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Report 287

Joint Committee of Public Accounts

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THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

JOINT COMMITTEE OF PUBLIC ACCOUNTS

REPORT 287

AUSTRALIAN TAXATION OFFICE – COMPUTER SYSTEM RE-EQUIPMENT AND REDEVELOPMENT

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Section 8.(1) of the Public Accounts Committee Act 1951 reads as follows:

> Subject to sub-section (2), the duties of the Committee are:
>
> (a) to examine the accounts of the receipts and expenditure of the Commonwealth including the financial statements transmitted to the Auditor-General under sub-section (4) of section 50 of the Audit Act 1901;
>
> (aa) to examine the financial affairs of authorities of the Commonwealth to which this Act applies and of intergovernmental bodies to which this Act applies;
>
> (ab) to examine all reports of the Auditor-General (including reports of the results of efficiency audits) copies of which have been laid before the Houses of the Parliament;
>
> (b) to report to both House of the Parliament, with such comment as it thinks fit, any items or matters in those accounts, statements and reports, or any circumstances connected with them, to which the Committee is of the opinion that the attention of the Parliament should be directed;
>
> (c) to report to both Houses of the Parliament any alteration which the Committee thinks desirable in the form of the public accounts or in the method of keeping them, or in the mode of receipt, control, issue or payment of public moneys; and
>
> (d) to inquire into any question in connexion with the public accounts which is referred to it by either House of the Parliament, and to report to that House upon that question,
>
> and include such other duties as are assigned to the Committee by Joint Standing Orders approved by both Houses of the Parliament.

PREFACE

This report presents the findings of the Committee's review of the proposed computer system re-equipment and redevelopment program of the Australian Taxation Office. The report is the fifth to be tabled by the Committee under the terms of its standing reference (passed in the House of Representatives on 8 May 1985 and the Senate on 10 May 1985) to investigate and report on proposed acquisitions of Automatic Data Processing (ADP) facilities by Commonwealth departments and authorities staffed under the Public Service Act 1922.

On 19 February 1987, the Treasurer wrote to the Chairman of the Committee indicating that Cabinet had given in-principle approval for a major staged computer systems re-equipment and redevelopment project to be undertaken by the Australian Taxation Office. The Treasurer advised the Chairman that Cabinet recognised the importance and urgency of the proposal and had asked the Commissioner of Taxation to make an immediate formal submission to the Committee. The Taxation Office would, in parallel with Committee consideration of the proposal, be developing a draft Request for Tender. The Treasurer requested that the Committee consider the matter in sufficient time to enable the Request for Tender to be issued in June 1987.

While the Committee intended to table a report of its review before the end of the Autumn sittings of Parliament, the announcement of the federal election for 11 July and the concomitant dissolution of the 34th Parliament on 5 June prevented this from happening. On 2 June the Committee advised the Parliament that a report should be presented to the Parliament by the Sixteenth Committee of Public Accounts. The Taxation Office subsequently released its Request for Tender on 17 August 1987.

The Committee regrets the delay that has occurred in the tabling of its report as a result of the federal election. The Committee's desire to table its report as soon as practicable has meant that the report appears largely as it was intended to appear at the time the 11 July federal election was announced. As a result, the report does not accommodate all those events which have occurred subsequent to the dissolution of the 34th Parliament and which ordinarily would have had an impact on the Committee's review.

The Committee supports the Australian Taxation Office in its endeavours to make better use of information technology and is firmly of the view that the Taxation Office has no real alternative but to proceed with its computer systems re-equipment and redevelopment proposal. Nevertheless the Committee has a number of concerns with matters that relate to the proposal and has made recommendations accordingly.

The areas of concern to the Committee include:

- industrial relations;
- the availability of suitable computer personnel;
- management expertise;
- systems design;
- emergency computer sites;
- project estimates;
- project justification and, in particular, cost effectiveness;
- performance indicators; and
- potential for participation by the Australian computer industry.

The Committee notes the Auditor-General has advised the Commissioner of Taxation of a change in emphasis to the audit coverage of the Australian Taxation Office. For a time, attention previously given to specific areas of the Taxation Office will be reduced in favour of reviews concentrating on the implementation of the Taxation Office's information technology initiatives and other initiatives taken by the Office to improve its operations. The Committee notes that the Auditor-General's audits of the implementation of information technology are to begin in 1987-88 and that they may involve designation of some parts of the task as efficiency audits.

The Committee believes the conclusions and recommendations it has made demonstrate a continuing need for thorough scrutiny of ADP acquisition proposals. The Committee notes, however, that the Australian Taxation Office has shown in some aspects of its proposal that it has benefited from the experience of other Commonwealth organisations and the scrutiny given to their ADP acquisition proposals.

The Committee is grateful to the Australian Taxation Office and other Commonwealth agencies for the co-operation and assistance extended to it throughout the review. The Committee thanks the members of the Fifteenth Committee of Public Accounts who served on the Committee's Information Technology Sub-Committee and, in particular, the Chairman of that Sub-Committee, Mr Roger Price, MP. The Committee also thanks its Secretariat and ADP Adviser for the support given to the review.

For and on behalf of the Committee.

R E Tickner, MP
Chairman

M J Talberg
Secretary
Joint Committee of Public Accounts
Parliament House
CANBERRA
19 November 1987

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LIST OF CONCLUSIONS AND RECOMMENDATIONS

The Committee has made a number of conclusions and recommendations which are listed below, cross-reference to their locations in the text. The Committee's analysis in the text should be referred to when considering these conclusions and recommendations.

Industrial Relations

The Committee concludes that:

- the Australian Taxation Office needs to formulate an appropriate fall back strategy as a contingency to the situation where disagreement arises over the content of an agreement between the Australian Taxation Office and the staff associations. (paragraph 2.26)

Computer Systems Officer (CSO) Staffing

The Committee concludes that:

- the current shortage of skilled ADP personnel is a major problem to the Australian Public Service and, in particular, the Australian Taxation Office;
- the Australian Taxation Office will not obtain the numbers of trained computer staff that it has stated it needs;
- the Australian Taxation Office will have to rely very heavily on the contract market to supplement its staff numbers particularly at the CSO2 and CSO3 levels;
- the Australian Taxation Office will have difficulty in building effective teams that hold together over a reasonable period of time; and
- the Australian Taxation Office must continue to consider and implement new ways of obtaining the skilled staff it needs if it is to achieve its redevelopment program. (paragraph 2.55)

The Committee recommends that:

1 the Australian Taxation Office consider recruiting from among its non-computing staff who have the appropriate aptitude, staff who may be trained in programming, systems development and systems support skills with a view to them becoming computer personnel within the Australian Taxation Office. (paragraph 2.56)

Management Expertise

The Committee concludes that:

- the Australian Taxation Office's major re-equipment and redevelopment program is one of the largest projects of its kind to be undertaken in Australia and as such warrants the Australian Taxation Office using the best managers available and to ensure the program's success; and

- the senior management in the Australian Taxation Office's Systems Group do not have sufficient experience to manage a project of this scale in addition to their management responsibilities for ongoing systems on existing equipment. (paragraph 2.76)

The Committee recommends that:

2 the Australian Taxation Office set up a task force dedicated to the re-equipment and redevelopment program and that this task force be managed by highly experienced external resources. (paragraph 2.77)

Systems Design

The Committee concludes that:

- the Australian Taxation Office's approach to system integration is based on establishing arbitrary or traditional boundaries between functions rather than on a careful analysis of the relationships between system components;

- the Australian Taxation Office's design decisions which relate to the transition process from current file structures and application programs to the proposed integrated databases and associated sub-systems have been based on inadequate analysis;

- the Australian Taxation Office has not given adequate consideration to the required migration strategy and associated planning and their relationship to the High Level Integrated Design; and

- the Australian Taxation Office has underestimated the impact of migration in terms of elapsed time for completion and associated costs. (paragraph 3.18)

The Committee recommends that:

3 the Australian Taxation Office review its High Level Integrated Design in the light of the Committee's concerns;

4 the Australian Taxation Office develop a detailed design strategy for migration from the old processing environment to the new systems; and

5 the Australian Taxation Office revise its time and resource estimates for redevelopment and migration accordingly. (paragraph 3.19)

Conversion

The Committee concludes that:

- the Australian Taxation Office's conversion strategy is acceptable given the benefits of totally replacing the existing computing environment with new hardware and software as soon as possible; (paragraph 3.32) and

- the online inquiry facilities presently available within the Australian Taxation Office are unsatisfactory. (paragraph 3.34)

The Committee recommends that:

6 the Australian Taxation Office continue to pursue the provision of a satisfactory online inquiry facility for the use of Australian Taxation Office staff as a matter of priority. (paragraph 3.36)

Two-Site Environment

The Committee concludes that:

- the Australian Taxation Office has legitimate grounds for continuing to maintain its mainframe computer facilities using a two-site environment; (paragraph 3.46) and

- there is a requirement for all Commonwealth departments and statutory authorities to have access to suitable emergency computer sites. (paragraph 3.51)

The Committee recommends that:

7 steps be taken to assess the overall emergency computer site needs of Commonwealth departments and statutory authorities; and

8 where needed, steps be taken to set aside and/or construct suitable computer sites which departments and/or authorities may use on an emergency basis. (paragraph 3.52)

Project Estimates

The Committee concludes that:

- the elapsed period for implementation of the new systems is likely to be much longer than is currently estimated by the Australian Taxation Office. (paragraph 3.61)

The Committee recommends that:

9 the Australian Taxation Office re-assess the sequence and rate of implementation of its re-equipment and redevelopment program, and set realistic and achievable goals which are not so totally dependent on obtaining scarce resources. (paragraph 3.62)

Project Justification and Cost Effectiveness

The Committee concludes that:

- the Australian Taxation Office's current cost effectiveness analysis, based as it is on projected staff savings, provides a particularly unreliable tool for justifying the need for the proposed computer systems re-equipment and redevelopment program. (paragraph 4.30)

The Committee recommends that:

10 the Australian Taxation Office re-evaluate the justification for its proposal and identify the proposal's potential benefits in terms of the objectives and performance targets defined in the Australian Taxation Office's corporate plan. (paragraph 4.31)

Performance Indicators

The Committee concludes that:

- there is a need for the Australian Taxation Office to develop prior to the commencement of its re-equipment and redevelopment program appropriate performance indicators which will measure the benefits of the program and the resulting systems. (paragraphs 4.46)

The Committee recommends that:

11 the Australian Taxation Office and the Department of Finance adopt a co-ordinated and timely approach to the specification of appropriate performance indicators for the Australian Taxation Office's re-equipment and redevelopment program and resulting systems. (paragraph 4.47)

Australian Industry Participation

The Committee concludes that:

- there is a need for the Australian Taxation Office to carry some additional costs in order to encourage further the local development of Australian information technology capability. This applies equally to the hardware, applications support and management aspects of the project. (paragraph 5.18)

The Committee recommends that:

12 in order to comply with Government policy, the Australian Taxation Office must deliberately and actively structure its Request for Tender to favour Australian industry participation and the extra costs it may incur should be quantified so that the Australian Taxation Office is not penalised for its active support. (paragraph 5.19)

Australia Card

The Committee concludes that:

- the development and use of a high integrity numbering system could give the Australian Taxation Office the potential to maximise the improvements in its operations that are anticipated from the Office's computer systems re-equipment and redevelopment proposal. (paragraph 5.39)

CHAPTER 1

INTRODUCTION

- **The Committee's Review**
- **The Australian Taxation Office**
- **The Re-equipment and Redevelopment Proposal**

The Committee's Review

1.1 The proposal of the Australian Taxation Office (ATO) to re-equip and redevelop its existing computer environment is the fifth proposal to be reviewed by the Committee under its standing reference to investigate and report on proposed acquisitions of automatic data processing (ADP) facilities by Commonwealth departments and authorities. The terms of the standing reference provide that major proposals be referred by the Minister responsible for the proponent department or authority to the Committee for its examination and report.[1]

1.2 On 18 February 1987, the Treasurer wrote to the Chairman of the Committee indicating that Cabinet had given in-principle approval for a major staged computer systems re-equipment and redevelopment project by the ATO. The Treasurer advised the Chairman that Cabinet recognised the importance and urgency of the proposal and had asked the Commissioner of Taxation to make an immediate formal submission to the Committee. The ATO would, in parallel with Committee consideration of the proposal, be developing a draft Request for Tender (RFT). The Treasurer requested that the Committee consider the matter in sufficient time to enable the RFT to be issued in June 1987.

1.3 On 27 February 1987, the Commissioner of Taxation provided the Committee with the ATO's submission outlining its proposed computer system re-equipment and redevelopment program. The submission was prepared in accordance with the Committee's revised draft guidelines for submissions which require a coherent and self-sufficient description of, and justification for, the proposal without the need for the Committee to request and refer to additional documentation.

1.4 The submission presented to the Committee was, with the agreement of Cabinet, at a level of detail equal to that presented to Cabinet. While some supporting documentation was provided with the submission the Committee requested that additional documentation be supplied. Additional supporting documentation was provided to the Committee on 9 March 1987.

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1. Australia: House of Representatives, Debates 1985, No. 7, p. 1980; Senate, Debates 1985, No. 7, p. 1719.

1.5 After an initial review of the ATO submission the Committee held informal discussions with the ATO so that the Committee might come to a fuller understanding of what the ATO sought to achieve under its proposal. Subsequently the Committee sought further information from the ATO on several matters. A submission was provided to the Committee on 13 April 1987.

1.6 The Committee undertook inspections of two ATO branch offices so that it might properly understand the needs of the ATO. The Committee visited the Parramatta and Melbourne branch offices on 13 and 22 April, respectively.

1.7 During the Committee's review of the ATO's proposed program, submissions were sought and received from:

- the Department of Finance;
- the Public Service Board;
- the Department of Industry, Technology and Commerce;
- the Department of Local Government and Administrative Services;
- the Auditor-General;
- the Administrative and Clerical Officers' Association; and
- the Federated Clerks Union.

1.8 A public hearing was held on 30 April 1987 at which the Committee took evidence from the Commissioner of Taxation and other senior officers of the ATO. Officers from the Public Service Board; the Australian Audit Office; and the Departments of Finance; Industry, Technology and Commerce; and Local Government and Administrative Services also appeared before the Committee.

1.9 On 25 May 1987 the Committee was briefed by Dr R B Cullen and Mr D J Cortese, members of a review team which conducted a Program Management Performance Review of the ATO during the earlier half of 1987.

1.10 The Committee had intended to table a report of its examination of the ATO's proposal before the end of the Autumn sittings of Parliament. However, the announcement of the federal election for 11 July and the concomitant dissolution of Parliament on 5 June prevented this from happening. On 2 June 1987 the Committee advised the Parliament that a report should be presented to the Parliament by the Sixteenth Committee of Public Accounts.[2] (See Appendix A).

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2. House of Representatives, Debates 1987, No. 10, p. 3790.

1.11 The ATO released its Request for Tender on 17 August 1987.

The Australian Taxation Office

Function and Organisation

1.12 Following the introduction of uniform national taxation legislation in 1942 a number of Federal and State tax functions were amalgamated into the Taxation Branch of the Commonwealth Department of the Treasury. This body became the Commonwealth Taxation Office in 1969 and was renamed the Australian Taxation Office (ATO) in 1973.

1.13 The ATO's function is to gather revenue on behalf of the Government through:

- administration of the primary taxation laws of the Commonwealth;
- service to taxpayers; and
- provision of advice and assistance to Government on the development of taxation policies and resulting changes in the law.[3]

1.14 The ATO collects some 80% of Commonwealth revenue.[4] It collects all the main taxes imposed by the Parliament except customs and excise duties and departure tax. The taxes and charges at present administered by the Commissioner of Taxation are:

- income tax;
- medicare levy;
- recoupment tax;
- sales tax;
- fringe benefits tax;
- bank account debits tax;
- pay-roll tax (Australian Capital Territory);
- Australian Capital Territory stamp duty and taxes;
- wool tax; and
- tobacco charge.[5]

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3. Australian Taxation Office, Corporate Plan 1986-87, p. 9.
4. Minutes of Evidence, p. 5.
5. Commissioner of Taxation, Annual Report 1985-86, p. 1.

