibilities.

1.4.7 The Committee recognizes that the Government's policy is one of continuing restraint in public sector spending. However, this cannot be an argument for failing to carry out a careful analysis of where EDP can be used to reduce costs. There are probably few investments which can yield as high a return for a modest outlay in the Victorian Public Service as a search for the potential savings from the application of information technology or the restructuring of administrative processes to take advantage of information technology.

1.4.8 Effectiveness and efficiency of EDP use in the Victorian Public Service cannot be looked at in isolation from the effectiveness and efficiency of departmental programmes. In many cases money would probably be better spent looking at whether a programme should be cancelled or reorganized, rather than looking at whether that programme might be done more efficiently using EDP.
Therefore, in parallel with the increased attention which the Committee thinks must be given to the potential for application of information technology in the Victorian Public Service, there must be an equally vigorous and continuing appraisal of whether the functions being considered for automation are appropriate.

Recommendations

1.4.9 The Committee recommends that: -

(a) all departments and statutory authorities in the Victorian public sector should implement positive programmes to accelerate the exploitation of information technology to reduce the cost of government and improve the services it provides; and

(b) the Government Computing Service, the EDP Policy Committee and the Public Service Board should vigorously support departments in investigating the benefits and costs of information technology in likely areas of application.

1.5 INFORMATION RESOURCE MANAGEMENT

1.5.1 Among new responsibilities proposed for the Government Computing Service, the Committee has suggested (see Chapter 5) certain information management functions. This role is consistent with the view that increasingly information will be regarded as a central resource of Government, and as such should be deliberately and positively managed to avoid duplication and waste and to ensure that it is accessible to those who need and are entitled to see it.

1.5.2 In the longer term - probably within two years - the Committee thinks that the permanent head of each department should appoint a person reporting to him to be responsible for the department's information resources. This function of information resource management, would be responsible for:

- information technology management;

- positive advocacy of information technology where it is cost effective;
- providing the contact point within the department for the co-ordination across departments of information requirements and the potential for sharing data bases; and

- supervising the maintenance of the department's five-year rolling plans for information system development and co-ordinating such plans with the department's overall programme planning.

The existing function of "EDP manager" would normally come under, but not necessarily report directly to, the department's information resource manager.

1.5.3 The Government Computing Service would provide co-ordination across departments of information requirements and the potential for sharing data bases.

1.5.4 The Committee expects to make detailed recommendations on public sector information resource management in a future report.

1.6 MAJOR PROBLEMS

1.6.1 The Committee believes that generally speaking the Victorian Public Service has been well served by its EDP personnel. The dissatisfaction expressed by departments with the Government Computing Service is not due to failings by its professional staff. In the Committee's view it is due to the early policy decision to centralize the processing of several major on-line systems on the Government Computing Service computers, poor estimates by users of their requirements, shortcomings in the design of the systems by external contractors, and failure to expand the facilities at the Government Computing Service.

1.6.2 GENIUS, developed by external contractors, has so far cost more than five times its original estimate and is approximately two years behind schedule. By contrast, the Government Computing Service has completed two major on-line systems on time and within specification.

1.6.3 The major shortcomings the Committee has observed in EDP development in the public service are largely due to failure by departmental management and central agencies to:
plan for and acquire adequate staff and equipment resources to meet the needs of the service;

explore sufficiently the potential for EDP in cost-effective applications;

exercise effective management control in system development; and

carry out reviews of efficiency and effectiveness of installed systems.

1.6.4 None of these problems is unique to the Victorian Public Service. The demand for skilled, experienced EDP personnel exceeds the supply throughout the world. The general shortage position leads to shortcuts being taken in system development which, in turn, lead to greater risk of system failure. Because most effort is going into programming and implementing new systems, documentation may be neglected, training of EDP staff is often curtailed, and performance measurement of previously implemented systems usually does not take place. In these ways, world-wide, the staff shortage contributes indirectly to system failure and management dissatisfaction with EDP.

1.6.5 Not only are human resources for EDP development in very short supply, but they are becoming much more expensive relative to equipment. Historically in both public and private sectors, efforts to achieve economy in the use of EDP have been concentrated on making the best use of the expensive equipment involved. Now and in the future, the major effort should be aimed at making the best use of the people resources, both EDP personnel developing systems and those who will use computers as working tools. Organizational arrangements within government that were set up to save equipment costs should be re-examined to see whether they are the appropriate ones to make the best use of people. In order to use the scarce human resources to best effect, emphasis should be placed on making sure that the right tasks are selected for the application of computers; the selection of the optimum software environment, attracting, training and retaining the necessary staff; the use of productivity tools for programmers; and the use of improved management techniques for project development.
1.6.6 The challenge to management in the better utilization of human resources in EDP development must mainly be met within the departments. Departmental management should increasingly become responsible for their own EDP programmes and the principal role of central agencies should be to support them in achieving this goal.

1.7 RECOMMENDATIONS

1.7.1 The Committee recommends that the following broad directions be adopted:

(1) The management of EDP funds and staffing in the Victorian Public Service should be further decentralized; departments should be responsible for their own programmes within the framework of overall policies and guidelines established by the EDP Policy Committee.

(2) The EDP Policy Committee should be supported by advice from the Government Computing Service and the Computer and Systems Division of the Public Service Board. The latter should continue to provide the secretariat for the Committee.

(3) A key policy should be that departments and statutory authorities prepare three to five-year rolling plans for EDP development - the objectives of which are related to major programmes. These plans should be updated and rolled forward annually. They are primarily an internal management tool for the control of EDP and only secondarily a means of co-ordination of EDP.

(4) Considering the cost and complexity of many EDP systems, that many managers have difficulty in keeping abreast of new developments, and that many aspects of information management cross departmental boundaries, EDP development in the Victorian Public Service should continue to be co-ordinated and monitored for the time being.
(5) Effective co-ordination of developments will inevitably conflict at times with the proper exercise of management responsibility in departments. It is appropriate that the central agencies should monitor and question departmental decisions but not impose solutions.

(6) Policies and guidelines should be reviewed regularly and kept up-to-date in the light of technological changes, increasing competence in departments, and experience of their (the policies' and guidelines') effectiveness.

(7) The Auditor-General should be given the statutory power to conduct audits of the efficiency and effectiveness of EDP systems and the management of EDP resources in departments and statutory authorities and should conduct such audits periodically.
CHAPTER 2

POLICIES FOR INFORMATION MANAGEMENT

2.1 THE NEED FOR POLICIES

2.1.1 The EDP Policy Committee's view\(^\text{(4)}\) is that:

The Public Service in general is faced with dual objectives:

On the one hand

- Providing improved, enlarged, and more flexible service to the Public

while at the same time

- Increasing economy and efficiency of operations because of severe financial constraints.

Progress against both these objectives places urgent demands on the growth in the effective use of computers in the service of Government departments. It is imperative that this growth be guided by a firm and sensible policy to ensure the effective and efficient use of computing.

2.1.2 The Committee endorses the above statement. Uniform and consistent information policies should be employed throughout the public service.

2.2 EDP POLICY COMMITTEE'S "POLICY FOR FUTURE COMPUTER FACILITIES".

2.2.1 The Committee disagrees with the policy statement contained in the proposed Future Strategy document\(^\text{(4)}\) in the following respects:

2.2.2 The policy states:

A suitable methodology and standards will be adopted for use in the planning development and control of all EDP projects.
2.2.3 The Committee's view is that there is no one standard methodology suitable for the planning development and control of all EDP projects. While the concept of using methodologies is supported, more than one will be required (see Chapter 6).

2.2.4 The policy states:

*Where equivalent facilities are not available within the Service, external bureaux may be considered.*

2.2.5 The Committee's view is that the choice between using facilities within the service and external bureaux should generally be based on obtaining the most cost effective alternative. In its pricing structure, the Government Computing Service (GCS) should seek to recover its costs of operation, including overheads and equipment depreciation. If the Government Computing Service consistently cannot compete with the private sector on this basis, its computing service should be regarded as uneconomic and closed down and its staff re-deployed (see Chapter 7). However the Government Computing Service should be permitted to discount its prices in particular competitive situations where it has idle resources, provided that overall it can recover its costs.

2.2.6 The policy states:

*In order to rationalize the installation of decentralized mini and micro-computers in departments, a standard range of equipment will be selected. Priority will be given to departments which are prepared to adopt the standard equipment, where applicable.*

2.2.7 The Committee's view is that economies should be sought by limiting the number of makes and types of mini and micro-computers. However, based on experience within BHP, CRA and Telecom, it considers that no one type is suitable for all applications. Several preferred ranges should be adopted to suit different classes of applications. Priority should be given to projects primarily on the basis of cost-effectiveness need, and the department's ability to carry out the development and implementation. Priority should not be based on whether departments are prepared to adopt the standard equipment. Departments which elect to use different equipment from the preferred makes should be free to do so.
2.3  

**BROADER POLICIES FOR THE MANAGEMENT OF INFORMATION AND TECHNOLOGY**

2.3.1 The Committee believes the primary goal of the EDP Policy Committee should be to take proven principles and broad Government policies and draw from them specific policies for the management of information and information-technology within the Victorian Public Service. This will take the EDP Policy Committee into much broader areas than hitherto.

2.4  

**RECOMMENDED BROAD INFORMATION POLICIES**

2.4.1 Recommended policies for consideration and endorsement by the EDP Policy Committee are listed below:

(a) information is a vital and central resource of Government. As such it should be deliberately and positively managed to avoid duplication and waste, and to ensure its availability to all those who need and are entitled to have access to it;

(b) information costs money to collect, store, disseminate and process. Such costs should be taken into account when making demands for additional or more accurate or more rapidly available information. To help ensure that this happens, information processing, storage and transmission costs should be accounted for as far as practicable and such costs should be charged back to users;

(c) the collection, dissemination, storage and processing of Government information should be managed to satisfy the information needs of Parliament, the public service, and the public;

(d) the collection of information from the public should be carried out in such a way as to impose minimum burden on those required to furnish the information, for example, by eliminating the collection of information which already exists within Government files. (Privacy considerations may however prevent the sharing of data bases in some instances);
(e) because the same information may be required by or about different departments, the management of the Government's information resources should be centrally coordinated to avoid waste, ensure appropriate accessibility and privacy, and eliminate any unnecessary burden on the public.

(f) information processing and communication facilities are aids to Government programmes and are not ends in themselves;

(g) department heads should be constantly alert to ways in which their departmental programmes might be made less costly or more effective through the use of information technology;

(h) information system plans and budgets should be closely related to programme objectives and departmental goals. Departments should formulate and review plans periodically, and assess their implication in terms of personnel requirements, training needs, organizational impact, social impact, costs, and contribution to programme or departmental objectives;

(i) departmental plans and their implications should be consolidated to provide overall information system development plans for Government;

(j) information technology (equipment, software and services) should be obtained through fully competitive tendering except where it can be shown to be in the interests of the State to negotiate directly with only one or a limited number of suppliers;

(k) the primary responsibility for the economic, efficient, and effective acquisition and use of information technology lies with the department head whose programme or departmental objectives the technology will serve; and
(1) except for security-classified data, personal data may be stored in government files only when the following conditions are satisfied:

(i) persons to whom the data relates will be informed that the data is stored and of its intended use;

(ii) each such person will have the right to view data pertaining to him or herself and to correct any errors;

(iii) the person will be notified if an adverse decision is based upon such data; and

(iv) the person shall have the right to contest improper disclosure of the data.

2.4.2 This is by no means an exhaustive list. The Committee expects that further policies will emanate from many of the recommendations and principles contained in this report.

2.5 RECOMMENDATION

2.5.1 The Committee recommends that the EDP Policy Committee should formulate general policies for the management of information technology and information in the Victorian Public Service, taking into account the recommendations, principles and suggested policies in this report.
CHAPTER 3

CO-ORDINATION AND CONTROL OF EDP DEVELOPMENTS

3.1 INTRODUCTION

3.1.1 In the past, control of EDP developments in the Victorian Public Service has been highly centralized under the Public Service Board, the EDP Policy Committee, and the Treasury, through their ability to withhold approval of funds to departments whose EDP proposals they did not agree with. Delegations of financial responsibility to departments have been set at very low levels. In fact there is no delegation for equipment acquisition or projects using resources from outside the service; these must be approved by the EDP Policy Committee or in the case of those costing more than $50,000 the Public Service Board and Treasury. (Full details were set out in Appendix III para. 2.2.3 of the Committee's Discussion Paper.)

3.1.2 One justification put forward for this special treatment of EDP is that some departments are thought to be incapable of making correct decisions on EDP matters because of lack of expertise. Hence firm central control is said to be required.

3.1.3 A number of departments have blamed the centralist approach for causing unnecessary delays in system development or acquisition, permitting the prerogatives of departmental management to be usurped, and inhibiting worthwhile developments. The departments point to the well-accepted principle that managers should be given clear objectives and the agreed resources to achieve them, and left to carry out the tasks with minimum intervention. Oversight is acceptable but is thought to go too far when it becomes de facto control through blocking a department's access to resources.

3.2 NEED FOR CO-ORDINATION

3.2.1 Because many EDP developments have effects beyond the boundaries of one department, a degree of central co-ordination is necessary within the Victorian Public Service. For example, the Committee believes that central co-ordination is required to:
- avoid unnecessary duplication of data collection and storage;
- avoid unnecessary programming where suitable software is already available;
- consolidate departmental plans to allow service-wide planning of recruitment and training of EDP staff;
- exploit the potential for sharing the cost of software development between departments;
- develop standards and guidelines for preferred practice; and
- obtain purchasing benefits through presenting a unified front to suppliers.

3.2.2 At the same time, care should be taken to avoid the dangers of excessive or inappropriate central co-ordination of EDP. Enforcing uniformity may result in reduced cost-effectiveness in particular cases or overall; central co-ordination or control may tend to reduce department heads' interest in and accountability and responsibility for their own EDP developments; unnecessary controls cause unnecessary delays.

3.3 EDP POLICY COMMITTEE

3.3.1 The EDP Policy Committee was formed in 1962 by the Chairman of the Public Service Board, the Director of Finance, and the Auditor-General. At that time it was called the EDP Policy Group. The group was established to:

...plan for the use of EDP in the State Public Service and co-ordinate its introduction to departments.

3.3.2 The Policy Committee has been responsible for a number of initiatives including the setting up of the EDP Centre (now the Government Computing Service), and recommending the acquisition of the computer equipment by the Centre in 1969. It met on an ad hoc basis between 1969 and 1978 and then resumed meeting on a regular basis, partly as a result of problems which were being experienced with the development of some major systems. The Policy Committee at present comprises the Director of Finance, the Secretary to the Premier's Department, the Chairman of the Public Service
Board and the Director-General of the Department of Property and Services.

3.3.3 Members of the Policy Committee have said that:

The (Policy) Committee will become less involved in detailed matters when standards and plans are developed.

The EDP Policy Committee is attempting to free departments from restraints as much as possible.

Basically permanent heads have been pleased with the advice they have received from the Committee. It is our policy to advise rather than to make all decisions.

The need for a central body will become less as the level of education in departments rises and people become more familiar with computing.

3.3.4 The Committee believes that the EDP Policy Committee has played, and for some time yet will continue to play, an important role in co-ordinating EDP developments. The Policy Committee's view is that departments are responsible for planning, developing and implementing their EDP systems. This Committee agrees with this principle but believes that practice has not been in accordance with it. The EDP Policy Committee should take positive steps to encourage departments to assume fully these responsibilities, and where necessary to build the competence to do so.

Recommendations

3.3.5 The Committee recommends that:

(1) The EDP Policy Committee should continue to exercise a co-ordinating role in the Victorian Public Service, with its primary function being to formulate policies for EDP development (see Chapter 5) and review five-year rolling plans for conformity with such policies. Its formal approval of individual EDP projects would not be required but it would have a role in advising Treasury.
(2) The EDP Policy Committee should take positive steps to encourage permanent heads to assume full responsibility for planning, developing and implementing EDP systems within their departments.

3.4 RESPONSIBILITIES OF PUBLIC SERVICE BOARD AND PERMANENT HEADS

3.4.1 Section 22 of the Victorian Public Service Act 1974 states that:

...the permanent head of a department shall be responsible for its general working and for the transaction of the business thereof...

3.4.2 The Public Service Board however has the responsibility under section 16

...to assist in promoting the effective efficient and economic management and operation of departments and for that purpose to exercise a critical oversight of the methods of conducting business in departments and to bring to the attention of permanent heads any improvements that appear to be necessary and from time to time to advise the permanent heads of departments as to the measures that appear to the Board to be necessary or desirable...

In addition to this advisory role, the Board under section 16 has responsibility

...to ensure that the public service is so organized and staffed as to be capable of performing its functions in the most efficient and economic manner...

3.4.3 The Committee takes this to mean that the Board's executive role is limited to staffing and organization, but that the Board has responsibility to assist permanent heads to improve the efficiency, effectiveness and economy of the workings of departments.

3.4.4 In practice the Board's power to control the actual workings of departments may be quite strong, where, for example, Treasury withholds funds on the Board's advice, or where a permanent head tends to avoid an argument by falling in with the Board's desires.
Thus, while section 16 does not appear to give the Board any executive power actually to effect changes in the working methods of departments, there are ways in practice whereby the Board can achieve considerable control. To the extent that this may occur, the Board is assuming a role which should be that of the permanent heads under the Act. The Board's duty is to recommend ways of improving effectiveness, efficiency and economy, not to control the working methods of departments through the exercise of *de facto* power. If the Board assumes what should be the responsibilities of the permanent head, the incentive for the latter to assume responsibility is diminished. Accountability of the permanent head is diminished accordingly.

**Recommendation**

3.4.5 The Committee recommends that the Public Service Board in exercising its responsibility under the Public Service Act 1974 should at the same time encourage permanent heads to take full responsibility for the management of information technology within their departments.

3.5 **CONTROL OF STATUTORY AUTHORITIES**

3.5.1 Statutory authorities are intended to have more authority in day-to-day operation than the departments of the public service. The Committee considers that centralized control over the EDP functions of statutory authorities is neither feasible nor desirable. Nevertheless statutory authorities should be accountable to Government for their performance in the area of EDP as they are in other aspects of their activities.

3.5.2 The Committee considers it desirable that computer developments which are planned or are taking place within statutory authorities should be visible to Government, as well as how much is being spent on computing systems and what benefits are being obtained. The Auditor-General is empowered to audit most statutory authorities. The extension of the Auditor-General's activities into the sphere of EDP systems audit recommended by the Committee (see Chapters 5 and 11) should apply to statutory authorities as well as to departments.