1.15 While the ATO is part of the Department of the Treasury it does not come under its administrative control and is headed by the Commissioner of Taxation, who is accorded the status of a departmental head by the Public Service Act. Responsibility for the administration of the various taxation Acts is vested in the Commissioner who, together with the three Second Commissioners, is generally appointed for a seven year term under the Taxation Administration Act.[6]

1.16 The ATO has a National Office in Canberra and branch and regional offices throughout Australia. The National Office directs the general operations and administration of the ATO and co-ordinates the activities of branch offices. Branch offices provide inquiry and other services, ensure taxpayers provide the information required to determine the correct amount of tax, assess the amount of tax payable, collect tax, ensure compliance with taxation laws, and investigate taxpayers' affairs. Most of the day to day work of the ATO is done in the branch offices. Regional offices provide inquiry services to taxpayers or their representatives in relation to returns, assessments and procedural matters under all taxation laws, grant within authorised limits extensions of time for payment of taxes, lodgment of returns and remission of additional tax, and provide receipting services for payments made by mail or at the counter for all taxes.[7]

1.17 The structure of the ATO was re-organised at both national and branch office level in 1984 and a program of decentralisation from traditional central business district locations, begun in 1975, is in progress.[8]

The Need for Change

1.18 The ATO's performance of its essential function, gathering revenue for the Government, has been the subject of concentrated scrutiny in recent years. Efficiency audits undertaken by the Australian Audit Office have focused on particular areas of the ATO's operations and culminated in a review by the House of Representatives Standing Committee on Expenditure which reported to Parliament in September 1986.[9] In addition the ATO has increasingly subjected itself to internal scrutiny. Successive annual reports of the Commissioner have detailed the stages of corporate planning being undertaken to overcome acknowledged problems. In a Government response to the Expenditure Committee's report, presented to the House of Representatives on 26 February 1987 by the Minister Assisting the Treasurer, the Treasurer announced that a wide ranging independent review had been initiated.[10] The report of the

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6. Commonwealth Government Directory, Volume 2 FOI statements, Treasurer's portfolio, April 1985, p. 24.
7. Commissioner of Taxation, Annual Report 1985-86, pp. 7-12.
8. Id., Annual Report 1983-84, p. 10.
9. House of Representatives Standing Committee on Expenditure, A Taxing Problem - Review of 5 efficiency audit reports into the Australian Taxation Office, Parliamentary Paper No. 283 of 1986.
10. House of Representatives, Debates 1987, No. 2, pp. 819-23.

Program Management Performance Review was tabled in Parliament on 23 September 1987.[11]

1.19 Several factors have affected the ATO's performance of its function in recent years; they include:

- increased workloads;
- diminished taxpayer compliance;
- burgeoning legislation;
- strained resources; and
- fundamental reforms both within the ATO and the Australian Public Service.

1.20 In terms of volume, most of the ATO's workload comprises the assessment and collection of income tax. Over the past decade there has been a steady increase, of between two and three percent per annum, in the number of income tax returns lodged.[12] As well as keeping pace with similar increases in other areas of assessment and collection, the ATO has had to divert resources to clearing the backlog of unpaid taxes. The increasing incidence of assessments being challenged through the various appeals mechanisms adds to the load.

1.21 Major activity in tax avoidance and evasion spanned the 1970s and early 1980s. In his annual report for 1981-82, the Commissioner of Taxation referred to the serious effects that the need to investigate tax avoidance activities had upon staff resources and collection of tax. He claimed that extensive administrative action had been taken and much had been done by way of remedial legislation; 'a glimmer of light at the end of the tunnel'[13] seemed discernible. However tax evasion and fraud seemed to be increasing.[14]

1.22 In the annual report for 1982-83, the Commissioner noted that the trend towards a reduction in the incidence of tax avoidance had continued, with very little activity taking place in the implementation of blatant, artificial and contrived tax avoidance schemes.[15] In ensuing years further progress was made against tax avoidance and evasion but problems still existed in measuring the scale of noncompliance.

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11. Australian Taxation Office, A Taxing Solution - Report of Program Management Performance Review, May 1987.
12. Commissioner of Taxation, Annual Report 1985-86, p. 75.
13. Id., Annual Report 1981-82, p. 11.
14. Ibid., p. 21.
15. Id., Annual Report 1982-83, p. 8.

1.23 Largely as a result of attempts to improve compliance, taxation legislation has become increasingly voluminous and complex. Existing legislation is amended and extended on a regular basis. At the beginning of 1985-86 the Income Tax Assessment Act - which comprised 81 pages in 1936 - had grown to 1475 pages. Tax reform and other tax legislation amounted to over 750 pages in 1985-86.[16]

1.24 Whereas the growth within the Australian Public Service in the period June 1975 to June 1984 was 6.8%, ATO staffing levels rose by 25%. However this was attributed by the current Commissioner to the requirements of new functions - such as, for example, tax recoupment and Freedom of Information - and that in fact staffing increases within traditional functions had not kept pace with workloads; he believed the organisation to be understaffed.[17]

1.25 In his 1985-86 annual report, the Commissioner stated that recruitment of qualified and suitably experienced staff was proving to be difficult.[18] Specialists in accounting, law and ADP systems were in greatest demand.

1.26 The ATO has identified two problem areas arising from rapid expansion in recent years. The fact that many young officers now hold relatively senior positions leads to there being a lack of depth of knowledge and experience in some areas. Further, these officers face longer periods at their existing levels than would otherwise have been the case and this may be a source of frustration.[19] In addition, morale problems arising from the whole area of the ATO's performance and perceived performance are referred to in the Commissioner's annual reports, the Auditor-General's efficiency audits and the report of the Expenditure Committee.

1.27 The ATO has acknowledged that its automatic data processing 'systems are ageing and obsolete to the extent that without adequate replacement programs [its] ability to continue to increase [its] efficiency in the long term is jeopardised'.[20] Management information systems also are recognised as being inadequate.

1.28 On top of the problems arising from increased workloads, diminished taxpayer compliance, burgeoning legislation and strained resources, the ATO has had to contend with fundamental reforms within both the ATO and the Australian Public Service.

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16. Id., **Annual Report 1985-86**, p. 2.
17. House of Representatives Standing Committee on Expenditure, **op cit.**, p. 22.
18. Commissioner of Taxation, **Annual Report 1985-86**, p. 27.
19. Australian Taxation Office, **Corporate Plan 1986-87**, p. 13.
20. Ibid., p. 14.

1.29 In the House of Representatives on 19 September 1985 the Treasurer made a ministerial statement on the reform of the Australian taxation system.[21] The initiatives announced created additional overheads for the ATO. For example, a new branch was created to carry out development and implementation of administrative systems for four of the major reforms:

- fringe benefits tax;
- national identification system;
- company dividend tax imputation; and
- quarterly provisional tax.[22]

1.30 Like all other agencies and departments staffed under the Public Service Act 1922, the ATO is subject to the Government's measures to improve efficiency and effectiveness. Implementation of these measures, such as the alteration of classification structures, Equal Employment Opportunity, Industrial Democracy, Occupational Health and Safety, and the Financial Management Improvement Program, have added to the ATO's workload.

1.31 The preceding paragraphs have outlined, to an extent, the ATO's perceptions of its performance and have adduced their arguments in mitigation of what has been severe criticism from without the organisation. In the realm of the parliamentary committee, it is the House of Representatives Standing Committee on Expenditure which has been the sternest critic.

1.32 The Expenditure Committee reported that it had found serious shortcomings within certain ATO philosophies and operations,[23] expressed concern that substantial taxation revenue losses have been and will continue to be sustained while deficiencies go untreated[24] and concluded that substantial operational improvements were necessary.[25]

1.33 The Expenditure Committee attributed the decline in the ATO's operational efficiency to its attempts to cope with the sudden upsurge in noncompliance. Hitherto the ATO's role had been 'largely that of a receiver as tax revenue flowed in with only minimal collection effort'.[26] Dealing with taxation evasion schemes became a preoccupation to the detriment of other operations. In particular, little attention was being paid to improvements of the traditional collection systems and when these became stretched as work volumes increased, the ATO responded by increasing staff numbers. The Committee argued that it was this lack of foresight, its reluctance to change from tried and true

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21. **Reform of the Australian taxation system**, Statement by the Treasurer, the Hon. Paul Keating, MP, September 1985.
22. Commissioner of Taxation, **Annual Report 1985-86**, p. 37.
23. House of Representatives Standing Committee on Expenditure, **op cit.**, p. 15.
24. **Ibid.**
25. **Ibid.**, p. 50.
26. **Ibid.**, p. 47.

work practices, that was the genesis of the ATO's current operational deficiencies.

1.34 Central to the Committee's recommendations was that the ATO should take full advantage of technological advances, particularly in the area of automatic data processing. A significant finding of the Committee was that the ATO had consistently underspent on computer acquisition (the Committee's report provides figures which demonstrate that over the last 10 years only 44.4% of the cumulative appropriation for computing plant and equipment was spent).[27] Several explanations for its underspending were advanced by the ATO, including delays in supply of equipment, a universal shortage of ADP staff and poor management and direction in the ADP area.

Current ADP environment

1.35 In hardware terms, the current ATO computer systems environment exists on three levels:

- the central mainframes;
- the branch office minicomputers and microcomputers; and
- the communications network which connects them.

1.36 The ATO operates four Cyber mainframes: a 730 dual processor and an 850 single processor each on two sites in Parkes and Deakin, ACT. Branch offices use Prime and Honeywell minicomputers and Time Office Computers (TOC) microcomputers. The TOC microcomputers are connected within each branch office to an Ethernet local area network (LAN). Connection between the branch offices and the central mainframes is effected through Tax-Net, an X.25 packet-switched network. Schematics of the network and the hardware configuration of a representative branch office, as well as tables showing hardware and software inventories and current terminal usage, are set out at Appendix B.

1.37 The ATO claims that its current ADP environment has been in service for between 10 and 15 years. Existing systems operating within this environment are characterised by:

- high volumes of paper records;
- limited data held within each system, necessitating large scale movement of paper records between systems;
- batch processing, which causes reverse work flows at point of data entry, duplication of data recording and time delays in capturing and reporting of data;

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27. Ibid., pp. 18-9.

- limited on-line inquiry facilities; and
- poor provision of management information.

1.38 Apart from these operational inadequacies, existing systems, because of their age and complications arising from the in-house development of applications, are increasingly inefficient in accepting the following support overheads:

- maintenance;
- applications development; and
- modification required by legislative and policy change.

1.39 A detailed assessment by the ATO of its current ADP environment appears at Appendix B.

The Re-equipment and Redevelopment Proposal

1.40 The ATO's acquisition proposal was a product of successive levels of analysis, beginning with the evolution of a corporate plan. The ATO's corporate plan starts from its mission statement, that is, the explicit declaration of the organisation's purpose: the ATO exists to gather revenue on behalf of the Government. Having articulated its purpose the ATO then identifies strategic initiatives and the objectives by the attainment of which success can be measured. At the operational level, success is gauged against performance targets.

1.41 The ATO has pointed out that while the transition between developing a strategy and implementing steps at the operational level is logically sequential, in chronological terms progress at each level may take place simultaneously. The Committee recognises the need to maintain consistency between the strategic planning and the project management levels and indeed this is explicit in its requirement that submissions to the Committee in respect of acquisition proposals contain 'a clear statement of the justification for the proposal with reference to the corporate and ADP strategic objectives which the proposal will meet'.[28] The Committee has been at pains throughout its examination to test this justification.

1.42 It can be seen from the fact that the ATO corporate planning process has been in operation since 1985 that the acquisition proposal submitted to the Committee is not merely a response to the Expenditure Committee's recommendations referred to earlier. Rather, the ATO has considered for some time the new environment it requires and is now trying to acquire it.

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28. JPCPA, Guidelines for submissions in support of proposed acquisitions of ADP facilities.

1.43 The ATO's corporate plan identifies the efficient use of resources as a strategic initiative, subordinate to which is a set of national objectives encompassing the general area of technology. Foremost among these objectives is the acquisition of new mainframe equipment.

1.44 The ATO's proposal comprises two components: redevelopment and re-equipment. In a staged process, it is planned to convert existing systems to run on new hardware while simultaneously developing new systems to run on new hardware. The proposal allows for either the complete replacement of the existing environment or the integration of parts of it into a new environment.[29]

1.45 Over a twelve year period the proposal is estimated to cost $693 million. This comprises:

- plant and equipment ($186 million);
- development costs ($122 million); and
- ongoing costs ($385 million).

1.46 Table 1.1, abstracted from the ATO's original submission to the Committee, indicates the proposed implementation timetable:[30]

TABLE 1.1 Proposed Implementation Timetable for ATO Re-equipment and Redevelopment Proposal

TASK/EVENT	COMMENCEMENT DATE	COMPLETION DATE
Prepare host processors sites	1986/87	1987/88
Systems conversion	1/7/88	30/7/90
Hire bureau facilities	1/1/89	31/3/89
Install first processor in first site	1/1/89	31/3/89
Operator and systems programmer training	1/1/89	31/3/89
Applications programmer training	1/1/89	31/12/89
New mainframe environment operational	1/4/89	
Workstation installation	1/4/89	31/3/93
Systems redevelopment start of systems implementation phase	1/1/89	31/12/91
Access to mainframe from entire ATO	1/7/89	
Install second site mainframe processor	1/1/90	31/3/90
First redeveloped application in new environment	1/7/89	
Install second processor first site	1/1/91	31/3/91

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29. Minutes of Evidence, p. 11.
30. Ibid., p. 60.

1.47 Notwithstanding that the ATO's original submission to the Committee was 'at a level of detail equal to that presented to' Cabinet,[31] the Committee found that the document did not adequately describe the proposal, and was in many respects vague. While ends, rather than means, were the focus of the submission, there were intimations in some of its attachments that a level of planning in detail had been reached which was not explicated in the main body of the document. However, documentation provided subsequently to the Committee shed further light on the proposal. The Information Systems Plan, identified by the ATO as 'documenting the highest level of tactical plans to implement technology requirements for the ATO',[32] is an essential tool to evaluating the proposal.

1.48 An extract from the Information Systems Plan, setting out an overview of the ADP environment which the ATO proposes, appears at Appendix C.

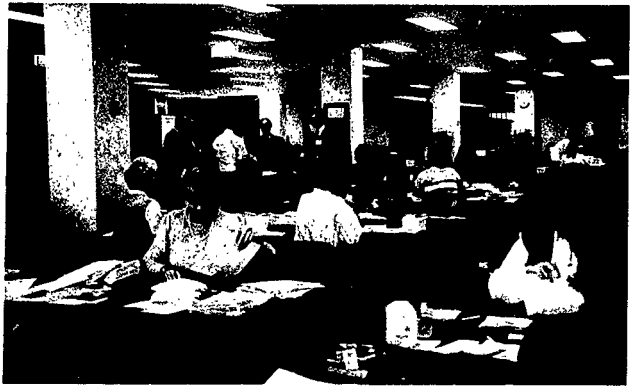

Figure 1.1 Inspection of Parramatta Branch Office, Australian Taxation Office, 13 April 1987.

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31. Ibid., p. 5.
32. Australian Taxation Office, Information Systems Plan, February 1987, Foreword.

CHAPTER 2

PERSONNEL ISSUES

- Industrial Relations
- Computer Systems Officer (CSO) Staffing
- Management Expertise

Industrial Relations

2.1 The Committee was concerned that industrial relations difficulties experienced with the implementation of other large ADP projects should not be repeated with the ATO's re-equipment and redevelopment project. Moreover, the Committee believed the ATO should be fully prepared for contingencies that may arise in the industrial relations area.

2.2 The Committee sought advice from the ATO as to its industrial relations experience in the introduction of information technology and the steps being taken by the ATO in relation to its current project.