3.5.3 It is considered therefore that the following obligations should apply to statutory authorities as well as to departments:
(a) authorities should submit three to five-year rolling plans for EDP development in the same format as is required for departments;

(b) authorities should conduct internal reviews of EDP systems as described in Chapter 11; and

(c) authorities's EDP systems and systems for internal review of EDP should be subject to efficiency and effectiveness audit by the Auditor-General (see para. 5.6.1).

3.5.4 The purpose of obtaining plans from authorities is twofold: firstly, to provide visibility of intention so that where other departments or authorities or the Government's interests are likely to be affected, some co-ordination may be exercised by the Public Service Board and applied through ministerial directives; secondly, to provide a benchmark against which actual performance, expenditure and benefits of the installed EDP system may later be measured by the Auditor-General.

Recommendation

3.5.5 The Committee recommends that ministers responsible for statutory authorities should direct such authorities to submit their plans in the desired uniform format and to carry out internal audit and review of systems at regular intervals as recommended in Chapter 11.

3.6 CENTRALIZATION VERSUS DECENTRALIZATION

3.6.1 The EDP Policy Committee's proposed strategy document(4) discusses briefly plans for the decentralization of computing equipment. It does not discuss the decentralization of control of EDP resources. In the continuing debate about the merits of decentralized control and departmental autonomy, the following should be kept in mind(18):

(a) decentralized computing equipment or data bases do not necessarily imply departmental autonomy or decentralized control;

(b) decentralization of some decision functions may occur at the same time as other decision functions are being centralized; and
centralized shared data bases do not necessarily imply loss of autonomy among users.

3.6.2 Thus the question of the degree of autonomy that departments should have for EDP development and operation can to a large extent be separated from the arguments for and against decentralization of equipment and services. However, where the resources are centrally managed and used by departments the following conditions should be met:

(a) the supplier of the services should be accountable to the departmental management for quality and continuity of service;

(b) the department should be able to select the most appropriate and economic source of supply; and

(c) if a supplier fails to meet his agreed obligation to the department, the permanent head of the department should be able, if he wishes, to switch to another supplier.

3.6.3 The Committee considers that for a central coordinating body to force a department to use a centralized service is undue interference in the management of the department and is likely to lead to inefficient operation of the central service.

3.6.4 Thus while it is appropriate to encourage departments to use otherwise idle Government resources in preference to purchasing new ones if they are equivalent in performance, quality, availability etc., the department head should retain the right to make the decision and be prepared to answer for it.
CHAPTER 4

SYSTEMS PLANNING

4.1 PERCEIVED PROBLEMS

4.1.1 The discussion paper\(^{(1)}\) reported that:

Government Computing Services capacity problems have arisen for two major reasons:

- there is little detailed planning associated with developing new applications which would permit the Government Computing Service to assess their ability to service the user requirement;

- the absence of a service-wide EDP plan does not permit the Government Computing Service to control its own destiny. User needs and plans are often unknown and, as a result, forward assessment of required processing capability is virtually non-existent...

In the absence of a service-wide plan and no Government Computing Service master plan, the planning of equipment upgrades, staff training and recruitment make it currently almost impossible to co-ordinate. The effects overall are of a day-to-day existence with all the effects that this has, most of which are already evident.

4.1.2 Within Health Computing Services:

There is no formal planning process currently in use which allows the Service to be aware of the future requirements of health institutions or for these institutions to be aware of the facilities that will be provided by the Service\(^{(3)}\).

4.2 BACKGROUND

4.2.1 The EDP Policy Committee's strategy document\(^{(4)}\) accepts the need for improved co-ordination and planning of EDP and considers the use of 5-year rolling plans to be necessary for this.
4.2.2 The Committee believes that adequate planning by departments and authorities, and ultimately local government bodies, is the key to effective central co-ordination of information systems development in the public sector while avoiding encroachment by central agencies on the management prerogatives of the departments and statutory bodies.

4.2.3 Central intervention in the absence of planning tends to be ad hoc leading to difficulties of the kind experienced by the Government Computing Service. If it can be seen where departments are heading, central co-ordinating effort can be concentrated on areas where incompatibilities and redundancy are likely to lead to waste. Once departmental plans have been agreed to, intervention by central agencies need only occur if monitoring reveals a significant departure from plans.

4.2.4 It is recognized that EDP planning is going to cost departments money. The Committee considers however that the benefits will outweigh the costs. Planning by departments is an essential concomitant of decentralization of control of EDP development. It is expected that most departments will accept it as the price to be paid for the desired increased departmental autonomy in EDP decision making. Those departments and authorities that do not at present have EDP plans will probably require assistance in preparing them initially, either from the Government Computing Service or external consultants.

4.3 STATUTORY BODIES

4.3.1 The purpose of obtaining and consolidating plans from statutory bodies is:

- to provide forward visibility of sector-wide facilities and resource requirements as a basis for government policy making;

- to provide benchmarks against which the Auditor-General can review effectiveness and performance against objectives; and

- to allow rationalization of data resources where appropriate such as on the land information and titles data bases.
4.3.2 Those statutory bodies which already have long term rolling plans should find little difficulty in extracting from them, in a sector-wide format, the information needed for consolidation by the Public Service Board. Those bodies that currently do not have long term rolling plans for EDP may find it helpful to use the format to be employed by Government departments.

4.4 BENEFITS OF SYSTEMS PLANNING

4.4.1 Systems planning helps in the following ways:

(a) it forces a discipline of identifying objectives, assessing options, and estimating costs and benefits;

(b) it allows long range needs to be estimated for human and physical resources;

(c) it helps the private sector to anticipate and plan to meet the Government's needs for information technology and services;

(d) it helps avoid unnecessary duplication of information system development by departments and authorities, and of paperwork for the public;

(e) it helps to avoid the unnecessary duplication of data bases by departments and authorities requiring the same data;

(f) it helps to ensure the efficient utilization of available computing capacity by making those who need it aware of where it exists;

(g) the ability to compare plans with performance helps in achieving accountability of departments and authorities;

(h) awareness by one department of the plans of other departments helps to create an awareness of the potentials for and limitations of EDP; and
(1) it helps service organizations like the Government Computing Service and the Health Computing Services to be aware of the expected EDP requirements of their users, and for the users to be aware of the facilities that will become available from the service centres.

4.5 INTEGRATION OF EDP PLANS WITH DEPARTMENT'S OR AGENCY'S PROGRAMME

4.5.1 Plans should clearly identify the department's or agency's objectives for its overall programmes and indicate the contribution that specific EDP plans are expected to make towards them.

4.5.2 The effect of proposed EDP developments on the department's or authority's service to its clients should not be overlooked in formulating plans. Consideration should also be given to the need for back-up of EDP facilities and how contingencies will be dealt with.

4.5.3 Some relationships between departmental functions and detailed specific EDP plans are illustrated below, where the arrows mean 'determines':

- Departmental Goals and Functions
- Information needs
- Departmental objectives
- Policies on information systems and technology.
- Broad Information System Strategy (description of the ongoing information processing environment)
- Application Strategies (strategies for solving specific functional problems)
- Development Plans

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4.5.4 The diagram illustrates that there are at least two kinds of strategy - or at least two parts of the strategic plan. One relates to the general processing environment which is expected to continue over the years and the other relates to specific systems within departments which are candidates for automation. Examples of matters coming within the scope of the first could be whether a departmental data base is to be maintained, and whether the department's processing is to be centralized or distributed. Examples of matters coming within the second part could be the priorities of specific sub-system development, and the proposed approach to solving certain application problems.

4.5.5 Obviously, before EDP strategic plans can be developed, information requirements must be determined and departmental objectives and policies established.

4.5.6 In formulating EDP plans, department heads who have not already done so should formally initiate a programme for working down through activities on the above diagram from the top. If the skills are not available in the department to do this, help should be obtained from the Government Computing Service and the Public Service Board or outside consultants. Where a department head decides that a detailed information requirements analysis is not justified at present, that department's EDP plan should indicate when it is expected that such an analysis will be carried out. Some departments' plans may state that the department has no known EDP requirements and no intention to carry out requirements analysis within the next three years. Other departments will prepare plans which include a broad information system strategy, specific application strategies, and detailed development and acquisition plans for the immediate future.

4.6 PLANNING IS A CONTINUING PROCESS

4.6.1 While plans are snapshots of the hoped-for future at a particular time, the planning process is a continuous one. It may be argued that the continuous application of the planning process is more important than the plan itself.

4.6.2 The development of short, medium and long term plans is an outcome of the planning process but that process has a number of benefits irrespective of the output of plans, requiring the definition of objectives and the consideration of constraints imposed by administrative practice and the political environment. It also provides a benchmark for measuring and controlling performance.
4.7 CONSOLIDATION INTO MASTER PLANS

4.7.1 Departments and authorities should prepare three to five-year rolling plans in the light of current sector-wide master plans and plans by the Government Computing Service for the provision of services. When approved by the permanent head (see Discussion Paper, p.49) the plans of departments and authorities, and also those of the Government Computing Service, should go to the Public Service Board for consolidation into a public sector master plan. The Public Service Board will aggregate departmental plans to determine the total resources required (see diagram, p.31).

4.7.2 The Public Accounts and Expenditure Review Committee should annually review the public sector master plan and policies and report to Parliament on plans for systems which involve significant expenditure (say over $2 million per year) or could be expected to affect public attitudes or well-being. Note that review by this Committee would not be an approval function and consequently will not introduce any delays into the planning process.

4.8 PUBLIC SERVICE BOARD SHOULD BE MASTER PLANNING AGENCY

4.8.1 Several alternatives are available for location of the responsibility for information system master planning. The Committee has considered:

- Treasury;
- Government Computing Service;
- An inter-departmental committee such as the EDP Policy Committee;
- Public Service Board; and
- Premier's Department.

4.8.2 Section 16 of the Public Service Act makes it the responsibility of the Public Service Board to "ensure that the public service is so organized and staffed as to be capable of performing its functions in the most efficient and economic manner..." and "to assist in promoting the effective, efficient and economic management and operation of departments and for that purpose to exercise a critical oversight of the methods of conducting business in departments...".
SUGGESTED PLANNING CYCLE

1 INFORMATION

A ADVICE
Of the organizations considered for central planning, the Public Service Board is the only one that has a statutory mandate to improve overall efficiency, effectiveness and economy. This suggests to the Committee that the planning function should lie with the Public Service Board. Moreover, the Board already has within its Computer and Systems Division qualified systems staff. It also exercises some control and review over statutory authorities which are staffed under the Public Service Act.

4.8.3 It is thus a natural extension not only of its statutory role but of its present capabilities. The Treasury might feasibly carry out the co-ordination of plans but does not seem to the Committee to have the statutory mandate to do so. It would also require the transfer or acquisition from outside the service of qualified staff. Similar considerations apply to the Premier's Department.

4.8.4 The Committee considers that the master planning function should be kept separate from operational services, the latter being but one of the agencies whose plans must be consolidated. While the Government Computing Service would be expected to have the skills necessary to prepare master plans, it should not in the Committee's view have the function of interpreting or preparing the policy component of master plans. The Government Computing Service could give advice to the planning authority when requested.

4.8.5 The Committee has rejected the option of having master planning carried out by an inter-departmental committee. Such a committee would require a secretariat such as the Computer and Systems Division of the Board to do the bulk of the work associated with the preparation of plans. This suggests that the responsibility for the job should be given to the people who are going to carry out the work, not to an inter-departmental committee. The EDP Policy Committee, whether in its present form or reconstituted, could participate in the preparation of the master plan with the Public Service Board. However the full responsibility for the preparation of the plan belongs to the Board.

4.9 MASTER PLAN SHOULD BE AN AGGREGATE OF DEPARTMENTAL AND AUTHORITY PLANS

4.9.1 The Committee emphasises that sector-wide master plans must grow from real needs in functional areas. As the Commonwealth Joint Committee of Public Accounts has said (23) "to impose a master strategy for computing on
the public service which is unrelated to needs as perceived by users could...result in considerable overall inefficiency in computer usage and in technological obsolescence. Developments should grow upwards from needs not downwards from philosophies about where information processing is thought to be going." Thus the master plan is primarily an aggregation of the plans of individual departments and authorities, including the Government Computing Service.

4.9.2 Nevertheless, one of the purposes of consolidating departmental plans is to assist in the identification of areas of duplication, potential for sharing, and potential for the more extensive application of information technology. Therefore some feedback from the central planning body to the departments is to be expected and this may result in fine-tuning of departmental plans or, probably in rare cases, substantial modification of them.

4.10 CONSOLIDATED ANNUAL PLANS SHOULD BE MADE AVAILABLE TO PRIVATE SECTOR INDUSTRY

4.10.1 Suppliers of EDP goods and services will be better able to meet the Government's needs over the long term if they can anticipate the Government's probable future requirements.

This applies both to firms marketing imported goods and those supplying locally-manufactured goods and services; however it is particularly important to the latter. The Ministry for Economic Development in its submission to the Committee(24) has recommended making the Government's EDP plans available to the local industry and to potential local suppliers to assist them in planning the nature and scope of their activities. The Committee agrees with this proposal.

4.10.2 The obvious caveat should apply: the plans are for broad guidance only and may be changed without notice at any time. The private sector would use them at its own risk.

4.11 RECOMMENDATIONS

The Committee recommends that:-

(1) Rolling plans for not less than three years for the development and operation of information technology and information systems
should be prepared and updated annually by all departments and authorities.

(2) Plans should be prepared in a uniform sector-wide format to permit comparison and consolidation.

(3) The Computer and Systems Division of the Public Service Board should prepare guidelines for the preparation of such plans and these should be issued to departments and authorities.

(4) Ministers should instruct statutory bodies under their direction to submit plans to the Public Service Board in accordance with the guidelines.

(5) Plans should be reviewed and revised at least annually and rolled forward one year.

(6) Plans should be related to the objectives, programmes and problems of the department or authority. It is suggested that they should contain cost-benefit analyses at two levels:

(i) a broad long-term analysis; and

(ii) more detailed cost justification of proposed specific purchases within development programmes.

(7) Strategic plans of departments and authorities should be made available for study by the private sector except where in the view of the minister it is not in the public interest to do so.

(8) Plans from departments and authorities should be formally approved by the permanent head or chief executive officer before submission to the minister.

(9) Plans from departments should be approved by the appropriate minister before being forwarded to the Public Service Board.
(10) The Computer and Systems Division of the Public Service Board should consolidate plans annually and advise the EDP Policy Committee of matters affecting policy.

(11) On the basis of departments' plans, Treasury should agree in principle to departmental expenditure contained in the estimates as it does for other capital expenditure, even though such expenditure is anticipated over a period of three to five years. The forward estimates should be revised and refined annually. Annual budget bids would normally be consistent with the estimates for year one contained in the strategic plan.

(12) Specific acquisition of equipment should not require further approval by the Public Service Board or EDP Policy Committee provided that:

(a) they were consistent with the strategic plan;

(b) the strategic plan had been accepted by the minister and permanent head and endorsed by the EDP Policy Committee as to its conformity with overall policy; and

(c) the acquisition does not require expenditure significantly greater than the estimate contained in the strategic plan.

(13) In order to assist departments to carry out the requirements analysis on which plans should be based, the establishment and staff ceilings of the Computer and Systems Division of the Public Service Board, and the Government Computing Service should be enlarged. The number of persons required should be estimated by the Computer and Systems Division and the Government Computing Service, but it is envisaged that at least eight senior systems analysts may be required.
CHAPTER 5

ROLES OF DEPARTMENTS AND AGENCIES

5.1 THE NEED FOR CHANGE

5.1.1 Evidence taken by the Committee indicates that a number of changes are required in the responsibilities and functions of central agencies to achieve better management of EDP resources within the Victorian Public Service.

5.1.2 The objectives of such changes are:

(1) To ensure that department heads assume the responsibility for, and carry out, effective planning and development of their own EDP requirements within a broad policy framework.

(2) To ensure that departments are able to acquire the knowledge and staff needed to do so.

(3) To provide sufficient sector-wide central co-ordination and monitoring to ensure that:

- government policy affecting information technology and information management is formulated in specific EDP policy and is disseminated;

- the implications of departments' and authorities' plans are understood and used in overall resource planning and in formulating government policy.

(4) To provide an efficient resource pool of EDP services within the public service to supplement departmental staff and external resources.

5.1.3 Three bodies which could, with only minor change in direction, help achieve objectives (3) and (4) already exist - the EDP Policy Committee, the Computer and Systems Division of the Public Service Board, and the Government Computing Service. As a first step towards effective EDP management by all departments, the Committee proposes changes of emphasis and attitude for the EDP Policy Committee and
the Government Computing Service rather than fundamental changes in roles. These bodies should be given a clear charter to help departments become self-sufficient and their direct control of EDP development should be reduced.

5.1.4 At present, and for some time to come, central monitoring of performance in departments will be necessary in order to accomplish the first objective above. This monitoring function also falls within the charter of two existing agencies - the Auditor-General and the Public Service Board.

5.1.5 Thus, although very significant changes are required in attitudes, levels of competence, and type and nature of services available to departments, the Committee thinks that the changes can be accomplished, at least for the present, by modification of the terms of reference of existing agencies and enlargement of the capacity of the Auditor-General's Office and the Government Computing Service.

5.1.6 Some recommended roles and responsibilities for various parties are listed in more detail in the remainder of this chapter.

5.2 DEPARTMENTS

5.2.1 Although many departments want to manage their own EDP development without interference, experience during the past few years indicates that they can get into considerable difficulty. The preparation of five-year plans and the use of a system development methodology would have eliminated or mitigated some of the problems that have occurred; however the major change required in departments is the increased use of careful analysis of requirements and thorough objective feasibility studies. These are likely to require considerable resources to carry out - in many cases beyond the capacity of the departments themselves to provide.

5.2.2 The Committee proposes that the Government Computing Service - and to a lesser extent the Computer and Systems Division of the Public Service Board - should assist departments by providing the personnel to help in these activities. Nevertheless, even if most of the resources are obtained from outside the department, the management of the department must understand and be heavily involved in its EDP planning and the control of resources.
5.2.3 A major challenge for departmental management is to build greater competence to manage EDP development. Some bodies, such as the State Rivers and Water Supply Commission, have adopted a policy of keeping their initial EDP staff to a minimum and putting their money into retaining a small, highly-skilled cadre of senior EDP people capable of assembling and managing external resources to satisfy their EDP requirements. The Committee supports this approach and recommends it generally to departments.

Recommendations - Responsibilities of Departments

5.2.4 The Committee recommends that the specific responsibilities of departments should include:

(1) Responsibilities as defined in the Public Service Act.

(2) Defining and justifying the EDP requirements necessary to meet the department's stated objectives.

(3) Acquiring and ensuring effective use of computer equipment.