2.3 The ATO advised the Committee that it had a long history of consultation with staff and staff associations on information technology projects. The ATO cited its Technological Change Committee, established in the mid 1970s, as a forum for direct consultation and noted that the Committee had been important in fostering good industrial relations.[1]

2.4 The ATO acknowledged that the consultation process had not always run as smoothly or been as timely as all the parties may have wished but the ATO's industrial relations experience had generally been low key.[2]

2.5 Two related exceptions were identified by the ATO, namely the Data Processing Operators arbitration case in 1983 and the Direct Data Entry re-equipment program in 1985. The first of these saw considerable industrial action over occupational health and safety issues; the second involved the application of bans and limitations by keyboard staff as a result of the failure by a supplier to meet timetables for the delivery of new equipment.[3]

2.6 The ATO's original submission to the Committee noted that staff associations had been aware of the ATO's general plans for systems redevelopment since the issuing of the November 1986 ATO ADP Strategic Plan and that the Committee on Technological Change regularly discussed the ATO's ongoing and proposed computer systems.[4]

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1. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.
2. Ibid.
3. Ibid.
4. Minutes of Evidence, p. 73.

2.7 The Executive Summary of the ATO's original submission to the Committee stated:

> The ATO's plans for computer systems work are regularly discussed with Unions in the context of its Committee on Technological Change and the Unions have recently examined the proposal. Two of the three relevant Unions have indicated their in-principle support for it, although this support is expressed as conditional on reaching agreement on matters which have major implications for their members. The third Union has indicated its desire for a technology upgrade, but seeks a series of undertakings and guarantees before offering formal in-principle support. Consultation with the Unions will continue.[5]

2.8 The three staff associations covering ATO staff included:

- the Federated Clerks Union of Australia (Taxation Officers Branch) (FCU/TOB);
- the Administrative and Clerical Officers' Association (ACOA); and
- the Australian Public Service Association (APSA).

2.9 The views of these associations on the ATO proposal were included in the ATO's submission to the Committee and in individual submissions to the Committee.

2.10 The FCU indicated its support for the updating of the ATO's antiquated equipment and noted that the update would improve occupational health and safety considerations and remove the frustrations created by the current systems. However, the FCU stated that it would give its in-principle support for the ATO's proposals with two provisions, viz.:

> (1) we would expect that all introduction of technologies would take place on the basis of adequate consultation with particular emphasis on job design, staffing levels and job security; and
>
> (2) the restructuring of grades within the ATO along the lines of the FCU (TOB) Restructuring Model put forward to the PSB [Public Service Board]. The basis of the ATO System Re-Development proposals significantly cuts across work descriptions currently in operation under the existing Classification System. The required flexibility in work operations therefore will require a new system of classifications. The FCU (TOB) Model will provide such flexibility of operation.[6]

2.11 The ACOA advised the ATO that it could not provide in-principle support for the ATO's proposals without specific undertakings by the ATO because:

> ... to give in principle approval to the system requires ATO to give us guarantees in regard to job protection, enhanced job design etc. and be prepared to enter a tech change agreement in relation to the new system along the lines of that submitted by ACOA to Tax which is similar to agreements reached with DSS [Department of Social Security] and the CES [Commonwealth Employment Service] in relation to their major technological systems.[7]

2.12 All three staff associations indicated that they saw a need for a negotiated agreement on technological change matters being reached between themselves and the ATO.[8] At the time of the Committee's inquiry no such agreement had been reached.

2.13 The Committee believed the submissions from the ACOA and FCU (TOB) demonstrated a good understanding both of the personal needs of their members in their working environment and the important role that information technology can play in improving that environment and enhancing productivity and services. Furthermore, the Committee saw this enlightened approach as a clear encouragement to the ATO in its efforts to reach agreement on matters such as job design. The co-operative approach among all parties reinforces the opportunity for really good design, with scope for considerable change in work flows, integration of functions, and job satisfaction. The Committee found the current pilot system to support recovery in the Melbourne Branch to be a striking illustration of the effects of good design.

2.14 The ATO advised the Committee that:

> there is an increasing desire by Unions to negotiate agreements under Section 28 of the Conciliation and Arbitration Act with individual departments and authorities relating to the introduction of technological change.[9]

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5. Ibid., p. 8.

6. Ibid., p. 73.
7. Ibid., p. 74.
8. Minutes of Evidence, pp. 63-5 and submissions from ACOA and FCU (TOB); JPCPA File 1986/4 Part A/1/3.
9. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.

2.15 The ATO believed its redevelopment program would lead to pressure from staff associations for a Section 28 agreement and stated that:

> While the ATO rejects the proposal for an agreement formally registered under Section 28, there would be benefits in having a document which outlines agreed practices and procedures. Steps have been taken to consult with Unions on such a document and it is hoped that agreement will be reached this year [1987].
>
> Existing consultative arrangements have meant that Unions have been fully consulted, if not directly involved, on the preliminary issues that have led to the development of our plans for re-development and re-equipment.[10]

2.16 The ATO later reiterated its view that there was not a need for a formal Section 28 agreement between itself and the staff associations. The ATO noted:

> The Government has been seeking to streamline and de-regulate Public Service administration and the ATO sees the introduction of formal agreements as inconsistent with the course it has been following. There is also concern that these agreements could be contrary to existing awards or inflexible to a point where desired future directions may be compromised.
>
> For the ATO part we are seeking to reach agreement on all issues which will enable the efficient and speedy progression of technological change whilst at the same time providing for a very high level of consultation with unions and staff on all matters relevant to them.
>
> The ATO has been working closely with the unions on a wide range of matters in recent years and as time has gone on the level of trust between the parties appears to have increased quite significantly. At the present time there is active union involvement in several projects including implementation of self-assessment, a review of office career structures and planning the implementation of recommendations arising from a review of our recovery area.[11]

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10. Ibid.
11. Letter to JPCPA from Commissioner of Taxation of 6 May 1987; JPCPA File 1986/4 Part A/1/3.

2.17 At the time of the Committee's inquiry the ATO had not contemplated an agreement not being reached. The ATO informed the Committee that it was prepared to enter an agreement and that the staff associations were even urging it to do this. The ATO noted:

> In the unlikely event that a point could not be agreed and this would cause any delay to the project it is likely that we would be in a dispute situation and dispute resolution processes would be followed. However, this is seen to be an unlikely situation.[12]

2.18 The ATO also argued that significant progress had been made towards re-equipment without a formal agreement.

2.19 However, the ATO also indicated it was not without experience in negotiating agreements with staff associations and cited an agreement reached with the ACOA and the FCU on the introduction of self-assessment.

2.20 The Committee noted that while the ATO believed some form of agreement would be achieved it had not formulated a fall back strategy for the situation where there was major disagreement on the contents of an agreement. The ATO indicated to the Committee that should such a situation arise it would be dealt with on a case by case basis.

2.21 The ATO would consider the ramifications of any disagreement and then act quickly to ensure the disagreement did not affect the re-equipment program.

2.22 The ATO identified a number of areas where different emphasis on detail might require further consultation. These included:

- Union involvement in RFT [Request for Tender] documentation and evaluation;
- OHS [Occupational health and safety] issues - particularly ergonomic standards for equipment and furniture;
- Use of re-equipment as a vehicle for job redesign to improve the quality of working life for staff on a broad scale;
- Staffing of redevelopment and conversion team - particularly use of contract labour; and
- Retraining and re-deployment.[13]

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12. Ibid.
13. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.

Conclusion

2.23 The Committee notes that both the ATO and the staff associations representing ATO officers are unified in their views on the need for the ATO to re-equip its computing equipment.

2.24 The Committee believes that continuing consultation is crucial to the success of the entire re-equipment program and notes that the Committee on Technological Change has been useful as a forum for consultation and information dissemination.

2.25 The Committee believes the ATO should continue to give careful consideration toward the achievement of an agreement between itself and the staff associations and to the ramifications of this not occurring. The Committee is concerned that the ATO has not developed a fall back strategy in the event of disagreement on the contents of an agreement between the ATO and the staff associations. The Committee believes that this lack of preparedness may lead the ATO to sacrifice its negotiating position and thus be forced to make costly and unforeseen concessions.

2.26 *The Committee therefore concludes that:*

- the Australian Taxation Office needs to formulate an appropriate fall back strategy as a contingency to the situation where disagreement arises over the content of an agreement between the Australian Taxation Office and the staff associations.

Computer Systems Officer (CSO) Staffing

2.27 The Committee was particularly concerned that the ATO may not be able to recruit and retain enough CSOs (computer systems officers) to complete its re-equipment and redevelopment program on schedule and to budget.

2.28 The Committee was aware that a world-wide shortage of computer personnel existed. The Committee had seen the seriousness of the problem demonstrated during its various ADP inquiries and had found that major projects such as that proposed by the ATO could be easily jeopardised through a lack of suitably qualified and experienced computer personnel. The Committee was aware that despite an aggressive recruitment campaign public service departments and authorities had been unable to meet recruitment targets for CSOs in 1986 and furthermore there was a growing problem in retaining CSOs within these organisations.

2.29 In its original submission to the Committee, the ATO indicated that it would use both ATO staff and contract staff to carry out the re-equipment and redevelopment program. The ATO stated:

> Staff required for the project peaks at an average of 319 in 1990-91 ... and assuming ongoing usage of 35 contractors, the net additional systems staff required peaks at 168 in 1989-90 ...[14]

2.30 The ATO added:

> While a figure of 35 contractors has been used for consistency with the 1986-87 ISP [Information Systems Plan], it is expected that a larger number will, in practice, be sought for the re-development project ...[15]

2.31 The ATO stated that staff would be obtained through a program of recruiting from tertiary campuses and from an advertising campaign which would follow media coverage of the project. The ATO noted that its campus recruitment program had been particularly successful in 1986-87. However, the ATO's submission did acknowledge that the Public Service Board had warned it of possible difficulties in obtaining sufficient computing staff. The ATO stated:

> This risk is recognised, but a major objective of the project is to establish an environment in which system support at the level currently provided can be carried out with less staff. The ATO will be taking every avenue open to it to recruit and retain suitable staff. If this is not as successful as expected, then the result would be a longer implementation timetable than currently planned. It is not considered acceptable to change the scope of the project because of this possible difficulty.[16]

2.32 The Committee sought details from the ATO as to the success of its recruitment programs and was advised that during 1986 16 tertiary campuses had been visited and that 39 CSOIs had been recruited as a result. The ATO indicated its intention to recruit 60 CSOIs in 1987 by conducting a recruitment program at 18 tertiary campuses.[17]

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14. **Minutes of Evidence**, p. 17.
15. **Ibid.**
16. **Ibid.**, p. 18.
17. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; *JPCPA File 1986/4 Part A/1/2.*

2.33 The ATO also provided details on a general advertising campaign for CSOs. Responses to the campaign as at 3 April 1987 were:[18]

	CSO2	CSO3	CSO4	CSO5
From within ATO	2	4	4	4
From elsewhere in APS	10	5	15	14
From outside APS	7	4	9	4
	19	13	28	22

Positions to be filled:

	CSO2	CSO3	CSO4	CSO5
Current vacancies	14	2	3	2
1987/88 ASL Increases	0	16	15	4
	14	18	18	6

2.34 The Committee sought details from the ATO as to how it would retain its computer personnel. The ATO stated that it intended to attract and retain computer personnel by 'establishing the most effective and efficient information system development environment in the Australian Public Service'.[19]

2.35 The ATO stated that the 'environment' would include:

(a) a people oriented management style by Senior Systems Group management;

(b) challenging rewarding work;

(c) clearly defined management and client objectives;

(d) the establishment of needs based individual education program for every member of the Systems Group;

(e) management commitment to and adequate resources for staff development and training;

(f) modern systems development workbench with appropriate software tools and hardware support;

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18. Ibid.
19. Ibid.

(g) modern system and database software with excellent response times from development facilities; and

(h) excellent accommodation and workstation furniture.[20]

2.36 The Committee was somewhat sceptical about the degree to which the ATO's environment would attract computer personnel and cause them to stay with the organisation. At the public hearing held on 30 April 1987 the Committee therefore sought details as to what particular aspects of the ATO environment would identify it as the most effective and efficient in the Australian Public Service. However, in responding the ATO did not refer to aspects of the environment but indicated that its approach was '[to make] people aware of the advantages that would accrue from coming into the Tax Office'.[21] Staff would be recruited from tertiary campuses and built up with tax experience.

2.37 The Committee then questioned the ATO as to what new insights it would bring to the recruitment of CSOs that had not been addressed by other departments. The ATO stated:

> ... the efforts that we are expending to recruit base grade staff and to make people aware of the types of changes that are going on inside the systems area of the department will make people aware that the Tax Office is a place where it would be worth while to work. To some extent people have been reluctant to come to our organisation because of the computing environment in which our systems development work takes place, but we expect that that will turn around as people become aware of the changes that we plan to put in place and we have made so far .... the success ... achieved in the course of the last two years in increasing our recruitment of staff across the range of CSOs indicates our success in this area.[22]

2.38 The ATO was unable to indicate how its initiatives might solve the retention problem and noted that while there were things the ATO could do and was doing it would also have to look to the Public Service Board for assistance.

2.39 During the inquiry the Committee sought comment from other organisations on the CSO staffing problem facing the Public Service.

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20. Ibid.
21. Minutes of Evidence, pp. 117-8.
22. Ibid., p. 118.

2.40 The Public Service Board confirmed the gravity of the problem and advised the Committee of a number of initiatives. First, the Board had established a task force which was looking at increasing the supply of computer personnel and improving retention rates. The Board also advised that it was communicating with the Tertiary Education Commission and was working with some other organisations, such as the Australian National University, towards the establishment of new courses.

2.41 The Board stated that improving retention of computer personnel was a difficult issue. There were many factors involved and there was little hard evidence available. However, the Board noted:

> Our evidence seems to suggest that one of the major reasons why people leave [the Public Service] is the pay structure after a certain level ... the private sector pays more highly and ... contractors and consultants are paid much more highly.[23]

2.42 The Board indicated that besides the pay issue the CSO career salary structure within the Public Service was under review. There was a view amongst CSOs that it would be preferable to have a two-stream type structure where those who preferred not to manage could concentrate in technical areas.[24] It was believed that allowing some CSOs to become technical specialists would encourage them to stay in the Public Service.

2.43 Both the Public Service Board and the Department of Finance expressed concerns to the Committee about the impact the CSO staffing problem would have on the ATO's redevelopment project and in turn on the computer projects of other departments.[25]

2.44 The Board commented:

> ... the increased demand for computing staff will intensify competition between departments for these staff and may well reduce numbers in some organisations. Therefore, the timing, development and costing of systems may need to take account of the availability of skilled staff resources nationally.[26]

2.45 The Department of Finance stated:

> Of considerable concern to us is the recruitment of the extra staff required for the project. Already the recruitment of computing professionals into the Public Service is difficult and the pool of highly skilled technical programmers, in particular, is severely limited. The Taxation Office's present recruitment campaign for 200 computer staff will have a significant impact on the capacity of all Government agencies in Canberra to recruit staff and probably lead to further Public Service staff resignations and their subsequent re-engagement as contractors, at a significant cost premium to the Service as a whole.[27]

2.46 The Department of Industry, Technology and Commerce commented that the shortage of CSOs was likely to get progressively worse. The Department noted that increasing the output of educational institutions was one way of alleviating the problem but it would take five to six years to see the first effects of such action. The Department stated:

> In terms of the immediate concern for the Taxation Office, it means that there has to be a lot of continual thinking and monitoring done in order to ensure that staff is available for Taxation to meet its requirements.[28]

2.47 The Committee noted the comments of the Public Service Board, the Department of Finance and the Department of Industry, Technology and Commerce. The Committee observed that the ATO had achieved some early success in its recruitment programs but the Committee was unconvinced that the ATO would be able to find the number of computer personnel it required even if it used contract staff. Furthermore, any success in recruiting by the ATO might be to the detriment of other departments. It was clear that while the problem was an immediate one the solutions would probably be found only over the longer term.