(4) Controlling the development of computer systems.

(5) Preparing five-year rolling strategic plans in a standard sector-wide format and updating them annually; submitting plans to the Public Service Board. (Plans should be public unless security would be jeopardized).

(6) Carrying out periodic reviews of the efficiency and effectiveness of systems, presence of standards, compliance with standards, and adequacy of standards and controls.

(7) Maintaining contact with departments and agencies in Victoria, the Commonwealth, and other States to enable relevant experience to be shared.

(8) With the assistance of the Public Service Board if necessary, recruiting adequate numbers of EDP personnel and training them to satisfactory skills levels to enable implementation of the department's agreed strategic plan.
Note: The amount of training and development provided by the department would vary according to the department's size. The Public Service Board, the Government Computing Service and private sector could be used to supplement a department's own training resources.

(9) Submitting proposals for specific funding of information system acquisition, development and operation to Treasury

5.3 STATUTORY AUTHORITIES

5.3.1 Generally throughout this report the Committee has used the term "departments" to refer to those departments of State which are administered under the Public Service Act 1974, and the term "statutory authorities" to refer to bodies created or established by other specific legislation. In reality, the division between departments and authorities is not clear-cut since some statutory authorities have staff employed under the Public Service Act; other statutory authorities are staffed, without specific legislative provisions, by persons employed under the Public Service Act; and some authorities employ staff for whose terms and conditions of employment the Public Service Board has statutory responsibility.

5.3.2 In some places in this report - for example in the discussion on attracting and retaining staff - the statutory authorities which employ staff under public service salary and conditions might be expected to have much the same problems as the departments of the public service. In those cases where, in certain respects, statutory authorities behave or are administered as departments, recommendations relating to departments apply mutatis mutandis to such authorities.

5.3.3 As indicated previously in this report, the Committee considers that the authorities in general should not be subject to control of their EDP development by public service agencies. However, in most cases they are already subject to audit by the Auditor-General, the Committee considers that such audit should include efficiency and effectiveness of EDP facilities with appropriate reports to Parliament.

5.3.4 Many larger authorities have the staff and expertise to manage their EDP development without help.
Smaller ones however will need help and, if this Committee's recommendations are adopted, will be able to obtain such help from the Government Computing Service and the guidelines prepared by the Public Service Board and issued by the EDP Policy Committee.

Recommendations - Responsibilities of Statutory Authorities

5.3.5 The Committee recommends that the specific responsibility of statutory authorities should include:-

(1) Responsibilities as defined by Statute.

(2) Defining and justifying the EDP requirements necessary to enable the authority to meet its stated and statutory objectives.

(3) Acquiring and ensuring effective use of computer equipment.

(4) Controlling the development of computer systems.

(5) Preparing five-year rolling strategic plans in a standard sector-wide format and updating them annually. Forwarding plans to the Public Service Board. Plans should be public.

(6) Carrying out periodic reviews of the efficiency and effectiveness of systems, presence of standards, compliance with standards, and adequacy of standards and controls.

(7) Maintaining contact with government agencies and departments in Victoria, the Commonwealth, and other States to allow relevant experience to be shared.

5.4 EDP POLICY COMMITTEE

5.4.1 The EDP Policy Committee should progressively reduce and ultimately drop its functions of approving and controlling the direction of individual projects and should concentrate on developing the framework of policies and guidelines within which departments are expected to work.
Recommendations - EDP Policy Committee

5.4.2 The Committee recommends that :-

(1) The EDP Policy Committee should comprise, as at present, the Director of Finance, the Secretary to the Premier's Department, the Chairman of the Public Service Board, and the Director-General of the Department of Property and Services; and in addition, the permanent head or equivalent of one department of the public service and the chief executive officer of one statutory authority. The department and the statutory authority with representation on the committee should change annually.

(2) Policies should be drafted by the EDP Policy Committee and circulated to departments for review before being adopted.

Recommendations - Responsibilities of EDP Policy Committee

5.4.3 The Committee recommends that the EDP Policy Committee should be responsible for :-

(1) In consultation with departments, authorities, and staff associations the formulation of sector-wide policies for adoption by Government for the management of information technology and systems and the Government's information resources; the promulgation of approved policies to departments, agencies, authorities, staff associations and industry associations.

(2) The review of submissions from departments to Treasury for funds for acquisitions of more than $200 000 and to advise Treasury of:

- conformity with the department's strategic plan;
- conformity with Government policy;
- its assessment of the technical feasibility of the project.
(3) In consultation with departments, authorities, the Government Computing Service and the Computer and Systems Division of the Public Service Board, to decide on the need for common systems and, on approval by the Premier, to commission the development of such systems by the Government Computing Service or their acquisition from external suppliers.

(4) The approval and issuing of guidelines and standards to departments and authorities.

5.5 GOVERNMENT COMPUTING SERVICE

5.5.1 The Government Computing Service is a key component in the Committee's proposals for improving the effectiveness of the Victorian Public Service's EDP resources. Not even the largest departments can hope to retain on their staff all the skills they are likely to need for their EDP developments. While the private sector should be exploited as a source of specialists for short-term assignments, the Committee believes that there are important functions not likely to be provided by the private sector which are needed and which could come within the role of the Government Computing Service. These include acting as a clearing house on supplier information, providing an on-the-job training ground for EDP staff, and carrying out research into the application of information technology to government administration. Departments will need temporary assistance from specialist personnel who have not only adequate technical ability but also knowledge and experience of the public service. The opportunity exists for the Government Computing Service to build a pool of expertise in which specialist EDP knowledge is combined with understanding of the machinery of the service.

5.5.2 It is neither practicable nor desirable for the Government Computing Service to attempt to meet all the needs of departments for consulting or computing services. The Committee believes that the most appropriate way to control the direction and growth of the Government Computing Service is to let it compete with the private sector on a quasi-commercial footing.

5.5.3 The Government Computing Service should have the ability to fund capital acquisition and staffing from a proportion of its own earnings.
It is also desirable that the Government Computing Service should have flexibility to hire and fire staff in order to build up the high calibre of personnel it will require. Unless it has a considerable degree of freedom from the normal public service constraints on funding and staffing, it may be difficult for the Government Computing Service to compete openly with the private sector - and the Committee believes that open competition is essential if the Government Computing Service is to remain efficient. The Committee is totally opposed to a protected environment for the Government Computing Service based on compulsory use of its services.

5.5.4 The Committee proposes below a future role for the Government Computing Service. The Committee does not think that the Government Computing Service can assume this role suddenly. It will have to move towards the full performance of all these functions gradually, building expertise and the confidence of users. This could take several years but at the end of that time a valuable resource pool and technical knowledge base for co-ordination and policy making could exist in Victoria to aid the public service in information system development and management.

5.5.5 In the long term, the Committee considers it likely that the Government Computing Service will have to become a statutory body independent of the Public Service Board in order to achieve the flexibility of funding and staffing which is necessary. In the short term, many of the functions that are advocated for the Government Computing Service in its enlarged role can be undertaken while the Government Computing Service remains within the Department of Property Services.

5.5.6 The Committee expects that the Government Computing Service will make vigorous efforts to maximize the productivity of existing staff but recognizes that the Government Computing Service may be able to demonstrate the need for an expansion in staff to perform all the functions listed below with an adequate quality-of-service.

Recommendations - Government Computing Service

5.5.7 The Committee recommends that:

(1) The Government Computing Service should prepare and update annually a three to five-year rolling plan.
(2) The Government Computing Service should review the plans of departments and authorities and conduct negotiations with them for the use of Government Computing Service services. It should not be mandatory for a permanent head to use the Government Computing Service in preference to the private sector.


5.5.8 The Committee recommends that the Government Computing Service should be responsible to :-

(1) Provide, on request, technical advice to departments and authorities as the basis for:

- system development, implementation and operation;
- purchase and acceptance of equipment, software, and services;
- government policy formulation;
- planning; and
- the formulation of policies for the support of Victorian equipment, software and services industry.

Note: Government Computing Service would not itself be responsible for the formulation of policies but would provide the necessary knowledge base to departments and authorities whose responsibility this was (see related item no.10).

(2) Act as a clearing house for information on suppliers and their products; maintain files on suppliers; assist departments to evaluate proposals; evaluate new products. Suppliers would be required to provide the Government Computing Service with comprehensive documentation on all products they wish to sell to the government and to keep such documentation up-to-date.
(3) Develop computing and data communications technical standards in conjunction with departments and authorities and in consultation with suppliers; recommend standards to the EDP Policy Committee.

The Government Computing Service's work in the area of standards would not duplicate or conflict with that of the Australian Standards Association or the International Standards Organization; it would take into account the desirability of conforming to de facto industry standards.

(4) Provide on-the-job training to EDP systems personnel in accordance with training and manpower development plans produced by the Public Service Board.

(5) Assist, upon request, departments, authorities and the Auditor-General to carry out performance evaluation of systems.

(6) Assist departments designing new systems to build in audit trail capability and security provisions.

(7) Maintain a software library of well documented available software packages with information on their performance; assist departments and agencies to evaluate software packages.

(8) Carry out research in, among other things:

(a) information system support in decision-making, policy formulation and problem solving in government; and

(b) information networking and integrated office information systems.

(9) Promote interchange of information on information technology with industry and other governments.

(10) Identify and clarify issues of information technology policy, plans and programmes as they pertain to government operations and public well-being (see related item no.1).
(11) Operate a computing service to departments and agencies to supplement their own systems where, for example:

- there is overload on the in-house system;
- special facilities are required which are not available in-house;
- the department requires temporary use of a system while awaiting installation of its own; or
- a department or agency is too small to have its own system.

(Note: Departments and authorities would have the option of using the Government Computing Service, an outside bureau, or spare capacity within the service).

(12) Provide, when required, a facilities management service in the operation and support of departmental or authorities' computers.

(13) Identify application areas where common systems and data can be used.

(14) Develop, when directed, systems common to a number of departments.

(15) Maintain a directory and dictionary of data and software available to other departments, authorities and the public.

(16) Charge a fee for services aimed at recovering costs, including overheads and depreciation on equipment, and providing for expansion.

(17) Provide, upon request, a site planning service to departments and authorities.

5.6 AUDITOR-GENERAL

5.6.1 The Committee believes that the power and capacity of the Auditor-General should be extended to enable him to carry out efficiency and effectiveness audits of EDP systems, and audit of the controls on acquisition and development of systems.
At present he is only able to review EDP systems in terms of the accuracy of the information produced, not in terms of their performance in relation to costs. While the primary responsibility lies with departments themselves to do this, using internal audit resources, both the Public Service Board and the Auditor-General have responsibility to review and monitor the departments.

5.6.2 The Auditor-General should not participate in the design of departments' or authorities' systems. Internal auditors within departments and authorities may participate in design to the extent of defining objectives for audit-ability. In other words they may advise system designers what parameters of system performance and what controls they will wish to measure or verify when carrying out an audit.

5.6.3 The reasons for EDP efficiency and effectiveness audits being carried out by the Auditor-General, as opposed to the Public Service Board, are his independence from the systems being evaluated and the fact that such audits are a logical extension of his current reviews of EDP systems.

Recommendations - Responsibilities of Auditor-General

5.6.4 The Committee recommends that the Auditor-General should:

(1) Carry out audits on computer installations in departments and statutory authorities to determine:

(i) the adequacy of controls of integrity, security and privacy;

(ii) the efficiency and effectiveness of system performance; and

(iii) the efficiency and effectiveness of system development and acquisition.

(2) Report on the extent to which authorities and departments exercise their responsibilities as defined here and their compliance with Government policies on information systems.
(3) Report on the adequacy of EDP standards in departments and authorities, and compliance with them.

5.7 PUBLIC SERVICE BOARD

5.7.1 The Computer and Systems Division of the Public Service Board should mainly be responsible for providing help to departments in strategic and policy issues, preparing guidelines for formal issuing by the EDP Policy Committee, consolidating and maintaining the sector-wide EDP plans, and carrying out effectiveness and post-implementation reviews.

5.7.2 On request, departments would also be able to obtain help from the Government Computing Service, but this would generally be of an operational and technical nature (and would take the form of paid-for consultants) rather than of a policy or strategic nature.

5.7.3 The Computer and Systems Division of the Board should continue to act as the secretariat of the EDP Policy Committee.

Recommendations - Responsibilities of Public Service Board

5.7.4 The Committee recommends that the Public Service Board should be responsible for:

(1) Developing and maintaining documentation relating to policy, guidelines, procedures and standards.

(2) Developing and maintaining sector-wide plans on the development and use of information systems; distributing such plans to departments and authorities. The plans should be available for purchase or inspection by private firms.

(3) Identifying possibilities for bulk purchasing of standard EDP equipment; advising departments and authorities of these possibilities and requesting the Tender Board to arrange bulk purchases or period contracts where departments and authorities wish to participate in such an arrangement.
(4) Making recommendations on information technology and information management matters for consideration by the EDP Policy Committee and other bodies.

(5) At the request of the EDP Policy Committee, preparing guidelines to departments and authorities in the assessment, development and operation of information technology; keeping such guidelines up-to-date.

(6) Assisting departments and, if requested, authorities, in the early phases of information system planning to ensure that objectives are clearly perceived, quantified as far as possible, and consistent with overall programme objectives of the department or authority.

(7) In collaboration with departments and authorities, and using the EDP sector-wide plans, formulating manpower requirements, recruiting and training programmes and career development programmes for EDP staff; co-ordinating the implementation of such plans by agencies, departments, the Public Service Board, the Government Computing Service, and external training services.

(8) Annually surveying EDP remuneration levels in the private sector, statutory authorities, the Commonwealth Public Service and other States' services.

(9) Annually reviewing and adjusting Victorian Public Service salary scales for EDP personnel to ensure that, taken together with allowances, working environment and general conditions of employment, they are sufficient to attract, motivate and retain adequate numbers of suitably qualified EDP personnel.
(10) Ensuring that consultation takes place at early stages of planning and design between the Public Service Board, staff associations, and management on the likely effects on staff of the introduction of all new information systems in departments.

(11) Actively encouraging the consideration or introduction of modern information technology in departments and authorities wherever its use would be cost-effective or would lead to improved service to the public.

(12) Reviewing recommendations from the Government Computing Service for standards; promulgating approved standards to departments, authorities and suppliers.

5.8 EDP CONSULTATIVE COMMITTEE

5.8.1 The EDP Consultative Committee should continue to perform the function for which it was established - to represent the user departments to the EDP Policy Committee. The Committee believes that the Inter-departmental Users' Group performs a valuable function in providing for the exchange of ideas between users. However, this largely informal and technical activity, valuable as it is, is distinct from the role exercised by the Consultative Committee of providing a coherent voice for user departments.

5.8.2 Possibly the Users' Group and the Consultative Committee could be combined but this should not be done if it would interfere adversely with the two valuable and separate functions which they were originally established to perform.

Recommendations - Responsibilities of EDP Consultative Committee

5.8.3 The Committee recommends that the EDP Consultative Committee should be responsible for :-

(1) Reviewing any submissions made by the Inter-departmental Users' Group and making recommendations to the EDP Policy Committee.
(2) Monitoring and reporting to the EDP Policy Committee on the implementation and efficacy of information system policies within departments and authorities.

(3) Advising on the creation and maintenance of the overall Strategic Plan for information system development in the public service.

(4) Advising on the adequacy of guidelines and standards available for the development, control and operation of in-house departmental computers.

5.9 STATE TENDER BOARD

5.9.1 The current role of the State Tender Board includes :-

(a) to ensure purchasing is in conformity with regulations and government policy, and that propriety has been observed;

(b) to advise on documentation and contractual arrangements.

Its activities cover only Government organizations subject to Treasury Regulations (largely departments and not statutory authorities).

5.9.2 In line with recommendations elsewhere in this report, the Tender Board should undertake the following new tasks: -

(a) to arrange bulk purchasing or period contracts for standard EDP equipment when requested by the Public Service Board (see para. 5.7.4 (3)); and

(b) to maintain a public record of exemptions granted from requirement to call public tenders (see para. 7.7.3 (2)).
5.10 RECOMMENDATIONS

5.10.1 The Committee recommends that:

(1) The recommendations made in this chapter should be adopted by the Government and formally promulgated by the Premier's Department.

(2) Consideration should be given by the Government to creating the Government Computing Service as a statutory body reporting annually to Parliament, with its expenses and capital requirements partially met by Treasury appropriations and partially from its own income.
CHAPTER 6

PROJECT DEVELOPMENT

6.1 CONTROL OF CONTRACTORS

6.1.1 Significant problems have been experienced in recent years in the development by departments of three major on-line systems - WREN, GENIUS, and LANDTAX. These projects were the responsibility, respectively, of the Public Works Department, the Education Department, and the Land Tax Office. They were performed by the external contractors Intech (Australia) Ltd, Computer Sciences of Australia Pty Ltd, and Coopers and Lybrand Services. It is not the Committee's intention here to analyse these three projects. They have been carefully studied by the Auditor-General, the Public Service Board, and the departments themselves. An independent consultant is at present looking at the residual problems on the WREN project for the Public Works Department.

6.1.2 In this report the Committee simply states some conclusions reached from the documents and oral evidence received and makes some recommendations derived from them.

WREN (Works Recording Network) System

6.1.3 The contract with Intech for the development of WREN was a fixed price one, to which there has been an agreed variation of approximately ten percent due to an expansion of the Department's requirements. Approximately sixty thousand dollars are currently being withheld from the contractor pending the outcome of an investigation into the present response time problem. In most respects WREN is regarded by the Public Works Department as a satisfactory system.

6.1.4 The principal problem with WREN is that it uses much more of the resources of the Government Computing Service than was originally envisaged, and may need still more in order to provide a satisfactory response time. This heavy use of resources by WREN is a significant factor in the unsatisfactory quality of service experienced by some of the Government Computing Service's clients.
6.1.5 One possible solution that has been put forward for the response time problem on WREN is to expand the equipment resources on which the system is run at a cost estimated by the Public Service Board to be between one and two million dollars (27). In order to determine whether this is the best course of action, a study is at present being carried out. For the time being it is proposed that WREN will be given priority on the Government Computing Service's existing B7700 computers during normal office hours, leaving them available to other users for overnight batch processing (4).

6.1.6 The EDP Policy Committee stated (5) that:

The (Policy) Committee's treatment of new computer acquisition as a policy matter originates from a number of problem systems which heavily use Government Computing Service's resources (notably WREN, GENIUS and LANDTAX) ... The supervision of the EDP Policy Committee was seen as essential to regain control over the use of computer equipment and the unwarranted growth of computer project and associated costs.

6.1.7 The Committee does not agree with the implication in the above statement that supervision by the EDP Policy Committee would have prevented the problems which have beset WREN. It was originally planned that WREN would use a specified proportion of the Government Computing Service's equipment resources. The requirements were under-estimated. If the Public Works Department had been running WREN on its own computer it might by now have installed additional equipment in the hope that this would improve response time. Whether that is the correct course of action remains to be seen. However, at present WREN is run by the Government Computing Service, and the latter can give additional resources to WREN only at the expense of other users of the B7700's. This suggests that in future developments by a department, if there is significant risk that the estimates of resource requirements may be exceeded, it is preferable for the department to plan on using its own equipment, rather than sharing a central computer. At least then the penalty for resource over-run will fall on the department and not on other users of the system, and the action needed to remedy the situation will be the responsibility of and within the control of the department.
6.1.8 Initially the Public Works Department was expected to provide five - subsequently reduced to three - competent departmental personnel to work as part of the project team during the development period.

An aspect of concern was that the Department had difficulty in maintaining the equivalent of more than one and a half persons through the development period. The Department believes that it has overcome this problem and is now able to provide competent personnel.

Recommendation

6.1.9 The Committee recommends that when external contractors are used for consulting, system design, programming, project management etc, care should be taken to train departmental staff so that when the contractor leaves, departmental personnel are fully capable of maintaining and extending the system.

GENIUS System

6.1.10 The bulk of the development of the Education Department's GENIUS system has been performed by Computer Sciences of Australia (CSA) under a time-and-materials contract.

The project was commenced in July 1975 when Computer Sciences of Australia conducted a feasibility study of the Department's computer requirements. A number of potential computer applications were identified including:

- personnel/payroll;
- property resources management;
- finance and accounting;
- store management;
- student management; and
- school services.

It was proposed that these would be handled collectively by a computer system called GENIUS. Tenders were called for the system design and programming and Computer Sciences of Australia were re-engaged on a time-and-materials basis in September 1976 to develop the Personnel/Payroll and the Property Resources Management systems.
In 1980, the Teachers' Payroll section of the Personnel/Payroll was let on a fixed price basis to Computer Sciences of Australia.

6.1.11 Computer Sciences of Australia's original estimate for design and programming of the Personnel/Payroll and Property Resources Management systems was approximately $430,000 and the Department estimated that the additional cost of involvement of its staff would be approximately $200,000, making an estimated total cost for those modules of between $600,000 and $700,000(2).

6.1.12 The Committee has been given various figures for the cost of GENIUS to-date. In a letter to the Premier dated 11 August 1980, the Chairman of the Public Service Board stated that the original cost estimate for design and programming had been exceeded by more than $2 million; Personnel/Payroll was not then and still is not complete. The Committee estimates that the final cost of Personnel/Payroll and Property Resources Management, including the cost of departmental personnel will be at least $4 million, or more than five and half times the original estimate.

6.1.13 The Committee is concerned about a number of aspects of the GENIUS project including the following:-

(1) The cost of two modules of GENIUS to-date is more than five times the original estimate for these two modules.

(2) The total cost of GENIUS has apparently never been estimated(2).

(3) There was no break point between the design and programming phases of Property Resources Management and Personnel/Payroll at which review of the design could be carried out or tenders called for the programming effort.

(4) The project is running approximately two years behind schedule.

(5) Control exercised by the Department over the contractors was grossly inadequate.

(6) It is not apparent that an adequate needs study was carried out initially.
The project was allowed to run far beyond original cost and time estimates on a time-and-materials basis. Only the Teachers' Payroll section of Personnel/Payroll is being done on a fixed time basis and this apparently only upon the urging of the Chief Computer Adviser.

Recommendations

6.1.4 The Committee recommends that:-

(1) A detailed cost-benefit analysis and a new development schedule should be drawn up for the remainder of the GENIUS project.

(2) A proven and appropriate development methodology should be employed for the remainder of the GENIUS project and future contractors should be required to adhere to it.

(3) As far as practicable, the remainder of the planned development effort for GENIUS should be broken into modules, and tenders should be called for the programming of these. Every effort should be made to negotiate fixed price contracts for this work.

(4) Wherever practicable departments should negotiate fixed price contracts for services in preference to time-and-materials arrangements.

LANDTAX System

6.1.5 The LANDTAX system was designed and programmed by Coopers and Lybrand Services for the Land Tax Office in 1976. The original estimate of development cost was $670 000 and the final cost was approximately $2.1 million of which approximately $1.3 million was paid to Coopers and Lybrand. The Land Tax Office advised that the total development costs of the system from 1975 to 1980 were $121 209 (Coopers and Lybrand), $498 209 (Government Computing Services), $164 376 (computer services rendered by "outside" companies) and $153 739 (equipment). At constant prices, the 1975 estimate of $670 000 would be $1 186 175 in 1980-81 prices.
Although the system is in operation, the manpower and computer resources required to run it are excessive, considering its capabilities. The EDP Policy Committee has stated that this is primarily due to poor design and programming. A review is in progress by the Public Service Board to identify the best way to improve the system performance and increase its effectiveness to the Land Tax Office.

6.1.16 In view of the cost over-run and the poor quality of the final result, the Committee considers that, as with GENIUS, the development of LANDTAX was not adequately controlled by the Department. The Committee emphasizes that it is the responsibility of departmental management to supervise and control external contractors.

6.2 PROFESSIONAL CONDUCT AND QUALIFICATIONS

6.2.1 The Committee has observed that the data processing field at present does not have the same degree of formally defined standards for professional conduct and competence as those existing within the established professions. No levels of competence are defined which have any significance in law as, say, those of the medical profession do. While moves have been made – notably by the Australian Computer Society – towards establishing standards of professional conduct and defined levels of competence in this country, the field of information science and engineering has a long way to go to reach the level of self regulation of competence and conduct that exists within the established branches of engineering, and the legal and medical professions.

6.2.2 These established professions have a stable corpus of knowledge whose boundary is expanding only slowly relative to that in the information sciences field. Professional status for the field of information science and engineering may have to await a slowing down of the rate of growth of the techniques and knowledge that it encompasses.
6.2.3 It has been put to the Committee that many of the proven techniques of engineering are appropriate in the fields of computer system design, development and performance evaluation; if adopted more widely they would speed moves towards professional status. Moreover, both the quasi-professionals of the information processing field and the computing services industry based on it could well copy the engineering profession in its self regulation of standards of competence and conduct.

6.2.4 Cases from the private sector have been brought to the notice of the Committee where persons who represented themselves as consultants had an undeclared pecuniary interest in the outcome of their advice. In one case a 'consultant' recommended the installation of a certain brand of computer, on the sale of which he received a commission. He did not disclose this to his client and the fact was discovered by accident when the client sought service of the equipment.

A similar case was reported recently (Pacific Computer Weekly 9-15 Oct. 1981) where a 'consultant' had advised clients to purchase a brand of disk pack on whose sale he received a commission. Again he had not declared his pecuniary interest at the time he gave the advice.

6.2.5 It is very common at present for EDP service firms to offer clients both consulting and contract programming. While the Committee sees nothing wrong with this, clearly, where advice is given which results or might result in further business for the firm for contract programming (or for anything else), the objectivity of the consultant's advice is suspect.

6.2.6 The situation has occurred in the development of some Government systems, such as GENIUS, where the contracting firm that advised a department to go ahead with system development was given the job of detailed design and programming without going to tender. This is now widely - but not universally - recognised to be an unsound practice. The Policy Guidelines and Procedures issued by the EDP Policy Committee require that, for projects over $50 000, design specifications must be produced which will allow tenders to be called, although there is no explicitly stated requirement that tenders be called.
6.2.7 It has been put to the Committee that a firm which provides consulting or design services to a client should be prohibited from participating in the programming and implementation which would result from the client accepting the consultant's advice. While a case can be made to support this, the Committee does not believe that it is essential for probity, and it may sometimes result in higher costs to the Government. However as a minimum step the Committee considers that tendering between the system specifications and the programming phase should be enforced.

Australian Computer Society

6.2.8 The constitution of the Australian Computer Society states one of the objectives of the Society to be:

3.3 To maintain a Code of Ethics and Standards of Knowledge in the fields of digital and analogue computers, automatic data processing systems, computer-based automatic control systems, computer science and technology, information processing and related subjects.)

The Society has developed a code of ethics which includes the following:

3.5 A member shall avoid placing himself at any time under any obligation to any person or organization in whose dealings with his employer or client he may be concerned. If such an obligation exists he shall fully disclose the fact to his employer or client. He shall not accept any substantial gift or favour from such person or firm.

8.6 A member, if he has any substantial financial interest in any organization in whose dealings with his employer or client he may be concerned, shall fully disclose the circumstances in writing to his employer or client.

8.7 A member shall fully and immediately disclose to his employer or client circumstances of any nature, financial or otherwise, which might appear likely to influence the impartiality of his advice or decisions.
9.0 RELATIONS WITH EMPLOYEES

A member, if he employs or controls persons in a professional capacity, shall not ask or require any such person to take any actions that would involve a breach of the Code of Ethics as set out in this instrument.

The Society has also defined a procedure to be followed when it is believed that a breach of the Code of Ethics has occurred.

6.2.9 The Committee believes that if consulting firms and programming contractors, and the personnel provided by them, observed the Code of Ethics of the Australian Computer Society or an equivalent code, the Government would not suffer some of the abuses which appear to be common practice at the present at least in the private sector. If contractors and consulting firms and their EDP professional staff were members of the Australian Computer Society or a body with an equivalent code of ethics and disciplinary procedure, clients could enjoy some protection afforded by the standards of competence and conduct established by the Society and the procedure to be used in cases of professional misconduct. In the case of contractors, this would require a minor change in the by-laws of the Australian Computer Society because Corresponding Institutions are not required at present to subscribe to the Code of Ethics.

6.2.10 The Committee considers that computer society members providing service to the Government are likely to take their responsibilities seriously under such circumstances since a complaint by a client, if proven, could result in a reprimand or expulsion.

Australian Computing Services Association

6.2.11 The Australian Computing Services Association is the major trade association for companies who provide services to computer users in Australia. The services provided by members include data preparation and data processing; system analysis, design and programming; consulting; personnel recruitment and training; implementation; operations; and independent equipment maintenance.
The Association has a Code of Conduct which binds members. This Code, though sound as far as it goes, is too general to protect the public service against some of the abuses which occur in practice in the private sector.

Recommendations

6.2.12 The Committee recommends that :-

(1) As a prerequisite to obtaining consulting work with the Government, firms should be required to declare any pecuniary interest which they or personnel they engage on the project have in software products, computing equipment, data communication equipment, personnel services, contract programming, or other products or services which might affect the impartiality of advice they might give.

(2) The following words should be added to clause 2.4.2(b) of the Policy Guidelines:

"no firm may be engaged to help in the analysis of proposals or quotations if that firm is itself tendering for the work or has a pecuniary interest directly or indirectly in any firm which is tendering or submitting a proposal for the work."

(3) The Government should require that persons and firms providing consulting in information processing, system analysis, design and programming, project management, and any other EDP professional services, should undertake to be bound by the Code of Ethics of the Australian Computer Society or other approved equivalent code of ethics. Where practicable, such undertaking should be embodied in the contractual agreement between the parties.

(4) The pecuniary interests of consultant and contracting firms and their staff should be taken into account in selecting a consultant or contractor.
(5) The Australian Computer Society should be requested to intensify its efforts to co-ordinate data processing courses in tertiary institutions so that employers may be aware of the quality and content of courses which job applicants claim to have attended.

(6) Breaches of ethics or professional conduct should be brought to the attention of the Council of the Australian Computer Society or other professional body of which the contractor or consultant is a member.
CHAPTER 7

ACQUISITION OF EDP SYSTEMS AND SERVICES

7.1 SPECIAL ASPECTS OF EDP ACQUISITION

7.1.1 The acquisition of large EDP systems has a number of features which may make it appropriate to employ special controls. Some differences between the acquisition of EDP systems and other types of capital equipment are:

(a) few capital equipment acquisitions have the same potential for bringing about basic changes in the way a department works. Information handling is a major activity of most government departments; therefore information technology is likely to be closely integrated with the functions and operations of a department;

(b) information systems are often very complex. Their design is frequently difficult and may require contributions from several disciplines. The techniques of design of large information systems are generally less formal and less well understood than for most other classes of capital equipment. There is a large number of variables which ideally the designer should take into account and many degrees of freedom open to him. Consequently there is almost unlimited opportunity for error or sub-optimum design;

(c) the demand for qualified people to design and implement large systems exceeds the supply; the use of under-qualified people can lead to systems being installed which are technically unsatisfactory or do not meet end-users' requirements;

(d) within the Victorian Public Service some managers have less than adequate knowledge of the basic principles of EDP and the EDP marketplace. Sometimes EDP personnel reporting to them do not have very broad experience.

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Consequently they may become easy targets for salesmen in the present competitive marketplace; and

(e) few capital acquisitions in the public service have the same potential to affect staff members and working environment as does that of modern information technology, particularly computers.

7.1.2 Though none of these factors is unique to information system acquisition, the first three in combination justify giving EDP acquisition more management attention than is normally given to other capital equipment procurement. The fourth and fifth factors, in the Committee's view, justifies the continued central coordination of EDP acquisition for the time being.

7.2 DELAYS AND CONSTRAINTS IN PROCUREMENT PROCESS

7.2.1 The questionnaire given to departments and authorities prior to the discussion paper indicates that some departments felt that there were excessive constraints or delays in acquisition procedures. The Committee has not found any evidence of significant delays inherent in the purchasing procedures, though there are sometimes delays in the approval process for funds or staffing preceding purchase (see Chapter 8).

7.2.2 A significant problem the Committee has noted is the way in which restrictions may be suddenly applied, for example by Treasury, to achieve a desired effect, and then relaxed again a short time later. An example is the recent embargo, now relaxed, on hiring staff from outside the service which was applied quite independently of staff ceilings. The apparent arbitrariness of such stop-go decisions causes confusion and may introduce delays in staffing and procurement extending beyond the time that the restriction itself is applied.

7.2.3 A further cause of delays which has been noted is the apparent difficulty in co-ordinating approvals for staffing, funding and equipment acquisition. Though each of these may be performed fairly expeditiously, they are sometimes not properly synchronised, causing delays in the development process. This situation should be improved under the procedures advocated since expected staffing, funding and acquisition proposals will be embodied in rolling plans and can be considered well in advance of
specific approvals by Treasury, the Public Service Board and in some cases the EDP Policy Committee. The higher financial delegations the Committee has proposed for departments will mean that further approvals for equipment and services acquisition will be simplified and will not be required in as many cases as hitherto. It must however remain the duty of the department concerned to ensure that such requests for approval as are required are so timed that projects are not delayed.

7.3 NON-COMPETITIVE ACQUISITION

7.3.1 The Treasury Regulations 1981 provide for exemption from calling public tenders if the expenditure is specifically authorized by the Governor in Council on the recommendation of the Treasurer. There appears to be no criteria for obtaining such an exemption nor is there a requirement for the customer department or the Treasurer to give reasons why the tender process was not used. Moreover the Auditor-General is not empowered to enquire into the reasons for not calling tenders or to satisfy himself that the process was fair and proper.

7.3.2 The Committee is concerned at possible abuses arising from this provision of the Treasury Regulations particularly where add-on EDP equipment is being purchased. The potential exists in such cases for the purchasing department wrongly to assume or claim that only the original vendor can supply compatible add-on equipment. The Committee believes that such assumptions should be open to scrutiny by overseeing agencies, such as the Auditor-General, and the public.

Recommendations

7.3.3 The Committee recommends that :-

(1) The Government's purchasing policies should be such as to promote free and open competition between suppliers to the maximum extent practicable. The procurement process should be, and be seen to be, impartial and fair.
(2) When in a procurement it is considered necessary to call tenders from a restricted list, or not to call tenders, (for example using the authority of the Governor in Council on the recommendation of the Treasurer), the reasons for doing so should be documented by the department, agreed to by the responsible minister and lodged with the Tender Board. They should be available also for public scrutiny.

7.4 USE OF PRIVATE SECTOR

7.4.1 A primary purpose of the public service is to perform the administrative functions associated with the machinery of Government. It is not appropriate for the service to compete with the private sector in the manufacture of equipment or software, or the supply of EDP services unless the work can be done internally for less cost. In comparing the cost of doing work internally against that of doing it in the private sector realistic internal costs must be used. For example, it is not valid to compare the direct costs of using otherwise idle programmers with the price quoted by external vendors. A realistic overhead should be applied to the direct costs of internal staff in deciding whether or not it is more economical to do the work internally. Guidelines are desirable on how to make the appropriate comparisons. (See reference 25 for an example of U.S. government guidelines on use of the private sector).

7.5 METHODS FOR CHOOSING A SUPPLIER

7.5.1 Guidelines should be prepared by the Public Service Board for departments and authorities to help them apply consistent and rational selection methods when choosing a supplier of EDP products or services. Objectives for such guidelines should include the following:-

(a) to help the department or authority to obtain a system closely matched to its functional requirements at an economical price;

(b) to help ensure that the procurement has been a competitive one and that it has been fair to all participants;
(c) to help guard against impropriety by a participant;

(d) to help obtain a solution which furthers the Government's purchasing policies such as those aimed at supporting local industry; and

(e) to help obtain a solution for the department or authority which does not adversely affect any other department or the interests of the State of Victoria.

7.5.2 No selection methods can guarantee that the Government will obtain a system precisely matched to its requirements, that it will obtain a satisfactory solution at the lowest price, that free and open competition will always prevail, or that any impropriety present will immediately become obvious. However, some approaches to vendor selection go much further towards achieving these ideals than others.

7.5.3 The selection method used should be theoretically sound so that selection made cannot easily be challenged or overthrown. If a challenge is issued, say by a disgruntled vendor, the method should allow the challenge either to be validated or rejected quickly.

7.5.4 The method should be understandable by all concerned in the acquisition process. Vendors should understand it so that each can provide the solution which he estimates will maximise his chances of success; the purchaser should understand it so that he can select the system from those offered which maximizes the "utility" of the solution for the Government; the Tender Board and the Auditor-General should understand it so that Parliament and the public may be assured that all is above-board and that public money is not wasted.

The Risk-adjusted-least-cost (RALC) Method*

7.5.5 A simple criterion which purchasing authorities often try to apply is "The minimum cost tender will be selected which meets the specification." This is unsatisfactory.

7.5.6 If one considers the case where:-

supplier A's tender just meets the specification in all respects for $5 million;

* Similar to the requirements-costing-method of E.O. Joslin (21).
supplier B's tender fails to meet the specification in just one respect but costs $3 million; and

supplier C's tender offers 50% more system capacity than supplier A's tender but at a cost of $5 100 000.