2.48 The Committee was aware that certain private organisations and Commonwealth departments had adopted a practice of training existing staff in computing, taking the approach of on the job training and formal course work. The Committee therefore noted with interest ATO comments at the public hearing of 30 April 1987 that the ATO had previously taken 'ordinary' tax officers and turned them into people who produced and developed the ATO's systems.

2.49 The Committee considered this approach and saw that it provided a means of acquiring computer personnel without contending with the external shortage. The Committee noted that such an approach did not provide a short term solution. However, the ATO's redevelopment program was a long term program. The Committee believed there to be merit in the ATO taking its own non-computing staff and providing them with computer expertise.

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23. Ibid., p. 121.
24. Ibid., p. 123.
25. Ibid., pp. 81,88.
26. Ibid., p. 88.
27. Ibid., p. 81.
28. Ibid., p. 128.

2.50 At a more general level the Committee noted that the Government had announced various initiatives aimed at combating the shortage of ADP personnel. The initiatives were announced in:

- a statement by the Minister for Industry, Technology and Commerce on 8 September 1987 in which it was indicated that the Government would substantially increase intakes into undergraduate courses in 1988 for electronics engineering, computer science and other relevant disciplines;
- Budget related paper No. 9 - **Skills formation in Australia**, presented to Parliament on 15 September 1987; and
- **The Challenge for Higher Education in Australia**, a statement to the House of Representatives by the Minister for Employment, Education and Training on 22 September 1987.

Conclusions and Recommendation

2.51 The Committee notes that the ATO has indicated that should it fail to obtain all the necessary staff to meet its proposed schedule, it would rather suffer slippage in the schedule than restrict the scope of the planned development. However, the realisation of benefits would be correspondingly delayed with consequential adverse effects on cost effectiveness.[29]

2.52 The ability of the ATO to recruit the staff required for the project is of considerable concern to the Committee. The pool of highly skilled computing professionals available to the Australian Public Service is severely limited. In addition, the ATO's present campaign to recruit computer staff could have a significant impact on the capacity of all Government agencies in Canberra to recruit staff and could lead to further resignations with subsequent re-engagement as contractors, at a significant cost premium to the Service as a whole.

2.53 The Committee notes that the ATO is optimistic about its ability to obtain the necessary skilled staff to meet its redevelopment schedule. The Committee also notes the views of the former Public Service Board, the Department of Finance and the Department of Industry, Technology and Commerce. The Committee believes that the shortage of ADP staff facing the Australian Public Service to be a matter of grave concern and further believes that despite recent Government initiatives there will be an increasing shortage of trained computer personnel for some time, both within the Public Service and the private sector.

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29. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.

2.54 The Committee acknowledges the actions taken by the ATO in attempting to obtain the skilled staff it needs but believes the ATO should continue to look for new approaches to solving this problem. In particular, the Committee believes the ATO could gain from recruiting non-computing staff from within the ATO to be trained in computing.

2.55 The Committee concludes that:

- the current shortage of skilled ADP personnel is a major problem to the Australian Public Service and, in particular, the Australian Taxation Office;
- the Australian Taxation Office will not obtain the numbers of trained computer staff that it has stated it needs;
- the Australian Taxation Office will have to rely very heavily on the contract market to supplement its staff numbers, particularly at the CSO2 and CSO3 levels;
- the Australian Taxation Office will have difficulty in building effective teams that hold together over a reasonable period of time; and
- the Australian Taxation Office must continue to consider and implement new ways of obtaining the skilled staff it needs if it is to achieve its redevelopment program.

2.56 The Committee believes that existing non-computing staff within the ATO provide one avenue of resolving the staff shortage and recommends that:

1 the Australian Taxation Office consider recruiting from among its non-computing staff who have the appropriate aptitude, staff who may be trained in programming, systems development and systems support skills with a view to them becoming computer personnel within the Australian Taxation Office.

Management Expertise

2.57 While the Committee was concerned with the ATO's ability to recruit sufficient computer personnel for its redevelopment program it was also concerned with the management expertise of those charged with 'driving' the project through to completion. The Committee believed the management expertise of the ATO's systems management to be of crucial importance to the success of the redevelopment program.

2.58 The Committee noted comments provided by the Public Service Board:

> It is important to realise that the scale of this proposal involves enormous technological and human change for the ATO. The Board is aware that Tax management has been engaged in high-level change management for several years and has had success with a number of projects. This has resulted in an organisational culture more accepting of change, which may help the organisation to deal with the strains arising from the scale and rapidity of the changes inherent in this proposal. However, it should be noted that a project such as this creates management demands of an order almost unprecedented in this country.
>
> Board officers have already raised with the Commissioner of Taxation the issue of whether the senior executive resources in the Office's Systems Division were adequate to manage the update and maintenance of existing computer-based systems, as well as to manage the development and implementation of revised systems based on a major equipment procurement. The Commissioner has advised that the program would be under close scrutiny by senior management and that the need for additional support would be closely monitored during the life of the program.[30]

2.59 The Committee noted that the redevelopment program would be supported by project managers and departmental committees and sought details on these from the ATO. The ATO advised that project managers would exist for each major sub-project of the overall redevelopment program and that they would be drawn from existing ATO staff. If such managers could not be found within the ATO they would be recruited from outside the organisation.[31]

2.60 The ATO also advised that three committees would be involved in the control of sub-projects. They were:[32]

- the Corporate Management Board;
- the Management Advisory Committee; and
- the Project Steering Committee.

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30. **Minutes of Evidence**, p. 89.
31. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.
32. **Ibid.**

2.61 The interrelationships of the Committees are shown in Figure 2.1. In its original submission the ATO advised the Committee that the Steering Committee, which included representatives of systems users, reported to the Management Advisory Committee which in turn reported to the Management Board and the Commissioner. Steering Committees would be involved in the review and approval of all major aspects of the redevelopment program which included:[33]

- Request for Tender specification;
- evaluation methodology;
- Public Accounts Committee submissions;
- Cabinet submissions;
- implementation strategy;
- network study;
- conversion strategy;
- installation planning;
- implementation phases; and
- post-implementation review.

2.62 Steering committees for the re-equipment and the High Level Integrated Design projects had already been established.

2.63 The Committee noted that besides establishing a committee system for managing the redevelopment program, the ATO had implemented a project control and systems development methodology known as METHOD/1 (see Appendix E). The Committee also noted action taken by the ATO to ascertain the training needs of its system staff and to provide the appropriate training.[34]

2.64 The Committee believed the ATO to be concentrating more on the forms and procedures of management rather than on its substance. The Committee consequently sought details from the ATO on the relevant skills and experience of senior officers of the ATO's Systems Group so that the Committee might assess their capacity to manage the project and to ensure its successful implementation. In particular, the Committee sought brief employment resumes of individual officers.

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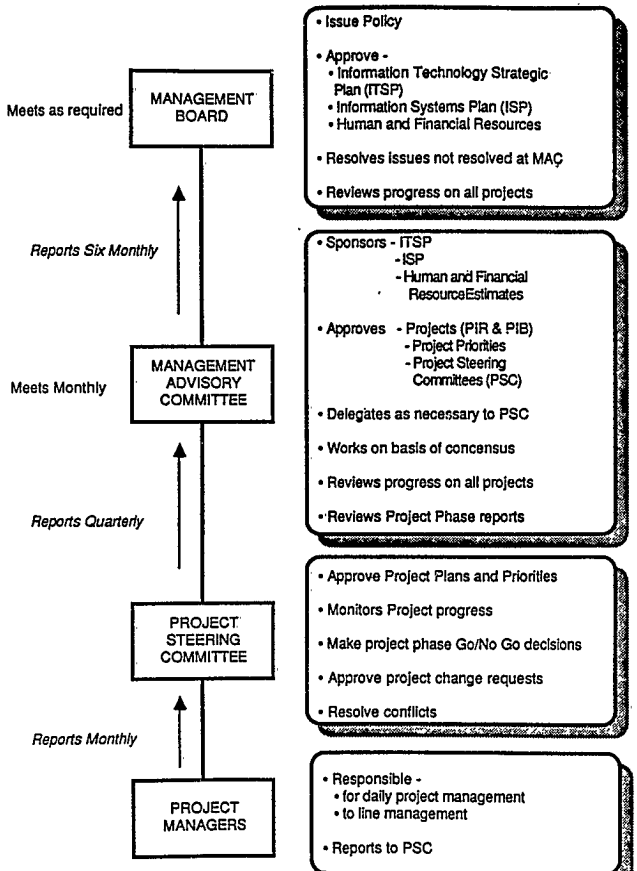
33. **Minutes of Evidence**, p. 14.
34. Australian Taxation Office, Information Systems Plan, February 1987, Section 8, p. 16.

Figure 2.1 Australian Taxation Office Committee Structure for Information Systems Management.



Source: Australian Taxation Office

2.65 The Committee reviewed the skills and experience of 18 of the senior officers of the Systems Group and identified only five officers who had any experience outside the ATO in the past 10 years. Only two of these could be said to have experience particularly related to a major re-equipment and redevelopment project. While the Committee did not doubt the ability of such officers it considered that their experience was probably more orientated to systems maintenance on the ATO's installed hardware and software rather than the management of a larger-scale redevelopment in a more technologically advanced environment.

2.66 At the public hearing held on 30 April 1987 the ATO agreed that the knowledge, skills and experience of the senior officers of the Systems area would be of great significance in ensuring the successful implementation of the program and stated that the area would be strengthened if required. When asked if senior officers would have difficulty in managing both their current line of responsibilities and the demands of the redevelopment project, the ATO responded:

> Certainly there are those pressures. But for example, we have set up a special re-equipment branch dedicated to this task. The overall project, of course, is not just a matter of buying in hardware and software. It involves redeployment, retraining of staff, rearrangements in the physical environment, and job redesign. At this stage we do not have formal teams commencing on that, although some of it runs into other things that are happening in the restructuring of the Public Service. Some of those things are starting to roll. We recognise that we will have to put dedicated teams in to handle those wider aspects and we will be doing it.[35]

2.67 When asked from where the required people would come the ATO stated:

> Our first thing is to look within the organisation. In a large organisation and with the sort of people we have, there are a large number of people who we can bring into that work. Where we did not have the necessary skills we would bring people in ...[36]

2.68 The Committee asked the ATO if it had considered setting up a task force dedicated to the migration and redevelopment aspects of the program to be managed using highly experienced external resources. The ATO reiterated that its preference would be to use internal resources as much as possible and noted that 'at the end of the process of change' there was a desire to have skills within the organisation able to carry on.[37]

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35. **Minutes of Evidence**, p. 113.
36. **Ibid.**
37. **Ibid.**, p. 114.

2.69 At the public hearing of 30 April 1987 the ATO agreed to 'think again' as to whether it was the correct approach to use inside people or whether the ATO should look at bringing in a hired group of people as project managers.[38]

2.70 In a written response to the Committee the ATO noted that project team members would need skills in:[39]

- management and project arrangement;
- subject matter knowledge;
- analysis and design; and
- programming and systems implementation.

2.71 The ATO reiterated that it had an ongoing need for staff with all these skills and that there was a particular need for such people during the redevelopment program. The ATO indicated it had used external staff to complement the skills of internal staff and that certain parts of the redevelopment program might be given over to external agencies. Additionally, it was noted that the ATO's Management Board was conscious of the heavy workload facing the Systems Group and its senior members and that the Systems Group would have priority when resources were being considered for 1987-88. An option was to reallocate an additional SES position to the Group.[40]

Conclusions and Recommendation

2.72 The Committee notes that the ATO has given serious consideration to the management of its redevelopment program and, in particular, notes the management arrangements planned by the ATO.

2.73 The Committee is firmly of the view that the management expertise of the ATO's systems managers is of crucial importance to the success of the redevelopment program. The program is one of the largest of its kind to be undertaken in Australia.

2.74 The Committee accepts the ATO's desire to use internal staff as much as is possible and notes that the ATO is willing to call on specialist advice from external sources. However, the Committee believes the crux of the management issue is not to do with the management of individual projects but rather the capacity of senior ATO managers to manage and drive the program as a whole.

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38. Ibid., p. 126.
39. Letter to JPCPA from Commissioner of Taxation of 11 May 1987; JPCPA File 1986/4 Part A/1/3.
40. Ibid.

2.75 The Committee has sought to ascertain the overall expertise of the current senior management of the System Group and has found there to be a lack of experience in managing a project of this scale in addition to their management responsibilities for the ongoing systems on existing equipment.

2.76 The Committee concludes that:

- the Australian Taxation Office's major re-equipment and redevelopment program is one of the largest projects of its kind to be undertaken in Australia and as such warrants the Australian Taxation Office using the best managers available to ensure the program's success; and
- the senior management in the Australian Taxation Office's Systems Group do not have sufficient experience to manage a project of this scale in addition to their management responsibilities for ongoing systems on existing equipment.

2.77 The Committee's view of this situation is that suitably experienced personnel should be sought by the ATO from outside the organisation and the Committee therefore recommends that:

2 the Australian Taxation Office set up a task force dedicated to the re-equipment and redevelopment program and that this task force be managed by highly experienced external resources.

CHAPTER 3

DESIGN ISSUES

- Systems Design
- Conversion
- Two-Site Environment
- Project Estimates

Systems Design

3.1 The Committee's understanding of computer systems design was based on the concept of a 'top-down' evolutionary process. This process involves the development of a corporate strategic plan which then allows the systems environment required to support the corporate strategies to be broadly identified. This is followed by the development of high level concepts and broad specifications concentrating on data modelling, data flows and system integration. Only after this stage has been completed should the tactical planning stages proceed. In the case of the ATO, this equates to the development of the Information Systems Plan (ISP) and the preparation of a Request for Tender (RFT) for new hardware and software.

3.2 However, the ATO did not appear to have followed this process chronologically, and provided to the Committee its ISP, which documents the high level tactical plans to implement its technological requirements, without first completing the high level integrated design stage of the design process.

3.3 The ISP states:

> In order to satisfy the information needs of the ATO, the major requirement of this plan is for the development and implementation of an integrated set of application systems designed specifically to address the business objectives of the ATO.[1]

3.4 Although the stated aim of the ISP is 'the development and implementation of an integrated set of application systems', the Committee was concerned about the quality of integration in the design. The information provided by the ATO both in response to written questions and during the public hearing of 30 April 1987 demonstrated that the approach to partitioning the 'integrated' system into manageable components was based on establishing arbitrary or traditional boundaries among functions rather than on a carefully defined analysis of the nature and complexity of interfaces between system components.

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1. Australian Taxation Office, Information Systems Plan, February, 1987, Section 4, p. 1.

3.5 In examining the ATO's original submission, the Committee noted that the four key application areas selected by the ATO to measure benefits from re-equipment and redevelopment already existed in the ATO's computing environment. The Committee also noted that the proposal seemed to anticipate the further automation of these separate functions without consideration of any change to their basic operation which might be brought about through system integration.

3.6 Attachment F of the ATO submission entitled 'The New Technological Environment'[2] identified the many changes which would occur in the ATO but made no mention of system integration and how it might affect the ATO's current applications.

3.7 The ATO submission emphasised the comprehensive nature of the facilities that are proposed and made it clear that the ATO was planning a dramatic growth and change in its use of information technology. The submission provided the Committee with nothing more definite than a general statement of interest in using modern tools such as database management systems, fourth generation languages, enhanced data capture and improved system development and maintenance productivity facilities.[3]

3.8 When queried on the sequence of its design work at the public hearing of 30 April 1987 the ATO responded:

> There are significant disadvantages that accrue if you do all of the detailed work before you can proceed to the acquisition of your equipment.[4]

3.9 The Committee was not in accord with this view and considered that there were a number of critical design decisions which could and should be made quite independently of the hardware and software to be selected by the acquisition process. These design decisions concerned the transition process from current file structures and application programs to the proposed integrated databases and associated sub-systems which would access and manage the integrated data on the new system. The Committee was of the view that if the ATO considered it had already taken these design decisions, then they had been based on inadequate analysis.

3.10 While the ATO submission stated that an integrated solution was sought, there was no framework provided for that integration in the submission. In fact, the ISP demonstrated an almost total lack of any integration design work related to the proposed new applications. The Committee was particularly concerned that the High Level Integrated Design (HLID) task was yet to be completed when the ISP (with its thirty projects to develop, maintain and enhance systems prior to re-equipment[5] and twenty-five new sub-systems for implementation after re-equipment[6]) was forwarded to the Committee. The Committee

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2. Minutes of Evidence, p. 55.
3. Ibid., pp. 55-7.
4. Ibid., p. 140.
5. Australian Taxation Office, op. cit., Section 4, p. 2.
6. Ibid.

believed it was a questionable methodology to define these sub-systems in advance of the integrated design. The Committee also believed the process of apparently 'retro-fitting' the design to meet the requirements and specification of the ISP and the Request for Tender could pose major difficulties for the ATO.

3.11 The Committee saw that there were several implications arising from these matters. Either the quality of integration among the system components would suffer as they were built or the design would require progressive revision during this process. The result would be delays in implementation and deferral of the realisation of benefits.

3.12 Of equal concern to the Committee was the issue of system 'migration'. The Committee defined the term 'migration' to be a series of steps, which included:

- the transfer of old data, often duplicated and inaccurate, in a purified form to new integrated databases;
- the transfer of many unintegrated files with old file structures to new and very different database designs; and
- the transfer of old processing logic, in a completely revised form, to the integrated environment.

3.13 The migration tasks identified in the ISP appeared to match the structure of existing systems, with their boundaries drawn to suit current office operations rather than an integrated structure which could meet the demands of a new ATO environment. The Committee considered that the ATO should review the intent and structure of these tasks as the migration strategy and its associated planning would normally be developed only after the integrated design was completed.

3.14 The Committee noted that because of the multiplicity of the complex and extensively modified files currently used by the ATO, the task of supplanting old systems with new systems would be difficult for the ATO.

3.15 The Committee was aware that migration may involve as much development effort as the design of the new systems. The Committee therefore sought estimates of the effort and cost to migrate. The ATO responded that these were included in the conversion and development costs and referred the Committee to the ATO document known as the High Level Integrated Design (HLID) and in particular, Section 11, Annex 1, page 3.[7] Having examined the ATO's estimates, the Committee was concerned that the ATO had underestimated the impact of migration, both in terms of time for completion and the associated costs.

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7. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.

3.16 The Committee found that the ATO had drawn a boundary between the old applications software which would be converted to run in the new environment and the applications which would be developed afresh for the new equipment. However, the old applications were not well integrated and if the new applications were to be integrated with each other, the migration of old to new would not be simple. The Committee found that the ATO's design work had not acknowledged the potential complexity of this activity nor had it allowed sufficient manpower resources for its completion. Resource estimates that were provided to the Committee predated the integrated design phase and so cast further doubt on their validity.

3.17 A further concern of the Committee was that if work on the integrated design was based on traditional boundaries between systems then there was a strong possibility that the ATO had not sufficiently examined the impact on workflows that would take place with new integrated systems. The Committee was of the opinion that the introduction of new integrated systems provided opportunities for considerable change in workflows and responsibilities and consequently believed system designers should expect traditional approaches to determining system boundaries to be unsatisfactory. The Committee believed new boundaries should be based on redefinitions of functions and the minimisation of complexity between system components.

Conclusions and Recommendations

3.18 The Committee concludes that:

- the Australian Taxation Office's approach to system integration is based on establishing arbitrary or traditional boundaries between functions rather than on a careful analysis of the relationships between system components;
- the Australian Taxation Office's design decisions which relate to the transition process from current file structures and application programs to the proposed integrated databases and associated sub-systems have been based on inadequate analysis;
- the Australian Taxation Office has not given adequate consideration to the required migration strategy and associated planning and their relationship to the High Level Integrated Design; and
- the Australian Taxation Office has underestimated the impact of migration in terms of elapsed time for completion and associated costs.

3.19 The Committee therefore recommends that:

3 the Australian Taxation Office review its High Level Integrated Design in the light of the Committee's concerns;

4 the Australian Taxation Office develop a detailed design strategy for migration from the old processing environment to the new systems; and

5 the Australian Taxation Office revise its time and resource estimates for redevelopment and migration accordingly.

Conversion

3.20 The Committee defined 'conversion' as a change of program code to allow a computer application to run under a new operating system in a new environment. The Committee noted that the end result of the ATO's conversion project would see the ATO's information systems running in the new environment producing the same output as the old systems running in parallel on the existing (old) environment. The ATO had estimated the progam code running in its present environment (which required conversion) to be 764 programs consisting of 1.25 million lines of code.

3.21 The Committee noted that the ATO had considered two options for supporting its current applications when the new computing environment became available. The options were:

- to leave current applications unchanged on the existing equipment until their equivalents were available in the new environment; or
- to convert current applications to the new environment, allowing the existing equipment to be dispensed with as soon as possible.

3.22 The ATO maintained that early conversion would:[8]

- improve responsiveness to Government plans;
- reduce the need for application maintenance staff;
- shorten the period of need for dual skills sets; and
- reduce staff losses caused by working in an obsolete environment.

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8. Minutes of Evidence, p. 69.

3.23 As conversion of the current applications would chiefly involve translating from one version of COBOL programming language to another, the ATO considered no understanding of the applications would be required. Hence, the conversion could be contracted out to private industry rather than be done by the ATO.[9]

3.24 The Committee noted that converting all of the ATO's information systems onto new equipment as quickly as possible would enable the disposal of the current equipment within two years of the commencement of the conversion project. The ATO estimated that fully redeveloping its systems would take five years. However, if no conversion were to be undertaken the ATO would need to retain its current equipment for three additional years, ie to the end of the full redevelopment period, at an approximate cost of $23 million.[10]

3.25 In considering the conversion issue the Committee noted comments made by the Department of Finance. The main points made by the Department of Finance were:[11]

- the conversion task could be performed in isolation, ie away from the ATO, by a contractor;
- there were several major contracting organisations in Australia which could undertake the conversion;
- the contractor's ability to carry out the conversion would be affected by the new computing environment acquired by the ATO, eg a contractor may need to use the ATO's new operating environment and so conversion may not commence until the new environment was fully established. Such a situation could be cost-inefficient; and
- it was important to achieve a 'total, effective conversion' because the cost advantages of the conversion would only commence when it was complete. At such a time the existing (old) equipment would no longer be required.

3.26 The Committee recognised that the conversion was a major and vital part of the ATO's overall re-equipment and redevelopment proposal. The Committee accepted that while it was intended to develop new systems on new equipment it was necessary to convert old systems from existing equipment to new equipment to provide continuity in the ATO's operations and to facilitate the disposal of the old equipment.

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9. Ibid.
10. Australian Taxation Office, op. cit., Section 9B, p. 12.
11. Minutes of Evidence, p. 83.

3.27 In examining the issue of conversion the Committee considered other areas where conversion might have an impact. One such area was the provision of online inquiry facilities.

3.28 As a result of inspections of ATO branch offices the Committee had a strong concern that online inquiry facilities within the ATO should be improved as a matter of priority. The Committee recognised that such facilities would probably result from new systems being developed on new equipment and that at best their development would occur in parallel with the conversion task.

3.29 The Committee sought comment from the ATO on this matter at the public hearing of 30 April 1987. The ATO responded that it placed high priority on the provision of online inquiry facilities and that this was demonstrated by the fact that online inquiry would be provided very early in the new development.[12]

3.30 Also the Committee sought comment from the ATO as to how the ATO would ensure that the introduction of an online inquiry facility would not be delayed by issues arising from the conversion task. The ATO was not able to provide the Committee with any guarantees on this matter but stated that the ATO's work, over the previous two years demonstrated 'full commitment to adequate and complete planning'. The ATO added:

> The continuation of that [planning] process should give confidence in our ability to achieve ....[13]

Conclusions and Recommendation

3.31 The Committee believes the conversion task is vitally important to the overall re-equipment and redevelopment proposal and notes that as soon as the conversion is complete the ATO will be able to dispose of its existing environment and its associated problems.

3.32 The Committee notes that it is advantageous for the conversion task to be completed as soon as possible and concludes that:

- the Australian Taxation Office's conversion strategy is acceptable given the benefits of totally replacing the existing computing environment with new hardware and software as soon as possible.

3.33 While the Committee notes the importance of the conversion task it remains firmly of the view that the provision of satisfactory online inquiry facilities to ATO staff is urgently required. The Committee believes the benefits of such facilities to be improved efficiency and greatly improved staff morale.

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12. Ibid., pp. 143-4.
13. Ibid., p. 144.

3.34 The Committee concludes that:

- the online inquiry facilities presently available within the Australian Taxation Office are unsatisfactory.

3.35 The Committee notes that the ATO has acknowledged the need for improved online inquiry facilities and that the ATO has indicated its conversion task will not delay the provision of such facilities.

3.36 The Committee therefore recommends that:

6 the Australian Taxation Office continue to pursue the provision of a satisfactory online inquiry facility for the use of Australian Taxation Office staff as a matter of priority.

Two-Site Environment

3.37 The Committee was aware that the ATO located its existing mainframe computing facilities at two separate sites in Canberra, one being the Treasury Building in the suburb of Parkes and the second a site known as the Deakin Offices in the inner suburb of Deakin. The Committee understood this was for risk minimisation and security reasons. However, the Committee believed advances in technology may have allowed the ATO to change this policy without increasing the risk to the ATO's computing facilities. The Committee therefore sought details from the ATO on the origins of the two-site environment and the arguments used in its establishment.

3.38 The ATO advised the Committee that the two-site environment was initially proposed to the Interdepartmental Committee on ADP in 1980. The ATO continued:

> Additional computer processing capacity, bringing the mainframe complement to three, was seen as required to maintain ATO processing and development capability. It was also seen that central processing could be made less vulnerable at little additional cost by separating the configuration into two discrete sites in Canberra.[14]

3.39 The ATO stated that the original arguments for the two-site environment were:[15]

- ATO computer systems were a vital part of the Government's revenue collection function and any extended loss of processing capability would result in unacceptable costs to the Government;

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14. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.
15. Ibid.

- the then central installation was particularly vulnerable to sabotage because of its role in 'enabling the Government to achieve its objectives' and the existence of two sites would make effective sabotage more difficult;

- the existing Parkes site was considered highly vulnerable to major disruption from a natural calamity and could not accommodate all the required equipment; and

- back-up arrangements with other installations were not considered to be feasible. Two other Canberra organisations had similar equipment but did not have the capacity to perform the ATO's processing load and the larger of the two organisations used a different operating system.

3.40 The Committee sought a response from the ATO as to the justifications in terms of cost and risk analysis for maintaining the environment with the new equipment it planned to acquire.

3.41 The ATO responded:

> Continuation of the two-site environment is considered to be justified by arguments broadly similar to those of 1980.
>
> In practice, the Parkes site is manned by only about 5% of central operations staff and the additional costs are largely confined to those for communications facilities between the two sites and marginally higher accommodation costs. The existence of the two sites has allowed each site to provide off-site data backup for the other so that manual transfer of data for off-site storage is no longer required. Further, major power failures at one site, though well short of a disaster, have been less disruptive because of the ability to transfer network support to the other.
>
> It is, of course, possible that as a result of its RFT, the ATO will ultimately have equipment similar to that at a larger number of other installations. However, no back-up installation outside the control of the ATO would be able to support the ATO network and it would be extremely rare to find a well-managed installation which had reserve capacity in both disc storage and processing power capable of supporting 50% or more of the ATO processing load.[16]

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16. Ibid.

3.42 At the public hearing held on 30 April 1987 the Committee sought further comment from the ATO. In particular, the Committee asked whether a second site could be justified if the new equipment could be located at a single site that was reasonably secure and had no accommodation problems. The ATO responded that the issue of risk continued to be an important consideration favouring two sites and furthermore the use of a two-site environment allowed a balancing of work across configurations.[17] The ATO also indicated that a formal risk analysis of the Deakin site had not been conducted for two to three years. It was anticipated one would commence by June 1987.

3.43 The Committee sought comment from witnesses at the public hearing as to what their organisations did if they did not have a second site. The Department of Finance noted that it was usual for back-up arrangements to be made at other sites. The Department drew to the Committee's attention the fact that a working party had been established several years earlier, under the aegis of the Department of Local Government and Administrative Services, to examine on a Service-wide basis the provision of a back-up site to be used for emergency purposes. However, for various reasons the proposal had not been implemented. The Department of Finance noted that its own contingency plans allowed for it to use another organisation's computer within 24 hours of its own site becoming inoperable.

3.44 The Committee noted the comments made by the Department of Finance. The Committee was aware of the work done by the working party.

3.45 The Committee was of the view that the ATO had a strong case for maintaining its two-site environment and noted, in particular, that the ATO was responsible for the collection of some 80% of Commonwealth revenue.

Conclusions and Recommendations

3.46 The Committee notes the arguments put forward by the ATO for the establishment of the two-site environment for its mainframe computer facilities. The Committee also notes that the ATO believes the two-site environment should be maintained for its re-equipment program. The Committee concludes that:

- the Australian Taxation Office has legitimate grounds for continuing to maintain its mainframe computer facilities using a two-site environment.

3.47 The Committee's consideration of this issue led it to consider the related issue of the availability of emergency sites for Commonwealth computer facilities.

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17. Minutes of Evidence, p. 129.

3.48 The Committee notes the work previously undertaken by the working party established under the aegis of the Department of Local Government and Administrative Services. The Committee is aware that various private enterprise organisations participate in schemes whereby, for a fee, emergency computer sites are maintained and made available to organisations should they require them.

3.49 The Committee notes that modern practices mean that a department's ability to re-establish its computer system following a disaster is dependent on the department being able to acquire a new site. Because of back-up procedures, data and software can invariably be restored within a short time with minimal loss and computers can usually be replaced within weeks and in some cases even days.

3.50 The Committee notes that the operations of the Commonwealth have become increasingly dependent on the continuous availability of computing services such that departments or statutory authorities are now at risk if their own computer sites are damaged. The Committee believes Commonwealth organisations must have access to emergency computer sites.

3.51 The Committee concludes that:

- there is a requirement for all Commonwealth departments and statutory authorities to have access to suitable emergency computer sites.

3.52 The Committee recommends that:

7 **steps be taken to assess the overall emergency computer site needs of Commonwealth departments and statutory authorities; and**

8 **where needed, steps be taken to set aside and/or construct suitable computer sites which departments and/or authorities may use on an emergency basis.**

Project Estimates

3.53 The Committee was aware that while the computing industry had demonstrated its capacity to install hardware on schedule, it had a very poor record in accurately estimating the timescale for implementing large system development projects. Also the Committee had observed the difficulties experienced by other Commonwealth departments with similar projects. Consequently, the Committee was concerned to examine project estimates of the ATO's re-equipment and redevelopment program.

3.54 The Committee noted that the ATO's proposed schedule for its proposed program was governed by three main factors, viz.:

- the effort required to complete the project tasks;
- the timely availability of the necessary resources; and
- sound management to ensure the efficient application of resources to the tasks.

3.55 After examining the ATO's estimates of time and resources as presented in the Information Systems Plan (ISP),[18] the Committee questioned the estimates on several counts. These included:

- the incomplete stage of the High Level Integrated Design;
- the optimistic perceptions by the ATO of the time that it would take to acquire skills with the new software;
- the shortage of sufficient numbers of trained computing staff. The Committee believed that drawing on additional resources from the contracting market may alleviate the situation but there was no guarantee that this market would be able to supply the skilled personnel required; and
- the management expertise of senior staff. The Committee considered the scale and depth of the planning required for the project went well beyond the boundaries of the projects in which ATO staff had gained their experience and expertise.