Which tender should be selected.

7.5.7 According to the normal rules of tendering, it should be supplier A's offer. However, there is nearly always a benefit in having spare capacity available and in this particular case in the long term it might very well be worth $100 000 extra to obtain 50% more capacity. On the other hand the one respect in which supplier B's tender fails to meet the specification might well be relaxed in order to save $2 million if it is not a particularly important feature. (Possibly when it was specified it was not realized that the feature would cost $2 million.)

7.5.8 Although it would seem sensible after receiving tenders to change the requirements in the light of the prices quoted, the rules do not permit it (unless the buyer is prepared to go to the expense of retendering). The normal rules of tendering, if interpreted strictly, do not recognize that few requirements in an information system are absolute or fixed ones. This indicates that a selection methodology is required which specifies few, if any, mandatory requirements and applies a utility function to each desirable characteristic. The utility function is designed to reflect correctly the value, not merely of having the feature or characteristic, but also of the extent to which the feature is provided.

7.5.9 The risk-adjusted-least cost method (RALC) satisfies this requirement. Basically it is a method for calculating the total expected cost of each vendor's offer over the life of the project. It allows credits to be applied where desirable features are offered, or penalties where they are not. The magnitude of the credit or penalty can be in proportion to the extent to which a desirable feature is offered. The vendor whose offer leads to the minimum expected cost (or maximum expected benefit) over the life of the project, all things considered, is the preferred supplier.
7.5.10 The method may seem complex but in fact experience by the Health Insurance Commission has shown that because it is methodical it allows the fast selection of a supplier. Without a methodical framework the selection team can become bogged down in a morass of conflicting requirements and optional features.

Proposals should be Obtained Prior to Tenders

7.5.11 It is suggested that the formal tendering stage of acquisition should normally be supplemented by prior, less formal, Requests-for-Proposal from vendors.

7.5.12 For a large acquisition, the total process might be divided into the following stages:

(a) a request for preliminary information from vendors outlining the broad requirements and inviting suppliers to submit product brochures and manuals;

(b) a Request-for-Proposal; this document would be submitted to suppliers along with a more detailed specification of requirements which allowed vendors to quote for specific products and services that would be appropriate to functional requirements; and

(c) the information provided during the Request-for-Proposal stage would be used to adjust the requirements, balancing the desired features against accurate costs which have been collected in the Request-for-Proposal stage; a Request-for-Tender would then be issued with a modified requirements specification which reflects the adjusted desirable features.

7.5.13 Not every acquisition would require use of all three stages. In fact, for many straightforward procurements, it would be appropriate simply to call tenders. However, in complex procurements, the process suggested above allows adequate feedback of information from suppliers before the formal tendering phase.
7.5.14 Representatives of supplier organizations have claimed that the public service is not making the best use of opportunities for discussion with suppliers during the acquisition phase. The Committee attaches great value to the interchange of ideas and product knowledge between a range of suppliers and the purchaser during procurement. Such interchange can be directly beneficial to the user by providing him with ideas and indirectly because it allows the tenderers to gain a better understanding of the user's requirements. The combination of open tendering and the multi-stage acquisition process which is recommended should help to achieve this.

Vendors Should be Told Selection Method

7.5.15 The vendors should not only clearly understand the general methodology of selection but it is desirable in most circumstances that they be told the intended size of cost penalties to be applied by the Government in a particular acquisition. However the basis for arriving at a particular cost penalty should not be communicated.

7.5.16 It will help the vendor to help the purchaser if the rules for selection are rational and clearly understood by all parties. Openness will help the vendor to supply a solution which is better matched to the Government's needs. Reasons for decisions made against suppliers should be communicated to them upon request, taking care not to disclose material provided in confidence by other suppliers.

Sample Guidelines are Available

7.5.17 An example of the kind of guideline which the Committee has in mind is that developed for the State of California entitled "Computer Hardware Procurement and Contracting Guidelines", November 1975. (Obtainable from the Inter-Governmental Board on Electronic Data Processing 1025P Street, Sacramento, California 95814. See also reference 26.)

Tender Board

7.5.18 The Tender Board should ensure that purchasing is in conformity with regulations and Government policy and that propriety has been observed. However, rules governing propriety should keep in mind the need for full and open discussion with vendors.
Recommendations

7.5.19 The Committee recommends that: -

(1) Guidelines should be prepared by the Public Service Board and approved by the EDP Policy Committee before being issued to departments and authorities on rational methods of selecting vendors of systems and services. The guidelines should be made public.

(2) The methods recommended in the guidelines should be theoretically sound and easily understood.

(3) Consideration should be given to the use of the risk-adjusted-least-cost method of vendor selection. In this method, potential suppliers should be told the specific cost penalties to be applied in the absence of desirable features.

(4) Consideration should be given especially in large procurements, to a Request-for-Proposal stage prior to calling tenders, to allow the optimum choice of parameters in the final selection model. Proposals should contain price lists to allow the purchaser to examine the costs of alternative configurations.

7.6 SUPPORT FOR LOCAL EQUIPMENT AND SOFTWARE INDUSTRY

7.6.1 The Government's current preference policy on computers and the current general State preference policy is attached (see Appendix C).

7.6.2 The Ministry for Economic Development is at present formulating a policy implementation programme on Government purchasing which will be submitted to Cabinet for decision.
7.6.3 To the extent that the above initiatives may affect the future effective economic acquisition and use of data processing resources in the Victorian public sector, they are of concern to this Committee.

7.6.4 The Committee received a submission from the Ministry for Economic Development which incorporated a number of recommendations for the support of the local computer industry. These are included as Appendix D. They are relevant to the present inquiry to the extent that they support or conflict with the effective acquisition and use of computers by the public sector.

7.6.5 The primary function of the EDP Policy Committee as recommended elsewhere in this report is to formulate specific policies for the acquisition and use of information technology in the light of broader Government policy, including that in support of local industry. It is also the responsibility of the EDP Policy Committee to ensure that such policies are promulgated to departments and, where appropriate, statutory authorities.

7.6.6 In general the Committee would favour measures designed to give local industry information on the Government's intentions and future requirements for EDP equipment and software, rather than measures aimed at enforcing arbitrary levels of local purchase. The latter could well be counter-productive since to meet mandatory levels of local purchase, departments or authorities could be forced into acquiring local products which were less than satisfactory in quality or functionality.

The present purchasing policy embodies the concept of a cost penalty to be added to the tender price on the out-of-State content; the Government in effect is placing a dollar value to the State on the benefit of local manufacture. If the risk-adjusted-least-cost method of tender selection is applied, this benefit is automatically weighed against undesirable characteristics of the same tender and desirable features of competing tenders.

7.6.7 In short the Committee favours a combination of three processes to assist the development of a local computer industry in accordance with Government policy:

- a cost penalty as determined from time to time by the Government on the out-of-State (or overseas) content of tenders;
- industry visibility of the Government's forward plans; and

- the use of the risk-adjusted-least-cost method of tender evaluation.

It should be made clear to suppliers or manufacturers that forward plans may change without notice and are intended for broad guidance only. The private sector uses them at its own risk.

7.6.8 The Committee does not favour enforcing the purchase of minimum quantity levels of local products as suggested by the Ministry for Economic Development and strongly advocated by some local manufacturers.

7.6.9 The EDP Policy Committee in its submission to the Committee raised the question of possible conflict between the Government Preference Policy for Victorian Manufactured Equipment and the principle that the Government should give preference to proven products. The risk-adjusted-least-cost method of tender selection allows a dollar penalty to be assigned to proposals which embody high risk. Since the method also applies a dollar penalty for the out-of-State content of tenders, it can, if properly applied, automatically achieve the optimum balance between avoidance of unproven products and support for local fledgling industry.

Recommendations

7.6.10 The Committee recommends that: -

(1) The EDP Policy Committee in establishing policies for the acquisition and use of information technology should take into account the Government's policy at the time on support for the development of local hardware and software industry.

(2) To help local industry prepare itself to service the Government's expected future requirements, future plans of departments and authorities should be available for examination by the private sector, except when security would be jeopardised.
(3) If Government policy for preference for the purchase of local products is to continue, this should be as a cost penalty to be applied to the out-of-State (or overseas) content of tenders and this penalty should be taken into account in applying the risk-adjusted-least-cost method of tender evaluation.

(4) Departments and authorities should not be obliged to purchase any minimum level of local products. The industry must gear itself to meet the Government's requirements not vice versa.

(5) Reviews by the Auditor-General or internal auditors of compliance with policy should examine and report on failures by departments or authorities to meet local preference policies and guidelines.

(6) Rolling plans for information system development should include the steps which will be taken by the department or authority to implement the Government's policies for support of local industry.
CHAPTER 8

OBTAINING FINANCIAL AND STAFFING RESOURCES FOR EDP

8.1 DIFFICULTIES EXPERIENCED BY DEPARTMENTS

8.1.1 A number of departments described difficulties they had experienced in obtaining approval for funds for justified EDP development and acquisition. The perceived problems included the following:

- there is a lack of co-ordination between EDP purchase plans, manpower plans and financial approvals;

- management financial delegations are too small;

- projects which have been approved by the EDP Policy Committee or the Public Service Board still require lengthy approval before funds can be committed;

- more flexibility is needed by permanent heads to work within staff ceilings and budgets; and

- one-year funding cycle inhibits long term planning and development of EDP systems; funds need to be guaranteed over the life of a project.

8.2 LACK OF CO-ORDINATION

Perceived Problem

8.2.1 There is a lack of co-ordination between EDP purchase plans, manpower plans, and financial approvals.

Background

8.2.2 The discussion paper reported that in at least one instance hardware procurement had been approved and installed months before approval for extra personnel was received.
8.2.3 Under the present procedures, a department wishing to acquire a system makes a request to the EDP Policy Committee for approval to acquire the hardware and software, and a separate request to the Public Service Board for approval for the required staff. Once the EDP Policy Committee has endorsed the department's proposal, Treasury is then approached for approval for the funds to be spent. Apparently, all this may take place and the equipment actually be acquired before approval is received for the staff required to make use of the equipment.

8.2.4 Steps to acquire staff should of course be taken in sufficient time to ensure that equipment or other resources do not lie idle. It is not uncommon, the Committee was told, for a lot of attention to be given to equipment purchase while other components of the project - staff, site preparation and software - are neglected.

8.2.5 The proposed use of five-year rolling plans, prepared in a systematic and uniform manner, should help to ensure that key components of a proposed system are not overlooked. Use of the plans should also ensure that approving authorities have the opportunity to approve the total package, including future implications, rather than fragments of it.

Recommendation

8.2.6 The Committee recommends that EDP forward plans and specific requests for approval of EDP proposals should contain estimates of all the resources that will be required together with their costs, including hardware, software, ancillary services, supplies and personnel. Approval should be sought at the same time for all the components which are needed to make the system or appropriate parts of it viable.

8.3 FINANCIAL DELEGATION

Perceived Problem

8.3.1 Management financial delegations are too small.
Background

8.3.2 At present the policy guidelines of the EDP Policy Committee require the following approvals -

<table>
<thead>
<tr>
<th>Proposed Project For The Design and Implementation Of A System And/Or Equipment Acquisition.</th>
<th>Approvals Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Expected to cost less than $50 000 partly or fully carried out or supplied by outside resources;</td>
<td>Public Service Board and Treasury</td>
</tr>
<tr>
<td>(b) Expected to cost in excess of $50 000, in-house or partly or fully carried out or supplied by outside consultants;</td>
<td>EDP Policy Committee, Treasury and, where outside consultants involved, Public Service Board</td>
</tr>
<tr>
<td>(c) Expected to cost less than $50 000 in-house and the use of the Government Computing Service facilities required.</td>
<td>Government Computing Service</td>
</tr>
</tbody>
</table>

The purpose of the $50 000 financial delegation presumably is to force departments to go to the EDP Policy Committee for approval for any but very small acquisitions.

8.3.3 Some departments have considerable experience in EDP, capable staff, and an annual Works and Services budget of many millions of dollars. The Committee can see no valid reason for requiring such departments to seek the approval of the EDP Policy Committee for a small EDP acquisition that is consistent with the department's five-year rolling plan.

8.3.4 For outside purchases the system of financial delegation ( (a) or (b) above) determines only whether the Public Service Board or the EDP Policy Committee approval is required. Treasury approval is already required for all proposals in the sense that all requests for EDP equipment and services are part of the annual request for funds from the Works and Services Account.
Finding

8.3.5 This procedure will obviously continue, as it will for all such capital purchases. Under the new roles proposed for the EDP Policy Committee and the Public Service Board (see paras. 5.4 and 5.7) the present financial delegations would not apply since neither would have to formally approve the proposal. This will overcome the present problem of financial delegations being too small.

8.4 DEPARTMENTS' POWERS TO DETERMINE THEIR PRIORITIES

Perceived Problem

8.4.1 Projects which have been approved by the EDP Policy Committee or the Public Service Board still require lengthy approval before funds can be committed.

Background

8.4.2 At present departments submit EDP items as part of their bids for Works and Services appropriations. Treasury does not do its own evaluation of EDP proposals; it merely ensures that the Public Service Board or the EDP Policy Committee has approved the project in accordance with the EDP policy guidelines.

There is a "forward look" incorporated into this process in that departments are asked for figures for estimated requirements for two or three years ahead. There is no formal review of such figures, and departments are not held to them in the following year. This acts as a flagging mechanism for Treasury to warn it of likely future requirements.

8.4.3 Departments submit their bids in priority order of items. In general Treasury does not re-arrange these priorities, although this may be done by the Treasurer. Cases where departmental priorities might be re-arranged would be:

- where the priority relates to an item which has been excluded from the current (Consolidated Fund) budget;

- where a priority item included is unlikely to be physically possible e.g. if Public Works Department advises that a building is unlikely to be commenced during the financial year; and
- where the department is "playing games" by deliberately putting a high priority or politically-committed item at the bottom of its priority list hoping to receive sufficient funding to cover all the priority items.

8.4.4 Financial approval is given by the Treasurer to a total appropriation in the Works and Services Appropriations Act and to individual items within this amount. Each item receives a code number and all amounts for that project are charged against that item.

8.4.5 Generally EDP projects are approved by the Treasurer as one amount per department, but this has to be broken down by the department into individual items for coding and Treasury monitoring of expenditure on individual projects.

Once this approval has been given departments do not need any further financial approval from Treasury to proceed provided they will not exceed the item allocation.

8.4.6 During the course of the year it is possible for savings on one item to be added to another item provided the Treasurer approves. It is also possible to add a new item, even one not included in the original bid. Whether it is approved depends on the circumstances but apparently such requests are not generally regarded favourably. It is therefore important for departments wanting approval for new projects to have them ready for inclusion in the Works and Services bids at the right time. Otherwise they will have to wait until the next year's round of bids.

8.4.7 EDP is thus treated like other capital expenditure except for the separate vetting by the EDP Policy Committee or Public Service Board. Capital expenditure on buildings has a more complicated approval mechanism requiring separate approvals at different stages for:

- preparation of schematic plans;
- preparation of design and development plans;
- approval to call tenders;
- allocation of funds or financial approval.
8.4.8 These procedures regulate the admission of capital projects to the Works programme.

Department of Minerals and Energy

8.4.9 The Department of Minerals and Energy advised the Committee(2) that:

In discussions earlier this year with the Computer Study Group, Mr. H. Brzezinski suggested that external consultants be invited to make a preliminary estimate of the department's computer needs. An additional amount of $30 000 was sought in the 1981/82 estimates for a detailed computer survey to be undertaken as recommended by tendering consultants. ...no funds have been provided.

Later a representative of the Department said:

The estimated cost of having a consultant conduct that analysis was in the vicinity of $30 000. We included that in the Estimates for the current financial year but it was not funded.

8.4.10 The Department of Minerals and Energy has identified a number of potential computer applications which on the face of it would appear to be well justified. The clear impression gained by the Committee from the evidence given by the Department was that it had been inhibited in investigating these applications by its failure to obtain approval for expenditure of the $30 000 referred to above. The Committee therefore sought the advice of Treasury on the circumstances of this situation where the Department was apparently unable to fund a study that had been recommended by the Chief Computer Adviser.

8.4.11 The Committee has ascertained from Treasury files that the Minerals and Energy request for $30 000 was not given sufficient priority by the Department to fall above the cut-off point established by the Treasurer's total allocations to the Department. When the Department was advised of the Treasurer's approval of $955 000 for equipment it was asked to provide a list of projects within this amount for the purpose of establishing code items and monitoring subsequent expenditure. The Department did not include the $30 000. Had it done so Treasury states it would have accepted it. However, after the debate in the Legislative Assembly on this issue, the Treasurer directed that the $30 000 be set aside within the total allocation of $955 000, thus in effect over-ruling departmental priorities.
Department of Community Welfare Services

8.4.12 This Department described a very similar situation to that of Minerals and Energy:

We do not have a formal definition of our (EDP) needs. One of the things we have been trying to do is to follow the advice of Mr. Brzezinski who, two years ago, recommended that, as an essential step towards EDP development in the Department, an EDP feasibility study needed to be undertaken along the lines you (the Committee) have suggested.

He proposed that we would need to include approximately $50 000 in our Estimates to employ consultants for that purpose, because the Department lacked the expertise. That policy idea (sic) was included in the Estimates for 1980/81 and 1981/82 without success to date.

8.4.13 The Department considered that the line of action advocated by the Chief Computer Adviser (Mr. H. Brzezinski) was in part being frustrated by the Treasury.

Findings

8.4.14 From discussions with Treasury officers, the Committee formed the view that there is a misunderstanding by some departmental managers of the budget construction mechanism. Except in cases where the Public Service Board or the EDP Policy Committee has rejected a proposal for the acquisition of equipment, software or services, the determination of priorities is a matter for departments. The remedy for this misunderstanding appears to lie largely with the departments.

There may also be insufficient attention by departments to finalizing proposals so as to fit in with the budget timetable.

8.4.15 The Committee cannot see why consulting projects should come under the Works and Services appropriation at all. It would appear to simplify administration, provide departments with more flexibility, and not introduce significant risks, if consulting contracts of up to $30 000, for example, could be treated as administrative expenses.


**Recommendations**

8.4.16 The Committee recommends that:

(1) The Treasury should draw to the attention of departments the mechanism for constructing budgets and the options available to departments once total appropriations have been approved.

(2) Consideration should be given to treating consulting contracts of up to $30,000 in value, which are aimed at improving departmental efficiency, as administrative expenses rather than as Works and Services budget items.