3.56 The Committee noted that for eight of the ATO's projects scheduled to commence in the period July 1986 - June 1987 delays of between three and thirteen months had already been incurred (see Table 3.1). The Committee therefore found there to be reason to believe the ATO's redevelopment schedule was overly optimistic and that the actual completion time could be much later than that estimated.

3.57 The Committee sought comment from the ATO on its project schedule at the public hearing held on 30 April 1987. In particular, the Committee questioned the ATO as to what information the ATO could provide that would enable the Committee to rely on the key implementation date of 1 July 1989 for the first redeveloped application in the new environment.[19]

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18. Australian Taxation Office, op. cit., Section 11, Annex 1.
19. Minutes of Evidence, pp. 60, 112.

TABLE 3.1 Schedule Slippage for the Period July 1986 - June 1987

Project	Estimated Completion as at February 1987	Estimated Completion as at April 1987	Project Slippage
Company Income Tax Return Processing Modifications - System Installation:			
. Editing of data keyed from company returns	Jan 1987	Apr 1987	3 months[1]
Prescribed Payments System -			
. Preliminary Systems Design	Dec 1987	Mar 1988	13 months[2]
Enhanced Data Capture for Law Enforcement -			
Preliminary Design	Oct 1986	Jun 1987	8 months[3]
Sales Tax Enhancements -			
Production Systems Support	Oct 1987	Nov 1988	13 months[4]
Identified System Improvements - Preliminary Systems Design:			
. Storage of previous assessment details	Oct 1986	Oct 1987	12 months[5]
. Storage of informative errors	Oct 1986	Oct 1987	12 months[5]
. Assisted assessments for prior years	Apr 1987	Apr 1988	12 months[5]
Systems Installations:			
. Extension of AIS	Jun 1987	Jun 1988	12 months[5]
. Storage of informative errors	Jun 1987	Jun 1988	12 months[5]
. Computer assisted assessment, prior years	Jun 1987	Jun 1988	12 months[5]
Receipting of Cash -			
Preliminary Systems Design	Sep 1986	Jun 1987	9 months[6]
Index Microfiche Replacement -			
Preliminary System Design	Jun 1987	Jun 1988	12 months[7]
Child Support System -			
Preliminary Systems Design	Jun 1987	Aug 1987	2 months[8]

Note: 1 Refer to ISP, Section 9A, p. 6
2 Refer to ISP, Section 9A, p. 16
3 Refer to ISP, Section 9A, p. 25
4 Refer to ISP, Section 9A, p. 29
5 Refer to ISP, Section 9A, pp. 40-1
6 Refer to ISP, Section 9A, p. 46
7 Refer to ISP, Section 9A, p. 70
8 Refer to ISP, Section 9A, p. 91

Source: Australian Taxation Office, Information Systems Plan, Revised Edition, February 1987, and updated Section 9A attached to letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.

3.58 In response the Commissioner of Taxation, Mr Trevor Boucher, stated:

> In terms of the team we have in the Systems area, in terms of the confidence I have in the management supervisory structures that we have established and are developing within the Office, in terms of our adoption of project methodologies, in [terms] of the commitment of the organisation to the task, in terms of our demonstrated preparedness to bring in help from the outside - we are not insular about it all - then I believe that we can deliver this project in the sort of timescale that we have outlined.[20]

3.59 The Commissioner later stated:

> I cannot offer cast-iron guarantees. We believe with the advice we have had - and, again, this reflects advice from people outside the Office - that what we have put in front of you is realistic and attainable.[21]

Conclusion and Recommendation

3.60 The Committee notes the resolve of the ATO to achieve its re-equipment and redevelopment program on schedule. However, the Committee has already found there to be slippage in the program.

3.61 The Committee therefore concludes that:

- the elapsed period for implementation of the new systems is likely to be much longer than is currently estimated by the Australian Taxation Office.

3.62 In view of what would seem to be inevitable slippage, the Committee recommends that:

> **9 the Australian Taxation Office re-assess the sequence and rate of implementation of its re-equipment and redevelopment program, and set realistic and achievable goals which are not so totally dependent on obtaining scarce resources.**

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20. Ibid., p. 112.
21. Ibid., p. 115.

CHAPTER 4

EVALUATION ISSUES

- *Project Justification and Cost Effectiveness*
- Performance Indicators

Project Justification and Cost Effectiveness

4.1 In reviewing the ATO's computer systems re-equipment and redevelopment proposal the Committee found there to be a clear need for the ATO to move ahead and make better use of information technology. Both the ATO's original submission to the Committee and the Committee's inspection of ATO branch offices demonstrated the ATO's operations were heavily dependent on paper records and manual processes.

4.2 The Committee noted that the ATO's existing computer systems environment had served the ATO for some 10-15 years. The systems used batch processing and had limited online facilities. The limited online facilities meant that it was difficult to access and retrieve taxpayer data. Furthermore, systems were not integrated and as a result data duplication occurred.

4.3 The Committee noted that the ATO was experiencing increasing difficulty in providing adequate levels of support to its existing systems. The ATO's submission indicated the reasons for this difficulty included:[1]

- increased demand for change to applications systems due to legislative and policy changes;
- increased demand for the maintenance of old systems which continued to grow in size and complexity;
- a lack of modern systems support tools;
- applications being dependent on using in-house developed software which was both inflexible and costly to maintain; and
- a computing environment which, because of the abovementioned points, was unattractive to appropriately skilled staff.

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1. Minutes of Evidence, pp. 52-4.

Figure 4.1 Section of Melbourne Branch Office, Australian Taxation Office

Figure 4.2 Mail Sorting, Melbourne Branch Office, Australian Taxation Office

4.4 The need for change in the ATO's computing systems was clearly stated by the Department of Finance in comments provided to the Committee on the ATO's proposal. The Department of Finance stated:

> Finance supports the proposal and considers that the Taxation Office has no viable alternative to replacing its present computing environment. The existing systems are deficient in modern computing tools for the development and maintenance of computer systems and lack modern data management facilities. In addition, the burden of maintenance of the existing computer systems is excessive due to their age and lack of flexibility to adapt to the changes caused by the substantial volume of recent Government taxation policy initiatives. The Office's problems are exacerbated by difficulty in recruiting staff, due both to resistance to working with outmoded technology and a lack of recruits with appropriate knowledge for maintenance of the existing systems.[2]

4.5 The Committee was in agreement with the views expressed by the Department of Finance and, in particular, saw that the ATO had no viable alternative but to replace its computing environment. The Committee noted that the ATO's proposal was in line with its 1986 ADP Strategic Plan and Corporate Plan. However, the Committee was somewhat surprised that the ATO then justified its proposal in terms of projected staff savings over the life of the project. The Committee had observed other departments to adopt such an approach only to find the benefits difficult to realise.

4.6 The ATO's original submission to the Committee noted that the ATO faced a dilemma in attempting to quantify benefits to support its proposal at the 'in-principle' stage of development. The ATO stated:

> The level of precision with which benefits can be defined and quantified is limited by the degree to which the operation of application systems in the new equipment/software environment has been specified and that is, in many instances, not to a very high degree of detail at this stage.[3]

4.7 The ATO also noted that because the taxation system was always changing it was difficult to estimate future benefits based on present laws and administrative arrangements.

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2. Ibid., p. 77.
3. Ibid., p. 61.

4.8 The ATO explained that its approach to justifying the re-equipment and redevelopment proposal was not to attempt to quantify benefits over all the ATO's applications but rather to look at four key applications where major benefits were expected from re-equipment and redevelopment. The ATO stated:

> In short, we are saying that if the proposals cannot be justified by benefits from these areas there is not much point proceeding with the proposals. Other applications are, of course, expected to realise significant benefits and these will be quantified at the appropriate time in the staged acquisition process once Cabinet approval in principle has been given to proceed.[4]

4.9 The four areas selected by the ATO were:

- Income Tax Returns Processing;
- Automated Audit System;
- Income Matching System; and
- Automated Collection System.

4.10 The ATO indicated that the method of measuring anticipated benefits involved suitably qualified officers in branch offices quantifying the savings in staff years that could be achieved in the proposed new environment and, in particular, in the four main areas. Conclusions reached by branch offices were then tested and cross-checked by other areas of the ATO. Additionally, where possible, conclusions were tested against the recorded and observed experience of the US Internal Revenue Service and Revenue Canada Taxation.

4.11 The ATO explained in its original submission that savings in the four key areas were calculated in terms of staff years converted to salary plus overhead savings over a ten year period commencing on 1 July 1988. The ATO stated: 'The approach adopted is in line with the Public Service Board Cost Effectiveness Guidelines.'[5]

4.12 The ATO noted that although the benefits were measured in terms of staff savings the option was available to 'realise some or all savings in terms of a reduced rate of staff growth'.[6] The ATO further noted that some staff savings could be diverted to fund an expansion of compliance activities and that it could then be argued that the resulting benefits would be in the form of additional tax revenue. However, this approach had not been taken because the ATO argued the benefits had already been quantified and put forward in the case for the Australia Card.[7]

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4. Ibid.
5. Ibid., p. 65.
6. Ibid., p. 63.
7. Ibid., p. 64.

4.13 With regard to other benefits the ATO stated:

> Major tangible savings are also expected from the redevelopment of other applications such as PAYE, PPS, FBT and ST, but the savings have not been quantified at this stage. These systems account for around 2800 staff years and savings of the order of 10-20% are confidently expected. Further, the redevelopment in this environment of such applications as those associated with the processing of disputes, revenue estimates and statistical analysis, audit case selection, personnel administration and library management will also result in substantial savings.
>
> It also needs to be said that the ATO has initiated an ongoing rigorous review of its operations. It is reviewing the traditional approach taken to its many functions with the aim of improving efficiency and effectiveness and wherever possible implementing changes and improvements within its existing environment. The move to self-assessment is an example of what has been achieved. In quantifying the savings in this Submission then, care has been taken to exclude productivity gains expected from the review process.[8]

4.14 The ATO concluded:

> The conservative approach taken to the measurement of benefits indicates that the figures are credible and that decision-makers can have confidence in the actual achievement of savings of the order predicted when the arrangements proposed are in place.[9]

4.15 The Committee noted the approach used by the ATO to justify its re-equipment and redevelopment proposal. The Committee also noted comments made by the Public Service Board and the Department of Finance in relation to the ATO approach.

4.16 The Public Service Board commented:

> The major financial justification for the proposal is in terms of projected staff savings. If the Stratplan experience is any guide, these savings may prove to be difficult to realise.[10]

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8. Ibid.
9. Ibid., p. 65.
10. Ibid., p. 89.

4.17 The Department of Finance reiterated this view:

> The Committee will be aware that recent major Australian Government computer projects have not performed in accord with initial estimates and problems have emerged in evaluating what, if any, tangible benefits have resulted. Savings of the order initially proposed have on occasion proved difficult if not impossible to realise or to substantiate.[11]

4.18 At the public hearing held on 30 April 1987 the Committee sought comment from the ATO as to its use of cost effectiveness analysis and its justification of its proposal in terms of projected staff savings. The ATO responded that it had no choice but to go ahead and acquire new equipment and develop new systems, however, it had performed cost-benefit studies and cost effectiveness analyses because they were required. It had no choice but to perform such analyses.

4.19 The Committee advised the ATO that it was sceptical of the usefulness of cost effectiveness analyses in justifying computer projects and reiterated that other departments had had little success in justifying projects on the basis of staff savings. The Committee suggested to the ATO that there may be a need to provide emphasis in other areas when justifying such proposals and then questioned the ATO as to whether it would prefer to express the benefits of its new systems in terms of additional revenue and improved service.

4.20 The ATO responded:

> We steered clear of getting involved in additional revenue aspects of the benefits simply because a lot of the revenue that we would expect to come from this system has already been counted and spoken for in relation to the Australia Card proposals and those associated with a high integrity numbering system. If we were to justify this proposal on the basis of that sort of revenue, then we would be counting twice. We would be claiming it as a justification in two separate proposals. We did not think that that was a very sensible approach at that point. There was the other aspect of it as well, that when you look at the reduced staff numbers that we have spoken about in the proposal - some 3,000 for the period - the proposition exists where we could have said those 3,000 will be converted to compliance or audit staff and, on the basis of something like $300 000 per staff member in revenue gain each year, then the benefits of the proposal would be a certain figure.

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11. Ibid., p. 80.

> To have said that implies that our friends in Finance are allowing us to use them in that fashion and I do not believe we could do that. What we came down with in the end, having regard to this conservative approach that we claim that we have adopted, is to say that we will go on the traditional basis of staff saving. To answer the question about service to taxpayers, we regard that as something intangible. It is very difficult to measure and, indeed, open to a fair amount of debate as to its standing up in the real world.[12]

4.21 In assessing the ATO's cost effectiveness analysis the Committee had two major concerns. The first concern related to the perceived lack of an integrated design.[13] The Committee observed that the cost effectiveness analysis was based on the development of an integrated system and on the provision to staff of access to integrated taxpayer data, steps which would reduce the growth rate of staff numbers. The Committee noted that the staff savings were predicated on the assumption that the schedule for redevelopment would be met. However, as the schedule depended on a sound level of design, which the Committee had found not to exist, the Committee viewed the ATO's cost effectiveness analysis as unreliable.

4.22 The Committee's second concern was that the ATO did not appear to have made allowances for the additional operational staff it would need to implement and support its computer network in the new environment. It was the view of the Committee that the projected staff savings could therefore be eroded by these unforeseen requirements.

4.23 While the Committee noted the ATO's arguments for not including increased revenue collection as a justification for the proposal, it believed the recovery of tax revenue was bound to be improved by the provision of the proposed new facilities. The Committee consequently believed the ATO should include some proportion of such improved recovery within the benefits identified in its cost effectiveness analysis.

4.24 The Committee accepted that cost effectiveness analysis could be useful in focusing attention on how the proposed new system would be used and what impact it might have. However, the Committee did not believe cost effectiveness analysis should be the sole criterion on which the ATO's decision to proceed was based. The Committee believed that it was generally accepted that most decisions on major computer system proposals were based on many more considerations than are generally included in the scope of cost effectiveness or cost-benefit analysis.

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12. Ibid., pp. 152-3.
13. Refer to Chapter 3 for discussion of integrated design.

4.25 With the experience of reviewing several major computer acquisition proposals, the Committee was inclined to question much of the rationale behind cost effectiveness analyses. The Committee had found that too often cost effectiveness analyses became *theoretical exercises, inaccurately predicting real costs* and real benefits. Each analysis became more a process of creative accounting to provide a superficially valid decision making mechanism.

4.26 In addition, the Committee had found cost effectiveness analysis to be based on an old-fashioned approach of 'functional replacement'. However, as in the case of the ATO, the proposed systems did more than replace existing systems. They led to new ways and techniques of achieving corporate goals and objectives.

Conclusion and Recommendation

4.27 The Committee supports the ATO in its endeavour to improve its use of information technology through its re-equipment and redevelopment program. The Committee agrees with the Department of Finance and the ATO that the ATO has no choice but to proceed towards the development of a new computing environment.

4.28 The Committee acknowledges that the ATO has adopted a 'conservative approach' in justifying its proposals, however, the Committee questions the merits of using projected staff savings to justify the proposal. The Committee reminds the ATO that other Commonwealth organisations have previously adopted the same approach and then been unable to achieve their predicted benefits.

4.29 Also the Committee notes that, as a result of its review of other major computer acquisition proposals and the ATO's re-equipment and redevelopment proposal, it has developed a healthy scepticism of the merits of cost effectiveness analysis as a means of justifying major computer acquisition proposals, particularly when based on projected staff savings.

4.30 The Committee concludes that:

- the Australian Taxation Office's current cost effectiveness analysis, based as it is on projected staff savings, provides a particularly unreliable tool for justifying the need for the proposed computer systems re-equipment and redevelopment program.

4.31 The Committee recommends that:

10 the Australian Taxation Office re-evaluate the justification for its proposed computer systems re-equipment and redevelopment program and identify the proposal's potential benefits in terms of the objectives and performance targets defined in the Australian Taxation Office's corporate plan.