8.5 Flexibility to Work Within Staff Ceilings

**Perceived Problem**

8.5.1 More flexibility is needed by permanent heads to work within staff ceilings and budgets.

**Background**

8.5.2 One department\(^{2}\) advised the Committee as follows:

>A more flexible approach is essential in the raising or lowering of classifications as the circumstances at the time demand. ...

>(There is) lack of flexibility available to the permanent head both in recruiting staff from outside and the adjustment of internal staff. ...

>(The department should) have professional/career ranges available such that the permanent head has flexibility in recruiting at levels for which circumstances require and similarly to be able to promote staff within a wide range. ...

8.5.3 The Public Works Department\(^{7}\) told the Committee that:

>At times within the EDP staff there maybe a vacancy at a high level, say Class B, and it is known that there is probably no-one suitable within the service to fill the vacancy.
The Department does not have sufficient flexibility to temporarily down-grade the position so as to fit an in-house satisfactory junior EDP officer. If it did we could better train and retain staff who need developing in both EDP techniques generally and the WREN application specifically.

However, the Director of Operations of the Public Service Board informed the Committee that:

If a department identified a need to lower the classification of a job and proposed such to us, we would examine it. If the proposition were acceptable, after hearing the reason why it wished to do so, we would lower the classification of the job. For a vacancy of high priority it would not take long at all. It would take approximately one week.

The Chairman of the Public Service Board stated that:

There are many cases in which departments have brought in two vacant positions and staffed a higher level position. Therefore, under the present guidelines, it is possible for them to take away a couple of low level positions and create a high level position. That could be done without any restraint provided the Board agreed with the classification proposed. There are many cases where the applications are resourced (sic). A department might even abolish one and a half positions, but it is worked out on the salary situation before that.

8.5.4 The Chairman of the Public Service Board also said that under the present procedure, the flexibility desired by the Public Works Department already exists. If a department has the positions, it is not difficult to change classifications or to have them created if the ceiling permits it.

8.5.5 The Public Works Department and the Board should discuss this matter to resolve the department's problem.

Finding

8.5.6 Many departments feel that they do not have sufficient flexibility to manage their resources and assets in an optimum manner.
Funding is approved in compartments with separate allocations for capital and recurrent expenditure and there is little flexibility to move money from one to the other in the light of changing circumstances or better knowledge of needs. It is apparently very difficult to apply money which has been approved for capital acquisition to obtaining additional people. For example it may be found after approvals have been given for a computer acquisition and for staff to run it that the staff requirements have been under-estimated. It might then be appropriate, within the total sum approved, to reduce the amount of equipment to be acquired and to spend money instead on extra staff. Apparently this is difficult or impossible.

8.5.7 Departments generally do not fully understand the options open to them in reclassifying positions within staff ceilings.

Recommendations

8.5.8 The Committee recommends that:

(1) The Public Service Board should draw to the attention of permanent heads the procedure for reclassifying positions or combining low level positions to create a high level one within staff ceilings.

(2) The Public Service Board should ensure that proposals by departments for the reclassification of EDP positions or the creation of new EDP positions in exchange for existing non-EDP positions are dealt with promptly, taking no longer than two weeks and one month, respectively, to process.

(3) The Public Service Board and the Treasury should develop mechanisms to provide departments with greater flexibility to optimize the management of assets and resources within total budgets. These mechanisms should include some ability to implement compensatory savings between current and capital expenditure.
8.6 ONE-YEAR FUNDING CYCLE

Perceived Problem

8.6.1 A one year funding cycle inhibits long term planning and development of EDP systems; funds need to be guaranteed over the life of a project.

Background

8.6.2 The Government Computing Services stated\(^{(16)}\) that:

*Effective planning will indicate a need to progressively enhance EDP resources to cater for natural system growth and planned staged implementation of new systems. The fiscal year cut-off of funds does not allow orderly planned acquisition of resources, particularly equipment and sometimes software to be ordered, delivered and tested enabling a smooth implementation service to users.*

*A procedural mechanism will be necessary to ensure that approved funding is known three years in advance in order that an uninterrupted implementation can result from the proposed planning.*

The Department of Community Welfare Services\(^{(17)}\) stated that:

*Once approval is given, funds need to be guaranteed over the life of the EDP project*

8.6.3 It may be felt that there is little point in preparing long term plans for EDP development when present budgeting practice and Treasury approval can guarantee funds for only one year. The development phase alone of most major systems will require significant expenditure over more than one year. The prudent permanent head would probably not wish to undertake a long-term system development unless there is a high probability of being able to complete the project within a definite time frame. Therefore uncertainty as to funding in future years might be an inhibiting factor in the preparation of plans for the modernization of information management in the Victorian Public Service.
8.6.3 The Committee sought the views of the Treasury on this apparent problem. Advice was received (2) that once the Government has given approval for a project, costs for that project over its life are met as the first charge on available loan funds. Only if such funds have been cut very heavily would it be necessary to curtail the project. The Committee was told that there are few differences between EDP projects and other projects. Treasury(2) said, with respect to acquisition of systems:

If the Government approved an EDP installation it will almost certainly continue for more than one year; therefore the department is committed to a contract. The same applies to building a school or a dam - payments must be met in the following financial year. In that context once approval is given to start the system or installation, payments must be met year after year until the contract is completed. That is a normal ongoing undertaking.

8.6.4 According to Treasury, similar conditions apply to an approved development project which might run several years:

The feasibility study is carried out according to the guidelines and then the department justifies it on a cost effectiveness basis so that the task is done better. That is accepted by the Government and the financial commitment is accepted and spread over the three to five years it takes to develop... If the (EDP Policy) Committee recommends it to the Government it is subject to the funds available... If the project is a high priority in the mind of the minister it is run until it meets a disaster.

Finding

8.6.5 A project, once it has been agreed to by the EDP Policy Committee and accepted by the Government, can run over several years subject to availability of funds. The department can assume that in normal circumstances funds will be available once the commitment has been made by the Government. Therefore the present one-year appropriation system does not appear to inhibit long-term planning and development of EDP systems.
However when considering the wider context of five-year rolling plans, it is evidently not feasible for the Government, having approved the plan, to commit itself firmly to meeting the costs. On this point Treasury said that it would not be practicable "for the Government to accept the five-year plan and go ahead with the programme."

8.6.6 The Committee believes that for the proposed system of departmental and master-planning to work, department heads must have a reasonable assurance of continuity of funds. Once departmental plans have been endorsed by the permanent head and agreed to by the minister, their costs become just one component of the department's long term budgetary plans. From that point on, the permanent head should be able to have as much confidence in the continuity of his EDP plans as in any other component of his Works and Services estimates.
CHAPTER 9

RECRUITING TRAINING AND RETAINING STAFF

9.1 SHORTAGE OF EDP STAFF

9.1.1 A shortage of qualified EDP staff appears to be at the root of many of the problems experienced in the development and use of EDP. This was emphasised to the Committee in the following comments:

"The shortage of trained personnel is generally agreed to be one of the major problems in the industry".

Gas & Fuel Corporation (9)

"Considerable difficulty is experienced in recruiting and retaining professional staff, particularly in the programming and testing areas."

Totalizator Agency Board (8)

"It is estimated that over 70% of a computer installation cost is in labour. There is a great need for skilled, imaginative and well-managed data processing people. There is also a great scarcity of these people and, spread too thinly, they will produce little and what they do produce will be difficult to maintain on their departure."

International Computers (Australia) Pty Ltd. (10)

"There is a lack of availability of experienced programmers in the salary ranges offered. (There is a) lack of flexibility available to the permanent head in recruiting staff from outside and adjustment of internal staff."

Public Works Department (11)

"Recognition must be given to the difficulties that exist... both in the private and public sector in recruiting personnel of the right calibre to fill the role of EDP (audit) specialists."

Auditor-General (2)
"As soon as a member of staff becomes highly experienced (in EDP) he would most likely find promotional opportunities somewhere else within the public service."

Public Works Department (2).

9.2 STAFF TRAINING

9.2.1 In the developed countries world-wide, the most significant factor limiting the rate of application of information technology is the shortage of people with the necessary qualifications. The situation is not expected to improve. The public service must compete with statutory authorities and the private sector for qualified EDP staff and none of these is likely to be able to obtain the numbers and levels of skills it wants for some years to come.

9.2.2 The Victorian Public Service should not only make improvements in pay and conditions in order to bring it onto a more even footing with statutory authorities and the private sector but should also vigorously pursue new initiatives in obtaining people. The foremost of these is training.

9.2.3 It appears to the Committee that internal training courses are needed on a much larger scale. The absurdly small number of six E-class trainees within the Government Computing Service must be augmented significantly and intake for in-service training should be vigorously recruited in the tertiary institutions.

9.2.4 The following table shows the number of EDP-related courses conducted by the Commonwealth Public Service Board in 1980-81. These represent over 40 person-years of training, co-ordinated or conducted by the Public Service Board alone.

In addition significant training in EDP is conducted by Commonwealth departments. It is particularly noteworthy that the Commonwealth Public Service Board courses include over 37 person-years of EDP-audit training.

9.2.5 By contrast, the Victorian Public Service Board has not conducted any EDP-related training courses. There have been, however, a number of courses conducted by the Auditor-General, the Government Computing Service, individual departments, equipment suppliers and other organisations. The total person-days involved was 1375 - approximately six person-years. Of these, 331 person-days were EDP-audit training of which 180 person days were conducted by the Auditor-General.
<table>
<thead>
<tr>
<th>Course Description</th>
<th>Number of Courses</th>
<th>Number of Officers Attending</th>
<th>Total Training Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Security, Audit and Audit Controls.</td>
<td>3</td>
<td>68</td>
<td>1.5</td>
</tr>
<tr>
<td>Executive Seminars on Computer-based Systems.</td>
<td>7</td>
<td>125</td>
<td>10</td>
</tr>
<tr>
<td>Office Technology</td>
<td>1</td>
<td>16</td>
<td>.5</td>
</tr>
<tr>
<td>Advanced ADP Audit</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Internal Audit of ADP Systems</td>
<td>17</td>
<td>255</td>
<td>390</td>
</tr>
<tr>
<td>Systems-based Audit Seminar</td>
<td>6</td>
<td>123</td>
<td>25</td>
</tr>
<tr>
<td>Advanced On-line Audit</td>
<td>2</td>
<td>43</td>
<td>5</td>
</tr>
<tr>
<td>Audit and ADP Systems</td>
<td>2</td>
<td>70</td>
<td>1</td>
</tr>
<tr>
<td>Computer-based Systems for Divisional Managers</td>
<td>2</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Effective Computer Operations</td>
<td>1</td>
<td>24</td>
<td>2</td>
</tr>
<tr>
<td>Infocom Seminar</td>
<td>1</td>
<td>21</td>
<td>5</td>
</tr>
<tr>
<td>Information Engineering Overview</td>
<td>2</td>
<td>46</td>
<td>1</td>
</tr>
<tr>
<td>New Approaches and Techniques for System Auditable</td>
<td>1</td>
<td>24</td>
<td>2</td>
</tr>
<tr>
<td>Office Technology for Management and Administration</td>
<td>1</td>
<td>49</td>
<td>3</td>
</tr>
<tr>
<td>Project Leadership</td>
<td>1</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Structured Analysis and System Specification Workshop</td>
<td>1</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>Structured Programming Workshop</td>
<td>1</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td>ADP and Internal Audit</td>
<td>7</td>
<td>100</td>
<td>40</td>
</tr>
<tr>
<td>Structured Design Workshop</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>58</strong></td>
<td><strong>1044</strong></td>
<td><strong>514</strong></td>
</tr>
</tbody>
</table>
Average duration/course = 8.86 days
Total officer-days of training = 9252
or approximately 42-man years of EDP-related training.

9.2.6 In May 1981 the New South Wales Government offered free full-time training courses at both introductory and advanced levels with subsidised wages (by the Commonwealth) of up to 90% during training. This was offered to help overcome the shortage of programmers throughout the industry. Three thousand applications were received and fifty persons were selected for training.

9.2.7 The State Government Computer Centre of Queensland has several full-time lecturers, supplemented by video-aided instructor courses. During 1979/80, some sixty officers went through systems analysis courses.

The South Australian Government Computer Center has assumed the role of co-ordinating an education programme on all computer-related subjects. This requires the full-time commitment of one training officer.

9.3 TEMPORARY USE OF ACADEMIC STAFF ON LEAVE

9.3.1 It was suggested by Caulfield Institute of Technology(12) that there are benefits to be gained by encouraging academic staff to spend periods of staff development leave working with public sector organizations.

9.3.2 The Committee supports this idea and believes that such arrangements should be put into effect for the Victorian Public Service by the Public Service Board. Not only could this help to alleviate the shortage of EDP staff in the Victorian Public Service, but it should also provide a useful exchange of ideas and experience between colleges, universities and the service.

Similarly temporary staff exchange with private sector firms should be explored.

Such temporary engagement might be effected under section 40 of the Public Service Act 1974.
Recommendations

9.3.3 The Committee recommends that :-

(1) The Public Service Board should devise procedures to facilitate the temporary hiring by departments of academic staff during the latter's staff development leave.

(2) The Board should devise arrangements for the temporary exchange of EDP personnel with private firms.

9.4 EDP POLICY COMMITTEE ON REVIEW OF STAFFING NEEDS

9.4.1 The EDP Policy Committee's strategy document(4) recognizes that the following areas will need to be addressed by a management review:-

(a) requirements in terms of numbers and capabilities of staff;

(b) training schemes for EDP staff;

(c) appropriate standard organizational and classification structures to provide professional career development in the EDP area; and

(d) attractive working conditions in terms of work interest, access to development facilities, state of the art technology, comprehensive standards and remuneration.

9.4.2 The Committee understands that following an interview with the EDP Policy Committee such a review has commenced.

The Committee has the following comments on the areas to be covered by the review.

(a) Required Numbers and Capabilities of Staff

9.4.3 Forward estimates of the required numbers and capabilities of EDP staff are necessary to enable the appropriate facilities for recruiting and training to be planned and provided in a timely fashion.
9.4.4 Forward estimates of requirements should be compared by the Public Service Board with expected numbers that can be trained or recruited to determine whether there is likely to be a short-fall. The magnitude of expected short-fall should be advised to departments so that they may take this into account in revising departmental plans. The expected short-fall should also be used by the Board in designing, providing, and co-ordinating service training programmes. The primary source of forward estimates of staff requirements will be departmental five-year rolling plans.

(b) Training

9.4.5 Given the current number of EDP staff in departments (approx. 520), the shortage of EDP skills in the service, and the aspirations of departments for system development, it is clear that a much greater emphasis must be placed on training entry-level personnel. The current level of six E-class trainees in the Government Computing Service is totally inadequate. Urgent steps are necessary to increase the number.

(c) Classification and Career Development

9.4.6 A review of this area is urgently required. EDP professional categories must be recognized as such and treated separately from administrative classification.

(d) Attractive Working Conditions

9.4.7 Urgent review is needed. A key factor is the provision of interesting work. Staff need to feel that they are part of a modern successful system which is regarded as important by top management.

9.4.8 It has been put to the Committee by some departments that "new equipment" is required to attract the right class of employee.

Health Computing Services\(^{3}\) has said that a step towards reducing staff turnover is "to improve the level of technology employed...".

9.4.9 The Committee notes that in the present job market it may be difficult to retain top quality staff to work on obsolescent equipment, and in the extreme of totally obsolete systems, it may be close to impossible.
It may therefore be reasonable to take this factor into account in preparing a justification for replacement of an old system. Alternatively consideration could be given to transferring such staff to work situations which better use their skills.

However, with regard to hiring new staff, one might expect that operating and maintaining old equipment which is performing in a stable production environment does not require the same level and type of skills as developing systems on new technology. Thus, obsolesence of a system may not be a major factor preventing hiring suitably qualified staff. If highly skilled staff are really needed, then the challenges which will keep them interested are likely to be present.

Career Opportunities

9.4.10 A frequent reason given for high EDP staff turnover in the service is lack of adequate career opportunities. Efforts should be made by the Public Service Board to improve career planning for individuals. Attention should be given to rotational assignments, temporary secondment etc., as a means of providing variety of work experience.

9.5 MANPOWER PLANNING

9.5.1 The discussion paper\(^1\) referred to the problem of delays which frequently occur in selecting a candidate for an EDP position and making a job offer. Cases were cited by departments where this process took over three months. On a number of occasions persons whom departments wanted to hire had already taken other jobs when contacted for further interview by the Public Service Board or when approval to hire was received.

9.5.2 The Committee notes that the Public Service Board intends to "examine the matter of selection... and recruitment delays in order to examine the recruitment and selection procedures commented on in the discussion paper" (Ref.2, p3).

9.5.3 In view of the shortage which exists for qualified EDP staff in both the public and private sectors, the mobility of EDP personnel, and the compensation handicap under which the service is already operating, delays of months in selecting a candidate and making an offer are unacceptable and reflect a serious breakdown in the recruitment administration of the service.

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9.5.4 One of the benefits of the proposed consolidation of departments' plans - perhaps the major one - is that it will allow a considerable amount of training and recruiting to take place in advance of times when people are needed on the job. If people are not available when they are required, project delays occur with consequent losses through the deferment of benefits.

9.5.5 The accompanying diagram is a simplified illustration of the proposed manpower planning process which is :-

(1) Departments periodically assess their needs for information system development and operation.

(2) This process leads to the formulation of periodically adjusted five-year rolling plans, a component of which is the requirement for staff resources.

(3) Consolidated staff requirements are calculated by the Public Service Board from departmental plans and are compared with current estimates of available staff.

(4) The expected shortfall is used to develop service recruiting and training programmes aimed at reducing the shortfall. Ideally, plans should be such that, if implemented, the expected shortfall would be reduced to zero. However the present short supply position is likely to continue for at least several years.

(5) Recruitment programmes are accessible to universities, colleges, and other training institutions. This means that courses can be designed with the knowledge of the approximate numbers and types of new graduates and diploma holders which the service plans to hire.

(6) Recruiting and training action result in a balanced flow of qualified personnel into budgeted positions in a timely manner. Recruiting draws upon fresh graduates and diploma holders, experienced outside personnel, and internal transfers.

9.5.6 The Committee believes that consideration should be given to providing specific grants to tertiary educational institutions for EDP training.
MANPOWER PLANNING CYCLE

1. Departmental Needs Assessment
2. 5-year Rolling Plans
3. Staff Requirements
4. Estimates of Expected Shortfall
5. Co-ordination

- Staff Availability Estimates
- Compare
- College & University Programmes
- Service Recruiting Programme
- Service Training Programme
- College & University New Graduates
- Internal Recruits
- Experienced External Recruits
- Service Training Courses
Recommendation

9.5.7 The Committee recommends that the Public Service Board should institute a continuous manpower planning, recruiting and training programme similar to that proposed above to increase the number of qualified EDP personnel available to the public service and reduce delays in filling vacancies.

9.6 EDP SALARIES AND CLASSIFICATIONS

9.6.1 At present there is no specific EDP definition of gradings in Victoria. They are linked into the administrative classification structure.

9.6.2 The EDP Policy Committee\(^{(5)}\) advised that:

the Industrial Relations Division of the Public Service Board is undertaking an investigation into the comparative remunerations of EDP officers in the Victorian and Commonwealth public services. Information on specific positions, duties and classifications is being researched and provided by Computing and Systems Division (of the Public Service Board).

9.6.3 The Committee notes that the Board's category review will examine the Commonwealth standards and clarify them in the Victorian Public Service. It will also address any anomalies that may be identified in the process and facilitate a strengthening of the career structure currently available for EDP staff in the public service.

9.6.4 As the Public Service Board has pointed out, the main competition for EDP staff comes from the private sector, not from the Commonwealth or from statutory authorities. While it will be useful no doubt to examine Commonwealth categories and salaries, most attention should be given to compensation in the private sector in formulating appropriate changes for the Victorian Public Service.

9.6.5 The Committee notes that the Public Service Board now favours adjustment of salary scales within the public service to market value where corresponding positions exist outside the service. The Committee supports this approach, which should avoid some of the anomalies that have occurred under work-value determination.
For example the Committee has been informed by the Education Department that the status and salary of an EDP manager whose department has a computer is higher than that of ones which do not, other things being equal. This provides an incentive for an EDP manager to acquire a computer for his department quite apart from its possible benefits to the department concerned.

9.7 NO SPECIAL ALLOWANCE FOR EDP PERSONNEL

9.7.1 The Department of Agriculture is losing economists from its staff. The Assistant Director-General of the Department said that he would like to pay a bonus or special allowance to economists to make their total remuneration sufficiently attractive for them to remain in the Department. It was felt that this was preferable to permanent salary increases because:

In five years time we will have economists running out of our ears. If they were put on high salaries they would still have them in five years' time and everyone in the organization would be jealous of them. That situation is apparent in the veterinary group which also receives high salaries. (2)

9.7.2 It was suggested that a special allowance might also be appropriate for EDP officers to allow flexibility to vary compensation when the EDP personnel shortage eases. The current shortage of EDP personnel throughout the whole work-force, not only in the public service, is expected to continue and in fact become worse for years to come.

9.7.3 The Committee considers that there are no grounds for an "EDP allowance" in preference to adjustment of EDP base salary scales to market levels. In any event, the Committee has recommended an annual review of EDP salary market and adjustment of public service ranges (which is broadly consistent with present public service range adjustment policy (13)). This will allow tracking and periodic adjustment of EDP ranges so that if EDP salaries change relative to the market mean or other classifications over the next few years, adjustment can be made.

Recommendations

9.7.4 The Committee recommends that :-
(1) Salary ranges for EDP staff in the public service should be comparable with those in the private sector.

(2) The Public Service Board should survey private sector salaries annually and adjust service ranges accordingly. The public service should centre its ranges close to the mid-point of the spread of private sector salaries for a given level of qualifications or job functions.

(3) Separate EDP occupational classifications should be introduced as a matter of urgency.

9.8 CONSULTATION WITH STAFF

Recommendations

9.8.1 The Committee recommends that:

(1) Mechanisms should be developed within departments and statutory authorities for early consultation with staff who may be affected by technological developments. Staff participation is desirable during preparation of strategic plans, requirements analysis and system design.

(2) The Titles Office Modernization programme should be monitored to assess the effects of the consultative committee approach which is being tried there. The experiences gained should be the basis of guidelines to departments and authorities on staff consultation.
10.1 STANDARDS

10.1.1 The Committee recognizes that there are advantages to the Government in obtaining a degree of uniformity in the technical features of its computing equipment and software and in the techniques by which the equipment and software are developed and used. However, great care should be exercised when adopting standards which promote uniformity, to ensure that such standards are technically appropriate and do not significantly limit competition amongst suppliers or reduce the Government's ability to take advantage of new technical developments. Moreover, EDP standards may become obsolete very quickly; therefore they should be reviewed frequently and discarded, relaxed or modified if they cease to represent optimum practice.

10.1.2 The 'Future Strategy for Computing'\(^{(4)}\) contains several references to standardization.

The 'Policy for Future Computer Facilities' states that:

\[
\text{priority will be given to departments which are prepared to adopt the standard equipment, where applicable.}
\]

10.1.3 The Committee considers that system development priority should be determined by cost-effectiveness considerations relative to other options within a department, and not by the extent of acquiescence of a department to a standard imposed upon it by the EDP Policy Committee.

10.1.4 The Chairman of the Public Service Board has agreed that cost-effectiveness is the appropriate criterion for setting priorities and has acknowledged that the present wording of the policy is unsatisfactory.

10.1.5 The future strategy document states that standards will be developed for:

- Project management and control;
- System design and development;
- Equipment/system operation.
Elsewhere in the document it is said that:

A suitable methodology and standards will be adopted for use in the planning, development and control of all EDP projects.

10.1.6 The Committee comments later on the inadvisability of attempting to use one system development methodology for all kinds of system development. (See para. 10.3.4).

10.1.7 The EDP Policy Committee takes the view that:

It is desirable that standard mini and micro-computer equipment and software be adopted which will:

- allow for common software to be developed centrally;
- facilitate application level communication between computers;
- rationalize the need for EDP staff and facilitate training;
- eliminate the effort involved in the tendering and evaluation process for each individual department;
- reduce the learning curve associated with staff movements between departments;
- provide discount advantages in the purchase of hardware and software.

10.1.8 The strategy document\(^4\) points out that the above would not preclude the acquisition of equipment designed for special purposes, e.g. graphics, plotting, optical reading etc.

10.1.9 It is not clear from the strategy document whether one type of mini-computer and micro-computer or several will be adopted as standard. However the EDP Policy Committee has subsequently said\(^2\) that standardization would be within a particular application area such as the Education Department regional offices and that a different standard computer might be required for the replacement of accounting machines. The EDP Policy Committee has also acknowledged the undesirability of becoming tied to one particular supplier and has indicated that the contract with the suppliers of the standard computers would be reviewed every twelve months.
To an increasing extent the system component that has most effect on system efficiency and effectiveness is the software. In many cases software should be chosen first; the computer can then be selected which will run that software most efficiently. This points to a possible danger in standardizing on one or a limited number of mini-computers; it may result in a loss of efficiency in running the preferred software or, worse still, it may not be possible to use the preferred software at all.

**Common Software**

The strategy document\(^4\) proposes standard software to be acquired or developed to run on departmental computers for the following applications:

- Financial information - debtors and revenue
- Stores inventory
- Plant and vehicles
- Assets register
- Off-line cheque drawings
- Statistical analysis
- Financial modelling
- File registry
- Licences
- Library records
- Project control.

The strategy document claims that there are also significant benefits to be gained by using standard software utilities such as a data base management system, transaction processing and user languages.

While the Committee accepts that unnecessary duplication of programming efforts should be eliminated, it believes that, as with the standardization of equipment, care must be taken to ensure that the wrong tool is not used for the job.

**Standards of Practice**

To assist user departments, the Public Service Board should place great emphasis on documenting and promulgating sound management practice for the development and control of data processing systems.
10.1.15 The Committee sees the benefits arising from such standards and guidelines to be:

- faster development of good EDP management practices among users; and

- achievement of uniformity in such practices to facilitate transfer of personnel and programmes between departments.

10.1.16 Almost all areas of system planning, design, implementation, operation and use of computers can benefit from the promulgation of guidelines and standards. However, the Committee believes that the Public Service Board and the EDP Policy Committee should give priority to developing guidelines and standards for management control and audit of EDP systems and for project development.

10.1.17 The Public Service Board and the EDP Policy Committee should prepare or adopt EDP guidelines for:

(a) studies to be performed prior to the acquisition of equipment;

(b) cost-effectiveness analysis;

(c) selection of government versus private sector resources for EDP software and services;

(d) selecting a supplier, including proposal and tender evaluation;

(e) privacy policy for personal records;

(f) privacy security and accuracy controls in government systems (including auditability of such controls);

(g) preparation of three to five-year rolling strategic plans;

(h) procedures for the purchase of equipment, software and services;

(i) consultation with staff;

(j) systems review and audit;
(k) managing project development, including
selection of the appropriate development
methodology; and

(l) management consideration of EDP plans.

10.1.18 As the EDP Policy Committee is well aware, a common
way to waste money in EDP development is to try to re-
invent the wheel. The Committee has emphasised the import-
ance of developing and issuing guidelines on sound practice
to departments and authorities. Since excellent guide-
lines on a number of topics have already been prepared
by the Commonwealth Public Service Board, these should
be examined to see whether they can be used by the Victorian
Public Service, perhaps with minor modification.

10.1.19 The Committee sees no reason why the guidelines
produced by the Commonwealth Public Service Board on :

- Management Consideration of ADP Strategic
  Plans; and

- Internal Controls for Computer-based
  Systems;

could not be adopted virtually as they stand, or only
slightly modified, at least as interim guidelines.

The Commonwealth guidelines on :

- Production of ADP Strategic Plans; and

- Cost-effectiveness Analysis of ADP Systems;

could also provide a point of departure in developing
Victorian guidelines. The Committee understands that the
Computer and Systems Division of the Public Service Board
is in fact using the Commonwealth guidelines for the
Production of ADP Strategic Plans in developing appropriate
ones for Victoria.

In addition to the above procedural guidelines,
the Committee has also seen two manuals produced by the
Commonwealth Public Service Board on :

- Security in the ADP Environment; and

- Risk Management in Automatic Data
  Processing.
These should be brought to the attention of all departments and statutory bodies as representing sound practice.

10.2 STANDARD MINI- AND MICRO-COMPUTERS FOR PUBLIC SERVICE

10.2.1 Different mini-computers and medium scale computers have different software sets available for them which tend to make particular types and brands more suitable in one area of application than in others. There is not one mini-computer which is best for everything. Therefore, the cost of having to acquire something other than the most suitable computer for the task at hand should be weighed against the claimed benefits of uniformity. For example, one brand of mini-computer is very suitable where highly reliable transaction processing is required, as in hospital patient administration; another brand of computer and operating system is very suitable where text handling and editing are envisaged; a range of computers from a third supplier is most suitable where high speed scientific calculations need to be done.

10.2.2 One of the benefits claimed for standard equipment is to allow common software to be developed centrally. Common application software to run in different departments does not necessarily require that those departments have the same brand of computer. There might well be a case in certain circumstances for a department to suffer some additional cost in adapting a service-standard application package to a different mini-computer from the Victorian Public Service standard in order to allow the department to use the same computer as a corresponding instrumentality in another State. Thus, for example, the State Rivers and Water Supply Commission might wish to use a make of mini- or micro-computer running software developed by its counterpart in another State for reservoir storage modelling.

10.2.3 To a large extent the early stages of developing a particular system can be made hardware-independent. Thus, significant cost savings could come from developing a system design which is uniform in all departments but not necessarily implemented on the same computer. Every effort should be made in designing common applications for use by various departments to advance the design as far as possible in a machine-independent manner.
The major part of the coding may then follow using a standard high level language which is common to a wide range of machines, then finally the machine-dependent parts of the systems, such as data file management, could be implemented.

10.2.4 The above design philosophy could allow the basic machine-independent design to be implemented on mini-computers other than the service's preferred standard at moderate cost. The advantage of this approach is that it does not commit the service to a particular make of mini-computer yet still allows the elimination of a significant amount of duplication of effort.

10.2.5 A benefit claimed for common mini- and micro-computers is that they will facilitate communication links between computers. In many cases there will not be any need for communication between computers. Ease of communication will only be an advantage when it is desired to link computers. The department doing the acquisition can, if that need exists, take it into account when selecting a suitable computer.

10.2.6 A third advantage claimed for uniformity is to rationalize the need for EDP staff and facilitate training. This is indeed an advantage but is not without cost. People who are trained on the use of only one make of mini- or micro-computer may not have the problem-solving skills of those more broadly trained persons who have seen how things are done on a variety of systems. As with the other points discussed, there are advantages in diversity as well as in uniformity.

10.2.7 A fourth advantage claimed is that uniformity will eliminate the effort involved in the tendering process for each individual department. There are alternative ways to reduce tendering effort (e.g. by simplifying the tendering process, issuing guidelines on contract negotiations, centralizing purchasing, having period contracts with several suppliers etc.)

10.2.8 A fifth reason put forward is to reduce the learning curve associated with staff movement between departments. This is a valid reason but the comments above about diversity of skills applies.

10.2.9 A sixth advantage claimed is to provide discount advantages from the purchase of hardware and software.
Bulk Discounts

10.2.10 The EDP Policy Committee considers that the Government might obtain between 10% and 15% discount through "bulk purchase" of mini- and micro-computers. This rate of discount, if achieved, could represent savings to the Government over the next four years of between $400,000 and $600,000 on the expected level of purchase of mini- and micro-computers.

While this is a worthwhile saving, it should be recognized that discounting of systems is widespread in the computer marketplace and that 15% off retail price is commonly available in a competitive situation for purchase of a single computer. Discounts of 30% off list price are common on multiple systems, while for a guaranteed minimum purchase of forty systems a year for five years, a discount of 60% off list price is possible.

10.2.11 The targeted saving of 10% to 15% should therefore be the reduction relative to the price of single systems, which are already discounted, rather than to list price.

10.2.12 The highly competitive marketplace which results in significant discounting is highly beneficial to the Government and private purchasers. The Government's purchasing policy should do nothing to inhibit vigorous competition.

10.2.13 The apparent savings from bulk purchase could soon disappear if they lead to one supplier capturing the market and eliminating threats to competitors. Moreover, unless the contract ties the supplier down tightly, he may find ways to recoup any discount with later profits, for example in the:

- price of add-on equipment not specified in the fixed price of the contract;
- price of software items not specified in the contract;
- price of services not specified.

While it is important to save costs in computer system purchase, this should be balanced against any impact on the efficient and effective use of the equipment and software.
Preparation of Specifications

10.2.14 The Committee notes that specifications are being prepared for the supply of standard ranges of mini- and micro-computers and software. Departments which have requirements should comment on the specification before they are made firm.

Word Processing

10.2.15 The strategy document refers to the possibility of standardizing word processing/office automation equipment. It is expected that within a few years the use of integrated document preparation, storage, and transmission systems will be widespread in government. Letters and reports will be prepared at terminals, filed on electronic media and transmitted to other terminals. Considering the rapid growth of word processing in departments, a situation could be reached where individual departments purchase incompatible stand-alone word processing equipment which will be impossible to integrate into automated office networks within departments. The office automation field is undergoing rapid development and leading towards the integration of data processing and document management functions on an organization-wide basis. There are as yet no industry standards and equipment purchased by the public service could become obsolete quickly.

10.2.16 The above factors make it desirable that the Public Service Board and the EDP Policy Committee closely examine trends and likely developments in the office automation sphere to ensure that the Victorian Public Service does not waste money on equipment that will prevent the development in the future of integrated office systems. However, in many cases, the pay-off for word processing equipment is rapid and in such cases it may be inappropriate to allow plans for future integration to prevent taking advantage of immediate cost savings. A combination is desirable of early installation of current technology where the pay-off can be achieved within two or three years, plus plans for the ultimate integration of office functions, perhaps from 1985 onwards.

Standard Data Base Management

10.2.17 The major disadvantage of standardizing on one data base management system is that none of those at present available is ideal in all applications. It would be quite possible for a department to lose far more from use of an inappropriate data base management system than any benefits
from standardization. It is suggested in the strategy report that significant benefits might be derived from standardizing on one transaction processing system. This is also questionable.

**Staying With One Supplier**

10.2.18 The EDP Policy Committee has said that "staying with the one reputable supplier will ensure that we will fully benefit from improvements in technology". The Committee considers that this viewpoint is not supported by experience. There is no guarantee that any supplier, however reputable, will stay in the forefront or even maintain a rapid rate of technological development.

**Recommendations**

10.2.19 The Committee recommends that :-

1. Preferred types of mini-computer and micro-computer should be selected by tender for use within application areas and groups of applications in which the requirements are uniform.

2. Where a department wishes to depart from the preferred make and type of mini-computer or micro-computer, and its proposal appears cost-effective, it should not be penalised in priority or approval of funds for its departure from the preferred make or type of computer.

3. Contracts for preferred makes of mini-computer and micro-computer should be reviewed and renegotiated at intervals of not more than two years to allow advantage to be taken of changes in prices between suppliers and technological development.

4. Emphasis on standardization should be on the adoption of uniform procedures and systems where appropriate rather than on hardware and software.
(5) Departments should be encouraged but not forced to use centrally-produced standards.

(6) The Auditor-General should report on departments which have not used standards where it would have been appropriate to do so, or which have used inappropriate standards.

(7) Departments should either develop comprehensive standards of their own or use those developed by the Public Service Board and the Government Computing Service.

10.3 STANDARD SYSTEM DEVELOPMENT METHODOLOGY

10.3.1 The Committee notes in the EDP Policy Committee's 'Policy for Future Computer Facilities' (4) that:

> a suitable methodology and standards will be adopted for use in the planning development and control of all EDP projects.

10.3.2 The Committee supports the adoption by the Victorian Public Service of suitable packaged system development methodologies. It should be possible to purchase packages of proven effectiveness at lower cost than that of developing them within the service. An appropriate standard methodology should help to involve the appropriate levels of departmental management in the control of project progress. The design aids incorporated in some available packages could be expected to improve programmer productivity significantly.

10.3.3 It should be kept in mind that the inappropriate application of "cookbook" methods can be disastrous. The Committee understands that none of the available packages handles all phases and all types of system development equally well. Some are more appropriate to batch application development, and others to data base design and implementation. Most are oriented towards the development of applications rather than of system software.

10.3.4 Therefore the Committee cautions against the adoption of a single standard development methodology to cover all phases of development from information analysis to implementation and all types of system from batch applications through on-line data management to the development of system software.
Moreover, system development packages are not substitutes for understanding the basic principles of project management, interaction with users, or software engineering.

Recommendations

10.3.5 The Committee recommends that:

(1) The Victorian Public Service should increase the use of formal systems development, automated design and project management techniques, particularly in the area of management review and control.

(2) The Public Service Board should evaluate available proprietary system development methodologies and develop standards and guidelines for use of such packages in appropriate circumstances.
CHAPTER 11

MANAGEMENT CONTROLS OF EDP ACTIVITIES

11.1 THE NEED FOR INTERNAL CONTROLS

11.1.1 The need for internal controls of computer-based systems is well recognized. It is also widely accepted now that, in many cases, if programmed controls are to be employed, they must be built into the system during development. For example, it may simply be too costly to attempt to build file access controls onto the system after the bulk of programming has been completed.