Performance Indicators

4.32 While the Committee was concerned with the ATO's justification of its computer system re-equipment and redevelopment proposal it was also concerned to see that the ATO made proper use of performance indicators. In particular, the Committee was concerned that measures other than staff savings be used to evaluate the implementation of the proposal and the resulting new systems. Without such measures it would be impossible to assess whether or not the proposal had improved the ATO's ability to achieve its corporate goals and objectives.

4.33 The Committee believed that performance indicators and measures were important not only to the process of evaluation but also to the tasks of management and control. The Committee noted that performance indicators were fundamental to program budgeting which Commonwealth departments were in the process of introducing.

4.34 The Committee initially sought details from the ATO as to what productivity and performance indicators it presently used. In response, the ATO indicated that it used a variety of indicators. The principal indicators included:[14]

- *resource and productivity measurements as part of* the National Production Control System (NPCS)[15], a micro-computer based system;
- program-specific result indicators, work outputs and workload items not embraced by the NPCS;
- measurement of times and delays for handling work from taxpayers and other external sources;
- measurement and analyses flowing from audit work;
- project control systems to measure whether projects were completed and whether completion occurred on time;
- external information to assess taxpayer compliance;
- measurement of tax collection costs and revenue by tax type and collection system; and
- other specific studies of performance and productivity as required.

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14. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.
15. *See Appendix D.*

4.35 In examining the issue of performance indicators the Committee was particularly interested in comments on the ATO's proposal made by the Department of Finance. The Department's particular concern was that there was a need to establish suitable performance indicators before the ATO commenced its re-equipment and redevelopment program.

4.36 The Department stated:

> Whilst Finance acknowledges that benefits of the type and magnitude claimed (by the ATO) can be achieved for most parts of the project, it is concerned that the criteria that will be used to measure them be clearly established at the outset. The Taxation Office states that the benefits that will flow from the project have been assessed conservatively and has also advised us that many staff savings will be made independently of future staffing allocations and are identifiable within the scope of those systems detailed in the submission ...
>
> Finance considers that estimating the impact of changes, on the scale proposed by the Taxation Office over the time frame of this project, will be very generalised at best, but notes the claim that estimates of staff savings are conservative. The Committee will be aware that recent major Australian Government computer projects have not performed in accord with initial estimates and problems have emerged in evaluating what, if any, tangible benefits have resulted. Savings of the order initially proposed have on occasion proved difficult if not impossible to realise or to substantiate. Unless suitable measures are established early in the project, it may quickly become impossible to disentangle the impact of new work, reflecting legislative changes etc, from redevelopment work. This in turn may reduce the opportunity for Government to determine the allocation of resources that might be released by the project.
>
> Finance considers it critical that appropriate measures or performance indicators for this project and its components, in addition to those of more general application presently being developed by the Taxation Office as part of Program Budgeting, be established prior to the project's commencement. These indicators should be agreed between the Taxation Office and the Department.[16]

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16. **Minutes of Evidence**, p. 80.

4.37 Subsequent to the receipt of the ATO's original submission the Committee sought details from the ATO as to what action it had taken toward the development of productivity and performance indicators for the conversion and redevelopment phases of its proposal. In response, the ATO stated:

> ATO has implemented a set of project management guidelines for project estimating, scheduling and progress monitoring based on the Method/1 approach. The basic document for the project planning and control is the work plan, which will provide details of estimates for individual tasks (and sub-tasks) of the project, the dependencies between tasks are highlighted by a network (or Precedence) diagram. Resource requirements in terms of work-hours (effort) are converted into calendar days (elapsed time) for resource allocation. Productivity and performance of the project will be measured by tracking the actual time spent on the tasks, percentage of completion of the task against the planned targets. Method/1 also provides a set of automated productivity tools to be used in conjunction with NPCS to assist in resource management and project planning and control.[17, 18]

4.38 At the public hearing of 30 April 1987 the Committee asked the ATO what performance indicators it was proposing to use to measure the anticipated benefits of its proposal. The ATO advised the Committee that the use of performance indicators was something that would develop over time. The ATO noted that in its systems area indicators had involved measuring adherence to timetables and that the achievement of milestones would continue to serve as a means of measuring the proposal. However, in the client areas of the ATO different indicators would be established 'not the least of which would be the staffing level requirements'.[19]

4.39 The ATO further advised the Committee that the development of the Information Systems Plan (ISP) represented a substantial amount of work in terms of developing indicators to measure the progress of the proposal. In particular, the ISP outlined specific projects to be undertaken as part of the proposal. The ATO had also estimated resource requirements and dates for these projects. While their estimates were the best that could be done at this stage of the proposal, they would be refined as the proposal proceeded.[20]

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17. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.
18. Method/1 is a structured project management and systems development methodology. See Appendix E for further explanation.
19. **Minutes of Evidence**, pp. 168-9.
20. **Ibid.**, p. 170.

4.40 The ATO reiterated that it had already made use of performance indicators '.... in the program budgeting context .... (and was) working with Finance key elements ...'[21] Furthermore, the indicators would be monitored over time to see what impact the re-equipment would have. However, of concern to the Committee was the fact that some areas of the ATO would change dramatically as a result of the proposal and consequently performance indicators once used while the old computer environment existed may not be useful when the new environment was available. The Committee referred the ATO to a successful pilot project mounted in its Melbourne Branch Office which had involved not only the introduction of new computer equipment but also a radical change in job design. The ATO responded that the productivity gains achieved in the pilot project had been used in predicting the benefits of the entire proposal but did not provide any further evidence that it had addressed the Committee's concern.[22]

4.41 At the public hearing of 30 April 1987 the Committee again invited the Department of Finance to comment on the performance indicators to be used by the ATO. The Department stated:

> We think it is critical that the (ATO's performance) indicators be set before the exercise gets too far down the track so that we can measure performance as we move along. In fact the project is achieving what it set out to achieve. They do not just have to be monetary performance indicators, ... If we expect to get a better environment in the Office, better access to information, more speedy information, then this should be laid out and we should, at the end of the exercise, be able to look back and say: 'Under the old system we could not get that in under two days. Under this system we can get it in three to five minutes, or whatever the case may be'. How measurable that is in terms of dollars is difficult to define but it is certainly an indicator of whether the system improves working conditions and the availability of information for officers to use in their examinations and auditing routine action and recovery procedures. We would certainly expect each area of the project to have some kind of performance indicators attached to it and these should be delineated before we get too far down the track.[23]

4.42 The Committee also noted the Department's comments that it was trying to get all Commonwealth departments to use performance indicators as part of program budgeting which each department was required to adopt by the end of 1989. The Department stated, and the Committee agreed, that the development of performance indicators was sometimes a difficult task. Nevertheless, the Committee was firmly of the view that there

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21. Ibid.
22. Ibid., pp. 169-71.
23. Ibid., p. 172.

were substantial benefits to be achieved through departments, and the ATO, making full and proper use of performance indicators.[24]

Conclusion and Recommendation

4.43 The Committee remains concerned that measures other than staff savings need to be used to evaluate the implementation of the ATO's re-equipment and redevelopment proposal and the resulting new systems.

4.44 The Committee notes there is a requirement for all Commonwealth departments to be developing performance indicators as part of the implementation of program budgeting. The Committee acknowledges that the ATO is working with the Department of Finance in this context.

4.45 The Committee agrees with the Department of Finance that, in addition to those performance indicators of a more general application being developed by the ATO as part of program budgeting, it is critical that appropriate measures or performance indicators for the re-equipment and redevelopment proposal and its components be established prior to the proposal's commencement. The Committee further agrees with the Department that these indicators should be agreed between the ATO and the Department. The Committee believes that only then will the ATO be able to demonstrate the benefits achieved through its re-equipment and redevelopment proposal.

4.46 The Committee concludes that:

- there is a need for the Australian Taxation Office to develop prior to the commencement of its re-equipment and redevelopment program appropriate performance indicators which will measure the benefits of the program and the resulting systems.

4.47 The Committee recommends that:

11 the Australian Taxation Office and the Department of Finance adopt a co-ordinated and timely approach to the specification of appropriate performance indicators for the Australian Taxation Office's re-equipment and redevelopment program an

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24. Ibid., pp. 165-7.

CHAPTER 5

OTHER ISSUES

- Australian Industry Participation
- Australia Card
- 1985 Computer Acquisitions

Australian Industry Participation

5.1 In setting up the Committee's original standing reference in 1984, the then Minister for Finance, Mr Dawkins, stated there was a need for major issues such as Australian industry participation to be subject to independent scrutiny well before the commitment of financial and other resources. He noted:

> I have seen projections which suggest that the information sector is likely to become one of the largest sectors of employment in the economy by the turn of the century and that the computer industry may well be the largest in the world by that time. Clearly in these circumstances we should make every effort to ensure that the Government's purchase of hardware and software encourages significant Australian industry participation.[1]

5.2 In its examination of the ATO's computer system re-equipment and redevelopment proposal the Committee paid particular attention to this 'term of reference'.

5.3 The Committee found that at the core of the ATO's proposal was a policy, articulated in the ATO's strategic plan,[2] to use only proven technology. Since the early 1970s, the ATO had purchased Australian manufactured information technology costing many millions of dollars from a number of suppliers. The ATO claimed that its 'level of satisfaction with these dealings ranged from good, through average, to poor' but that it remained willing to acquire Australian products which were 'proven',[3] that is, 'actually installed at sufficient sites to demonstrate reliable operation'.[4] The ATO justified its cautionary attitude on the grounds that:

> ... being responsible for the collection of 80 per cent of the Commonwealth's revenue, we cannot subject that important activity to high risk. The adoption of this policy is a factor contributing to the minimisation of that risk.[5]

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1. House of Representatives, Debates, Vol. 317, p. 3019.
2. Australian Taxation Office, ADP Strategic Plan, February 1986, paragraph 1.3.2.
3. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.
4. Ibid.
5. Minutes of Evidence, p. 194.

5.4 The ATO's cautionary attitude was demonstrated more than once during the course of the Committee's review when the Committee was told that 'the leading edge of technology is the brink of disaster'.[6]

5.5 In evaluating the ATO's preference to use only proven technology the Committee sought comment from the Department of Industry, Technology and Commerce, the Department of Finance and the Department of Local Government and Administrative Services. The Department of Industry, Technology and Commerce (DITAC) stated that:

> ... the requirement to consider only proven products will disadvantage local industry in meeting the tender requirements.[7]

However, DITAC mitigated this criticism by adding that the issue could be addressed by itself and the Department of Local Government and Administrative Services (DOLGAS) during their involvement in the development of the draft Request for Tender (RFT) and consideration of the associated tender evaluation methodology.[8]

5.6 The Department of Finance pointed out to the Committee that while the ATO had professed that its proposal was seen as being consistent with Government policies,[9] there existed a potential for conflict 'between Government policies of preference to Australian manufacturers and the (ATO's) stated intention of using proven technology and industry accepted standards'.[10]

5.7 The Committee noted this potential conflict. The Committee was of the opinion that Commonwealth departments should be more mindful of policy implications when preparing acquisition proposals. When evaluating a similar proposal by the Department of Defence in its submission on Project DESINE, the Committee expressed its belief that 'the Government's industry and purchasing policies do impose some constraints on the proposed purchasing arrangements'.[11]

5.8 DOLGAS also expressed reservations to the Committee about the ATO's intention to use only proven products. It pointed out that under the Government's policy of preference to local industry, 'reasonably adaptable' products, that is products which may not meet a specification in a strictly technical sense, 'may not be excluded from consideration. This means that new local products cannot be excluded simply because they are not in wide use or well established in the market'.[12]

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6. Ibid.
7. Ibid., p. 92.
8. Ibid., p. 93.
9. Ibid., p. 16.
10. Ibid., p. 81.
11. JPCPA, Report 254 - PROJECT DESINE - Proposed Computer Acquisition by the Department of Defence, p. 42.
12. Minutes of Evidence, p. 98.

5.9 The ATO advised the Committee that it was encouraging Australian participation in both the re-equipment and the redevelopment processes and that Australian industry had been kept well informed of the broad requirements of the project. The ATO claimed to have established the capability of Australian industry by holding numerous discussions and by receiving formal presentations from members of the Australian Computer Equipment Manufacturers Association (ACEMA).[13]

5.10 On the basis of its contact with local industry, the ATO concluded:

> No Australian manufacturer has the capacity to provide the computing power needed for main database support in a project of this size, but their products may meet needs in areas such as communications, workstations and office systems.[14]

5.11 The Committee noted that the report of the Inglis Inquiry recommended that departments and authorities consider undertaking the prime contractor role for large acquisitions or of encouraging local firms to undertake or to share in it.[15] DITAC alluded to this recommendation in its comments on the proposal and expressed the view that:

> ... it is only through prime contractor status that local industry can gain expertise in system design management. The ATO proposed contract for this major computer acquisition can be seen as a seed contract to help to develop Australian industry in this context. We note that there are a number of Australian companies with the necessary skills to well position themselves to gain prime contractor status in such a contract as this.[16]

5.12 DITAC went on to suggest that:

> ... the ATO should allow for the prime contractor ... to test Australian products to ascertain if they are suitable for consideration ... As is the case with Project DESINE, local industry involvement should be monitored over the life of the contract once let.[17]

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13. Ibid., p. 20.
14. Ibid., p. 21.
15. Department of Industry, Technology and Commerce, Report of Committee of Review on Government High Technology Purchasing Arrangements, February 1987, p. 12.
16. Minutes of Evidence, p. 93.
17. Ibid., pp. 93-4.

5.13 DOLGAS also expressed an opinion on the issue of prime contracting arrangements:

> The preferred approach, which provides maximum flexibility for ATO, as well as maximum opportunity for consideration of locally manufactured ADP products, is for tenderers to be encouraged to undertake joint tendering arrangements involving local suppliers. Firms which prefer to submit part tenders should not be discouraged from doing so, but part tenderers should be made aware that as prime contractor project management is the desirable approach, part tenderers may be asked to enter into subcontract arrangements with a prime contractor.[18]

DOLGAS added that, in the latter situation, it would ensure that part tenderers would not be disadvantaged by contracting with a commercial organisation instead of the Commonwealth.

5.14 The Committee sought comment from the ATO at the public hearing of 30 April 1987 as to whether the ATO had considered undertaking the prime contractor role or encouraging local firms to undertake the role. The ATO responded:

> We have considered a range of options regarding the possibilities of a prime contract relationship. We have in fact formed the steering committee for the oversight of the establishment of those contracts. In addition to members from the Taxation Office, we also have members from the Department of Local Government and Administrative Services and the Department of Industry, Technology and Commerce on that steering committee. This issue has already had some discussion. It will undoubtedly have some more before the RFT is finally prepared and released. There is general acceptance at this stage that we would be seeking a prime contract relationship from tenderers. That, of course, means that anybody who tenders will have the ability to respond as a prime contractor.[19]

5.15 The ATO also commented:

> ... there must be risks associated with any of the options that we ... choose. The most relevant criteria that we would seek regarding prime contractors would be prior experience and evidence that they have the capability to undertake such a role.[20]

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18. Ibid., p. 97.
19. Ibid., p. 184.
20. Ibid.

5.16 The Department of Finance advised the Committee that the conversion component of the ATO proposal was one area of opportunity for major Australian participation.[21] DOLGAS also saw this as 'an excellent opportunity for local software developers' and suggested there would be 'considerable flexibility for the industry to propose solutions virtually unhindered by the previous strategies pursued by (the) ATO to fulfil its computing needs'.[22]

Conclusion and Recommendation

5.17 The Committee notes the application of Australian purchasing preference is now a standard component in all Government tendering procedures. The Committee is persuaded on the basis of evidence presented to it that the necessary provision for Australian industry participation will be made in the ATO's Request for Tender and tender evaluation and that the ATO and DOLGAS will ensure the requirements of this policy are met.