11.1.2 Despite acceptance of the importance of controls, the discussion paper reported many deficiencies in management of EDP in departments and authorities. These included the following:

- With one or two major exceptions standards for development, documentation and maintenance of applications are generally poor and loosely enforced.

- With two exceptions, no standard methodology for project control was in use. There were some examples of poor project management resulting from lack of methodology. In some cases there was a distinct lack of perceived need for project management.

- Procedures for data integrity/consistency were generally inadequate.

- There was generally little evidence of the practice of unannounced audit checks although the need is recognised.

- Internal auditors were perceived as being uninterested in computer-based systems.

11.1.3 Although management representatives from many departments have assured the Committee that they are quite capable of managing their own EDP systems, the overall impression gained by the Committee is that management controls within many departments, perhaps most, require considerable strengthening if the public service is not to be faced with a procession of costly delays, errors and breaches of security, integrity and privacy.
Obviously, the deficiencies cannot be corrected overnight. A continuing process of management education is required, as well as specialized training for EDP systems personnel in designing controls into systems.

**Recommendations**

11.1.4 The Committee recommends that :-

(1) Guidelines should be issued for internal controls in computer-based systems covering:-

- Acquisition
- Management and organization
- Physical security
- System development
- System operation
- Processing
- Data integrity, security and privacy
- Communications
- External service bureaux.

(2) To avoid unnecessary duplication of effort, the Commonwealth Public Service Guidelines on *Internal Controls for Computer-Based Systems* should be considered for adoption by the Victorian Public Service. If they are regarded as unsuitable for permanent adoption, they should at least be used as interim guidelines in Victoria.

**11.2 REVIEWS AND AUDITS**

11.2.1 Reviews and audits are required at various points through system development and implementation. The following are the more important ones:-

(a) review of quality of analysis, design, system building, programming and testing;

(b) review of performance of the system following implementation, relative to design objectives;
(c) audit of the effectiveness of system controls on security, accuracy and privacy;

(d) audit of the controls of the development and acquisition processes;

(e) review of effectiveness and efficiency of the system in meeting functional objectives and targeted cost savings; and

(f) audit of compliance by the department or authority with policies and guidelines.

Recommendations

11.2.2 The Committee recommends that :-

(1) Effectiveness reviews of the achievement of functional objectives should include an examination of the extent to which the planned benefits to the community have been achieved.

(2) It should be mandatory for departments and authorities to carry out all the above audits and reviews internally. Management may use internal audit resources or EDP systems staff or external consultants (from the Government Computing Service or the private sector) as appropriate. The guiding rule is that the review should be carried out by fully qualified personnel other than those who did the work which is being reviewed.

(3) The primary responsibility for external audit lies with the Auditor-General who should develop the resources necessary to conduct audits of all or any of the above kind in departments and statutory authorities.

(4) The Auditor-General should use the consolidated strategic plans of departments and authorities to determine his staffing and training requirements. Resources should be sufficient to allow each authority and department to be audited by the Auditor-General with an average frequency of once every two to three years.
11.3 EDP AUDIT

11.3.1 The Committee has formed the view that EDP audit capability in the Victorian Public Service is almost non-existent. The situation now is bad but is likely to become worse over the next few years because the demand for EDP audit skills will grow more rapidly than such skills can be acquired by the service, either by recruitment or training. The Committee thinks this is true even if a vigorous programme for both recruitment and training is instituted immediately.

11.3.2 Despite critical comment by the Auditor-General in his reports to Parliament over a number of years, effective general internal audit still does not exist in a number of larger Government departments and organizations.

11.3.3 Although the Auditor-General has devoted considerable effort to giving some EDP knowledge to a number of general audit officers, he has only three specialist EDP auditors and one in training(2).

11.3.4 A rapid increase is expected over the next few years in the number of systems in the Victorian Public Service. These will be largely decentralized; some will be linked in networks; many will be on-line rather than batch systems; and they will make increasing use of data base management techniques. In both public and private sectors, the resources for the audit of today's systems are totally inadequate, let alone the increased number of more complex systems which will be seen in the near future. In spite of this the Victorian Public Service has no programme for recruiting and training EDP specialist auditors.

11.3.5 The Committee can see no prospect at all of obtaining the required skills levels of EDP audit in all the departments that need them. Most department heads believe they are well able to manage their own computer systems; however the absence of EDP audit capability in the service suggests that the quality of management of EDP development and operation will be less than satisfactory for some time to come.
Recommendations

11.3.6 The Committee recommends that:

(1) The Public Service Board should forthwith estimate the service's requirements for internal EDP audit capability (both general and specialist) - based on present and expected systems installed, and should institute a vigorous training and recruitment programme to meet the requirements as far as possible.

(2) Consideration should be given to forming a pool of internal EDP audit consultants, preferably within the Government Computing Service, who can be used by departments to supplement their internal audit teams.

(3) The problem of salary disparity be confronted squarely. Adjustment in pay scales should be implemented to make those of EDP audit specialists competitive with salaries paid for the same EDP skills outside the audit field.

(4) The Public Service Board should give consideration to the career paths for EDP audit specialists.

(5) The use of outside consulting firms experienced in EDP audit should be considered as a means of supplementing the skills available within the service.

(6) Consideration should be given by departments and the Auditor-General to forming audit teams consisting of auditors with basic EDP training and systems analysts and programmers.

Committee Room,
23 November 1981
APPENDIX "A"

LIST OF SUBMISSIONS

Public Sector

Agriculture, Department of
Auditor-General
Austin Hospital

Building Industry Long Service Leave Board

Caulfield Institute of Technology, School of
Computing and Information Systems
Community Welfare Services, Department of
Conservation, Ministry for
Country Roads Board
Crown Lands and Survey, Department of

Economic Development, Ministry for
Education Department
Education Department - Technical Schools Division
EDP Policy Committee

Gas and Fuel Corporation of Victoria
Government Computing Service

Health Commission and Health Computing Services
(combined submission)

Labour and Industry, Department of

Melbourne and Metropolitan Board of Works
Melbourne and Metropolitan Tramways Board
Minerals and Energy, Department of

Public Works Department

Rural Finance Commission

State Bank
State Electricity Commission
State Emergency Service
State Insurance Office
State Rivers and Water Supply Commission
State Superannuation Board
Totalizator Agency Board
Transport Regulation Board

Victorian Egg Marketing Board
Victorian Hospitals' Association Limited

Youth, Sport and Recreation, Department of

Private Sector

Association of Australian High Technology Industries
Australian Software Houses Association

Burroughs Limited

Computer Sciences of Australia Pty. Ltd.

D.P. (Data Processing) Services
Data General Australia Pty. Ltd.

IBM Australia Limited
International Computers (Australia) Pty. Limited (ICL)

NCR Australia Pty. Ltd.

SureData Pty. Ltd.
System Support Group (Aust.) Pty. Ltd.

Victorian Public Service Association

Wadham, Ian & Associates
APPENDIX "B"

LIST OF WITNESSES

EDP Policy Committee

Dr. R.B. Cullen, Chairman
Mr. K.D. Green, O.B.E., E.D., Member of Committee
Mr. I.G. Baker, Member of Committee
Mr. G.W. Rogan, Member of Committee
Mr. H. Brzezinski, Executive Officer
Mr. I. Aufflick, Senior Consultant, Computing and Systems Division

Government Computing Service

Mr. N.E. Wadeson, Director
Mr. L. Brewer, Deputy Director (Facilities)
Mr. D. Meckiff, Deputy Director (Applications)

Auditor-General's Office

Mr. B.J. Waldron, Auditor-General
Mr. N.R. McAlister, Auditor

Gas and Fuel Corporation of Victoria

Mr. A.H. Gayleard, Administration Manager
Mr. M.S. Foster, Superintendent, Systems Development, Systems and Data Processing Department

State Electricity Commission of Victoria

Mr. R.E. Hurley, Assistant General Manager, Administration
Mr. B. Ackland, Manager, Computer Services

Melbourne and Metropolitan Board of Works

Mr. O.T. Cosgriff, Secretary
Mr. H.G. Ford, Deputy-Secretary (elect) and Manager, Management Services Division

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Department of Agriculture

Mr. R.H. Taylor, Assistant Director-General
Mr. R. Jardine, Principal Investigations Officer and Biometrician
Mr. B. Williams, Director of Administrative Services

Public Works Department

Mr. D.J. Little, Director-General
Mr. B. Walsh, EDP Manager
Mr. L. Slavin, Acting Director of WREN Project

State Rivers and Water Supply Commission

Mr. R.G. Welsh, Director, Financial Management
Mr. W.A. Clarke, Manager, Systems and EDP
Mr. P. Weatherhead, Senior Executive Engineer, Computer Services

Department of Minerals and Energy

Dr. D. Spencer-Jones, Deputy Secretary
Mr. G. Willingham, Director of Administration
Mr. R. Fitt, Assistant Director of Administration
Mr. S. Mack, Officer-in-Charge, Data Processing Division
Mr. R. Blake, Acting Senior Petroleum Geologist
Mr. T. Younger, Senior Engineer

Victorian Public Service Association

Mr. S. Lamande, Senior Industrial Officer
Mr. G. Roseby, Chairman, General Council Policy Committee

Building Industry Long Service Leave Board

Mr. H. Glenk, Secretary
Mr. W. Roberts, Data Processing Manager

Land Tax Office

Mr. G.J. Sebo, Commissioner of Land Tax
Mr. J.F. Clark, Deputy Commissioner of Land Tax
Mr. D. Gung, EDP Manager
Mr. H.J. Hopkins, First Assistant Director of Finance, State Treasury
Health Computing Service

Mr. J.C. Habersberger, Chairman, Board of Management
Mr. G. Baker, General Manager
Mr. C.P. Faraday, Acting Manager, Systems Development
Mr. K.J. Hodson, Secretary and Financial Controller
Mr. J.R. Swain, Manager, Medical Systems
Mr. V.G. Miller, Operations Manager
Dr. R.B. Scotton, Member, Board of Management

Education Department

Mr. B.J. Joy, Assistant Director-General (Finance)
Mr. F. McCrohan, Manager, Computer Services
Mr. A. Ralston, Data Base Administration

Department of Community Welfare Services

Mr. H. McPhee, Director of Administrative Services
Mr. D. Leihy, Assistant Director of Administrative Services

State Treasury

Mr. I.G. Baker, Director of Finance
Mr. H.J. Hopkins, First Assistant Director of Finance
Mr. R.A. Livingston, Assistant Director of Finance (Accounting)
Mr. R. Newman, EDP Liaison Officer

Public Service Board

Dr. R.B. Cullen, Chairman
Mr. H. Brzezinski, Director, Computing and Systems Division
Mr. M. Keppel, Director of Operations

Dr. C.J. Bellamy, Director, Computer Centre, Monash University.
APPENDIX C
CURRENT GOVERNMENT PREFERENCE POLICY

There is presently four levels for which a State purchasing preference policy applies. The general policy is summarised below.

- Preference for Australian produced goods against overseas goods.

  The policy is to give priority to Australian goods all else being equal.

- Preference for Victorian produced goods against the rest of Australia.

  The policy is to give a 10 percent preference to Victorian (and that portion of Albury-Wodonga in N.S.W.) goods.

- Preference for decentralised industries.

  The policy is to give an additional 5 percent preference to approved decentralised industries.

- Preference to preferred industries.

  This area is new and for computer equipment is covered by the Premier's circular 81/16 which is reproduced below.

COMPUTER EQUIPMENT - USE OF LOCALLY MANUFACTURED ITEMS

The Government is committed, through its New Directions policy, to the active encouragement of the computer industry and associated high technology developments in Victoria.

This field of industrial activity is already well developed in this State, particularly in the area of computer software, computer servicing and information systems. There is also a vigorous new development in the manufacture and assembly of small computers.
Victoria is well placed to sustain a large and expanding computer industry, with capacity to serve local markets and to export to countries in the South Pacific region and to East Asia, including China.

We must demonstrate our determination to assist this important industry to the maximum extent possible.

Some of the advantages of a locally based industry are:-

(1) Ease of consultation about the user requirements and about specifications and tenders for equipment.

(2) Ease of access to servicing, with locally based facilities.

(3) Lower cost (in many cases).

(4) Ability to acquire locally produced equipment of adequate standard rather than having to accept overseas equipment of unnecessarily high standard.

Preference is therefore to be given to locally (Victorian) produced computer facilities - hardware and software. A cost differential of up to 5% to be accepted in implementing this policy with respect to software. Existing preferences will continue to be applied with regard to hardware.

In order to ensure the maximum application of this policy, you are asked to have departments consider the full context within which the proposed computer equipment item is to be utilised. In this way, consideration of locally manufactured equipment will not simply be restricted to its substitution for imported equipment.

This policy is to apply to purchases by all Government agencies forthwith.

Please convey the Government's direction to all agencies within your administration for appropriate action.
APPENDIX "D"


2.0 SUMMARY RECOMMENDATIONS

These recommendations are seen as both adding to and expanding upon the recommendations presented in the Discussion Paper on the Current and Future use of EDP facilities and techniques in the Victorian Public Sector.

The Ministry considers that there is little direct cost in these additional recommendations and that the benefits both to the State and Public Sector productively could be very large.

Subsequent sections of this submission will provide background and support for the recommendations.

Above all else what is needed is a change in attitude and approach. There is considerable evidence that current EDP planning attitudes are directly favouring the larger overseas suppliers. There is often an economical local alternative which is just not considered or there could often be a local alternative if either the approach to a particular application was changed (e.g. distributed mini-computer systems rather than large centralised facility) or sufficient lead time and commitment was given to the local industry.

These attitudes cannot be easily changed. But they must be! The dual objectives of public sector EDP provision should be

1. to provide an economic, efficient and effective service, and
2. to support the development of a local computer industry.

2.1 RECOMMENDATIONS - PLANNING

1. Formal EDP planning procedures should be introduced to all public service departments, statutory authorities and local authorities.
2 Suitable guidelines should be published with some backing authority that recognises the dual objectives of public sector EDP provision, i.e.

. to provide an economic, efficient and effective service, and
. to support the development of a local computer industry.

3 Suitable guidelines and background information should be developed and widely distributed, in conjunction with the planning guidelines, giving details of

. local hardware manufacturers, software support and other support services.
. Government policy on local preference and incentives.

2.2 RECOMMENDATION - LOCAL INDUSTRY CO-OPERATION

4 Departments and statutory authorities should be encouraged to budget funds to support local industry consultation on appropriate methods in which local expertise can be economically used and supported.

2.3 RECOMMENDATIONS - RESOURCE ACQUISITION IN GENERAL

5 Existing preference guidelines should be vigorously enforced while gradually seeking bilateral agreements with all States to eliminate them.

6 Five-year rolling plans on proposed hardware and software developments be used and made available to local industry so that they may perceive future demands.

7 Consideration be given to departments, statutory authorities and local authorities nominating a minimum proportion of their purchases which will be sought from local industry.

8 The purchase of locally produced software packages, in lieu of either overseas produced packages or internal development should be encouraged in the context of overall plans.
9 There should be complete unbundling of EDP purchases, where there are alternative local suppliers for any part of a complete purchase plan.

10 The use of local industry brokers who develop a complete EDP purchase package should be encouraged as a mechanism for supporting local industry and preserving the advantages of dealing with a single supplier source.

11 Existing acquisition procedures and equipment specification should be re-examined so as to eliminate any bias or constraints against local suppliers. (e.g. specifications for technical capabilities not needed, or unreasonable levels of confidence in performance, customer support or past experience). Contract procedures should recognize the impact which delayed or spread payment can have upon small firms with limited cash reserves. Writing specifications for tenders based on a particular supplier's specifications should be eliminated.

2.4 RECOMMENDATIONS - RESOURCE ACQUISITION IN SPECIFIC AREAS

It is recognised that not all areas of the EDP can be now or possibly ever provided by local industry. There are however a number of areas which it is felt both now and in the future could be economically and efficiently supplied by the local industry. In addition there are some data processing approaches which are better suited to the local industries capabilities than other possible approaches.

12 It is thus recommended that the selection of specific areas of EDP purchases for extra-ordinary support should be examined. In particular it is recommended that the following areas be considered as feasible and economic for strong support.

- educational systems, in particular school microprocessors and associated software
- word processing equipment and software
- distributed data processing communications software and hardware
- user terminals with multiple protocols and modem capabilities
- common users package development.

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13 It is also recommended that data processing approaches which for example

- encourage the development of mini- and micro-computer distributed data processing networks
- encourage advantage to be taken of the significant data sources available within the Public Sector

would best support local industry and add to its ability to compete with other suppliers.

2.5 RECOMMENDATION - ACCOUNTABILITY AND RESPONSIBILITY

The constraints on finance and staff as laid down by Treasury and the Public Service Board can often be such that the early adaption or development of high benefit applications is stopped.

It should be against total community benefits that the costs of an application should be judged. To limit the consideration of benefits to the Public Sector tends to promote applications which are purely job replacement applications.

14 It is recommended that the criteria used to judge the merit of a particular application be widened to more fully include the benefits generated for the Victorian community and industry.

2.6 RECOMMENDATION - PAST IMPLEMENTATION REVIEWS

15 Past Implementation reviews should gather information on the amount and performance of local contribution for all major systems developed for departments and authorities. This information is to be used to refine supplier guidelines as feedback to local industry and as feedback to Government on the effectiveness of its local industry policy.
APPENDIX E

REFERENCES


3. Written replies by Health Computing Services to questions raised by the Public Accounts and Expenditure Review Committee, 9 October 1981.


5. Submission by the EDP Policy Committee to the Public Accounts and Expenditure Review Committee, 10 September 1981.


7. Written replies by the Public Works Department to questions by the Public Accounts and Expenditure Review Committee, 29 September 1981.

8. Submission by Totalizator Agency Board to the Public Accounts and Expenditure Review Committee, 10 September 1981.


10. Submission by International Computers (Australia) Pty Ltd., to the Public Accounts and Expenditure Review Committee, 14 September 1981.
11. Submission by the Public Works Department to the Public Accounts and Expenditure Review Committee, September 1981.

12. Submission by Caulfield Institute of Technology to the Public Accounts and Expenditure Review Committee, 16 September 1981.


17. Submission by Department of Community Welfare Services to the Public Accounts and Expenditure Review Committee, 11 September 1981.


27. Letter to Director of Finance, State Treasury, from the Secretary, Public Service Board, 14 August 1981 (PSB ref. 80/742).