5.18 However, the Committee believes any department can take a stance towards Australian industry participation that may range from inactive acquiescence to Government wishes to forceful pursuit of Australian participation. The Committee finds that while the ATO is not opposed to the inclusion of Australian participation, it appears unwilling to incur the additional costs that might be associated with that participation. In view of the Government's policies, the Committee concludes that:

- there is a need for the Australian Taxation Office to carry some additional costs in order to encourage further the local development of Australian information technology capability. This applies equally to the hardware, applications support and management aspects of the project.

5.19 The Committee recommends that:

12 In order to comply with Government policy, the Australian Taxation Office must deliberately and actively structure its Request for Tender to favour Australian industry participation and the extra costs it may incur should be quantified so that the Australian Taxation Office is not penalised for its active support.

Australia Card

5.20 Despite the widespread interest in the Australia Card which existed throughout the Committee's review, the Committee was concerned only to evaluate the importance of the Australia Card to the ATO's re-equipment and redevelopment proposal and moreover, what benefits would accrue from the proposal if there was no Australia Card.

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21. Ibid., p. 84.
22. Ibid., p. 98.

5.21 The Committee examined the ATO's original submission and noted that the income matching activities of the ATO involved substantially manual processes and that they relied heavily on paper documents. Nevertheless, the income matching activities had proven to be highly revenue productive. The submission stated that in 1985-86 the ATO's revenue matching programs had resulted in some 125,000 amended or original assessments being made. These assessments resulted in $96 million extra tax revenue.[23]

5.22 The ATO indicated in its original submission that in assessing the benefits (ie the reduced rate of staff growth) that would accrue in the income matching area, it had taken into account the effect of the introduction of the Australia Card.[24]

5.23 While the ATO justified its re-equipment and redevelopment proposal on the basis of staff savings, the Committee sought details from the ATO as to the expected increases in tax revenue that would result from the Australia Card or an alternative taxpayer numbering system. In response, the ATO referred the Committee to the Report of the Joint Select Committee on an Australia Card.[25,26] The revenue gains from the Australia Card indicated by the ATO are shown in Table 5.1.

Table 5.1 Revenue gains from the introduction of the Australia Card.

	Revenue gains from the Australia Card:	
Year	(a) With photo ($mill)	(b) Without photo ($mill)
1989-90	153	117
1990-91	413	322
1991-92	612	472
1992-93	724	551
1993-94	724	551

Source: Australian Taxation Office.[27]

5.24 The ATO advised the Committee that gains had been estimated from an upgraded tax file numbering system of either moderate or high integrity. The Committee noted that the definition of a moderate or high integrity numbering system would depend upon the degree of legislative change that occurred.

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23. Minutes of Evidence, pp. 36-7.
24. Ibid., p. 39.
25. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.
26. Report of the Joint Select Committee on an Australia Card, May 1986, Parliamentary Paper No. 175/1986.
27. And see: Ibid., p. 13.

5.25 The ATO estimated recurring tax revenue gains of $290 million from a moderate integrity tax file system. However, it was noted that 'there could be no certainty that the benefits of $290 million would be maintained over time due to ... (the number's) lesser integrity'.[28]

5.26 The revenue gains from a high integrity tax file numbering system were estimated by the ATO to be similar to that proposed for the Australia Card without a photograph (see Table 5.1).

5.27 At the public hearing of 30 April 1987 the Committee questioned the ATO on the importance of the Australia Card to the ATO's re-equipment and redevelopment proposal.

5.28 The ATO reiterated that in order to use the masses of available information in an economical way it was imperative that the ATO have the facility of a number identifier that both the ATO and the suppliers of the information used.[29]

5.29 The ATO stated:

> At the moment, as you would be aware, there are a number of reporting systems. As you will appreciate, the Australia Card was a means to an end in the sense that it was also going to support new information reporting systems - that is, a whole range of different types of income data, and even other transaction data, would have been reported to us with that unique identifier. Our comments have to be addressed to both existing systems and potential systems. In terms of existing systems, the dividend and interest matching process that we have at the moment is our major activity. Currently, we are only able to match, by computer, in the region of 60 per cent of the transactions which we receive. Some of those transactions are not matched because we do not have computer records for people who do not have a liability to lodge tax returns and so there is no way that you would ever get 100 per cent. However, when you are talking in terms of eight million, 10 million or 12 million transactions with a 40 per cent unmatched rate you are talking about a lot of data that is not matched with taxation records. In the current environment, it is a highly labour intensive activity to process that information.

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28. Letter to JPCPA from Commissioner of Taxation of 13 April 1987; JPCPA File 1986/4 Part A/1/2.
29. Minutes of Evidence, p. 175.

> Under the sort of information processing environment envisaged with Australia Card, conceivably we would be looking at capturing and matching annually of the order of 50 to 60 million transactions for the purpose of detecting evasion. Unless you have a unique identifier with an acceptable degree of integrity, you are putting a lot of effort into gathering information which you cannot effectively and efficiently match with taxpayer returns.[30]

5.30 The Committee questioned the ATO as to what it could do without a high integrity numbering system. The ATO advised the Committee that its existing matching systems were already highly revenue productive, however, the ATO stated:

> If we had nothing more than this new equipment and the associated systems, but we did not have the facility of the number used internally and externally, {it is uncertain that} the 60 per cent would increase very much at all.[31]

The ATO also stated:

> ... our analysis says also that if you had a unique numbering system you could probably improve the efficiency of {the matching} process by 50 or 60 per cent.[32]

5.31 The ATO indicated that apart from the income matching aspect, the new facilities 'would enable {the ATO} to develop a whole range of other applications which would assist in devising more sophisticated methods of selecting cases for audit'.[33] Even if the ATO did not have the Australia Card, there was no doubt that the new facilities would increase the ability to detect avoidance.

5.32 The Committee noted the comments of the ATO made at the public hearing of 30 April 1987. It was clear to the Committee that there were substantial benefits to be gained through the Australia Card or some equivalent high integrity numbering system.

5.33 The Committee noted that a similar level of effort would be required to introduce a high integrity numbering system as would be required for the Australia Card. The Committee also noted that to ensure the effectiveness of an alternative numbering system there would be a need for legislative changes. However, the ATO stated that such changes were for the Government and the Parliament to decide.[34]

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30. Ibid., pp. 175-6.
31. Ibid., p. 178.
32. Ibid.
33. Ibid., p. 179.
34. Ibid., pp. 180-2.

5.34 In the earlier part of the Committee's review of the ATO's re-equipment and redevelopment proposal the Committee was concerned that the ATO did not have a fallback position for the possible situation where the Australia Card proposal did not proceed. The Committee found the ATO's Information Systems Plan (ISP) had a clear agenda for implementing the Australia Card proposal but did not document any alternative courses of action.[35]

5.35 At the public hearing of 30 April 1987 the ATO advised the Committee:

> It is evident, ... from the papers ... put to the Committee that use of a high integrity number of one kind or another is somewhat central to a number of the things we hope to achieve from this project. The Australia Card proposal is, of course, a proposal of government. Its most recent rejection was in the Senate just a matter of days ago. ... with things like May statements coming up, the Government has not yet been able to address its mind to where it goes from here, but certainly at this stage ... {the ATO knows} of no government decision not to proceed. In terms of a Tax Office fall back position, ... {the} point would have to be that, in that sense, the Australia Card proposals are still on the table.[36]

5.36 The ATO provided the Committee with no evidence that it had a fallback position. However, subsequent to the Government's decision not to proceed with the Australia Card, the ATO advised the Committee that it was preparing for Cabinet consideration a proposal for the development of a high integrity numbering system as part of its computer systems re-equipment and redevelopment proposal. The ATO also advised the Committee that it would prepare a cost-benefit analysis of the re-equipment and redevelopment proposal which did not include the use of a high integrity numbering system. This analysis would be presented to Cabinet together with the proposal for the high integrity numbering system.

Conclusion

5.37 The Committee notes that the matching of dividends, interest and other income with taxpayer records is a vitally important part of the work undertaken by the ATO. The Committee notes that while the matching programs already conducted are highly revenue productive they involve substantial manual processes and are heavily reliant on paper documents.

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35. The relevant part of the ISP is reproduced as Appendix F.
36. Minutes of Evidence, p. 173.

5.38 The Committee acknowledges the ATO could improve its tax revenue collection if it only acquired new computer equipment and associated systems.

5.39 The Committee concludes that:

- the development and use of a high integrity numbering system could give the Australian Taxation Office the potential to maximise the improvements in its operations that are anticipated from the Office's computer systems re-equipment and redevelopment proposal.

5.40 However, the Committee notes that the planned re-equipment is necessary for the ATO to continue its operations.

1985 Computer Acquisitions

5.41 In the course of the Committee's review of the ATO's re-equipment and redevelopment proposal the Committee learned of steps the ATO had taken in 1985 to purchase additional mainframe computing equipment from the Control Data company. The Committee was informed that two of the four mainframes currently in operation were being used well below their capabilities and capacity and that therefore the need for new hardware was being overstated. The Committee consequently sought comment from the ATO on this matter.

5.42 The ATO disclosed that the two machines in question, Cyber model 850s, had been acquired to:

- provide additional processor capacity needed to meet requirements until facilities resulting from redevelopment and re-equipment began to take over the workload; and

- overcome a data transfer bottleneck, primarily on disk channels, in the then existing mainframe configuration.

5.43 The configuration in 1984 comprised two Cyber model 730s and a model 173. The ATO decided to take steps to overcome problems that these mainframes were having in coping with increasing workloads. It approached Control Data, the supplier of the Cyber models, for a solution.

5.44 In May 1985, Control Data proposed replacing the two model 730s with two model 850s running under a dual state operating system (NOS/BE - NOS/VE) and supporting a database management system (IM-DM) and programmer productivity tools. However, the ATO did not accept the proposal because it failed to overcome the data transfer bottleneck problem. A revised proposal made in July 1985 was declined on similar grounds.

5.45 A further revised proposal was made in October 1985 and acceptance was approved by the Commissioner of Taxation the following month. The proposal provided for:

- removal of the model 173;

- retention of the two model 730s;

- installation of two model 850s; and

- an operating system arrangement to overcome the bottleneck problem.

5.46 The ATO claimed that in successfully negotiating this agreement it had:

- considered the options;

- observed its strategic commitment to use proven products;

- acted in accordance with its strategy of redevelopment and re-equipment;

- avoided giving the impression that the redevelopment and re-equipment process would be effected other than through open tender; and

- required no 'dollar increase per year' funding to the ATO.

5.47 The Committee then sought further information on a number of issues which followed on from what the ATO had disclosed. The Committee approached not only the ATO but also the Department of Finance and the Department of Local Government and Administrative Services (DOLGAS). The main issues of concern to the Committee were:

- whether the decision to purchase additional equipment was the least cost solution available; and

- whether correct authorisation had been obtained to make what was in effect a transaction of a magnitude normally requiring Cabinet approval.

5.48 After viewing material provided in confidence by the ATO, DOLGAS and the Department of Finance, the Committee was satisified that no irregularity was involved in the procedures which had been followed.

APPENDIX A

Extract from : House of Representatives, Debates 1987, No. 10, p. 3790.

JOINT COMMITTEE OF PUBLIC ACCOUNTS

Mr PRICE (Chifley)—by leave—On behalf of the Joint Committee of Public Accounts, I wish to make a brief statement in relation to the Committee's review of the Australian Taxation Office's proposed computer redevelopment and re-equipment program. This review has been conducted under the terms of the Committee's standing reference from Parliament to review proposals by Commonwealth departments and agencies to acquire major computer facilities—that is, facilities valued at more than $5m. The Taxation Office's proposed program is estimated to cost $693m over the next 10 years.

The Treasurer (Mr Keating) wrote to the Committee on 18 February 1987 advising that Cabinet had granted in-principle approval to a major staged computer systems redevelopment and re-equipment project by the Australian Taxation Office. The Treasurer requested that the Committee consider the matter in sufficient time to enable a request for tender to be issued in June 1987. A submission dealing with the Taxation Office's computer system redevelopment and re-equipment program was forwarded to the Committee by the Commissioner of Taxation on 27 February 1987.

The Committee's review is involving a detailed examination of the Taxation Office's proposed program. The Committee has a number of concerns which relate to lease-purchase arrangements the Taxation Office entered into in 1985 to acquire additional mainframe computers. The Committee notes that the Government is desirous of issuing a request for tender as soon as possible.

The Committee had intended to present a report to Parliament on this review by the end of this sitting period; however, the calling of an election now prevents this from happening. A report should be presented to the Parliament by the Sixteenth Committee of Public Accounts.

APPENDIX B

Extract from: Australian Taxation Office, Information Systems Plan, Revised February 1987, Section 8.

8. PRESENT STATUS OF SYSTEMS

A. Organisation of Systems Group

The Systems Group was recently reorganised into four systems branches and one section. The ADP Computer Systems Officers (CSO) and the Project Clerical Staff (PCS) have been integrated into application teams in each of the new branches and section. Annex 1 shows the current structure of the Systems Group.

The Group has an anticipated ASL usage of 320 for the 1986/87 financial year. As of March 1987, 350 staff were employed, resulting in a requirement to recruit 10 personnel. However on an estimated average staff turnover rate of 10.5% the number of people to be recruited into the Group during the remainder of the financial year rises to 54. Of these 54, 44 need to be recruited for systems development/maintenance.

Annex 2 shows the average staff levels (ASL) for system development/maintenance staff.

Annex 3 shows the number of CSO's and the shortfall at each CSO level. The average CSO shortfall across all levels is 47.5%. This is greater than the overall Systems Group shortfall (including CSO's and general clerical support staff) of 28%.

Annex 4 shows the distribution across CSO levels of the 34 CSO staff who left the Group in 1985.

B. Computer Hardware

Annex 6 indicates the current total capacity of ATO's computer hardware. Annex 7 and 8 shows the number and type of terminals in each office and describes the functions each type can perform.

The ATO has two central sites which house mainframe computers. The main site has two machines, and is shown diagramatically in Annex 9. MFC is a Cyber 730 dual processor with 2.62 MB of main memory and 20 peripheral processors supporting 24 channels. It has 5.14 MB of extended memory, which is

channel-accessed, but is substantially faster than disk. MFC has 472 MB of demountable disks, 5496 MB on 8 fixed drives and 3 6250BPI tape drives. MFC shares 944 MB on 4 demountable disks and 26106 MB on 38 fixed disks, with MFF. The two machines also share a high speed line printer. MFF is a Cyber 850 single processor with 20.48 MB of main memory and 20 peripheral processors supporting 24 channels. MFF has 472 MB of demountable disks, 5496 MB on 8 fixed drives and 4 6250BPI tape drives in addition to those it shares with MFC. The two machines are linked by a hyperchannel which also has a landline and a microwave link to the hyperchannel at the second site.

The second site also has two machines, and is shown diagramatically in Annex 10. MFD is a Cyber 730 dual processor with 2.6 MB of main memory and 20 peripheral processors supporting 24 channels. It has 472 MB on 2 demountable disks and 5496 MB on 8 fixed drives. MFD also has 5.12 MB of extended memory and 3 6250BPI tape drives. It shares a further 944 MB on 4 demountable disks and 26106 MB on 38 fixed drives, with MFE. MFE is a Cyber 850 single processor with 20.48 MB of main memory and 20 peripheral processors supporting 24 channels. It also has its own 472 MB demountable and 5496 MB of fixed disks. It has 4 6250BPI drives and a 1600BPI tape drive. Both machines share a high speed line printer.

All machines at both sites are connected to Tax-Net. This is a national X.25 network which will enable any terminal on the network to access any of the mainframes and the local set of minicomputers.

MFD currently supports 116 online enquiry terminals nationally, on direct lines. Data entry and the file marking system run on terminals connected to the branch office minicomputers. Data is stored on disk on the minicomputers for transmission after close of business. Any of the 269 file marking terminals can also be used to make an online file marking enquiry to MFD. Additionally, each branch office can use up to 20 Time Office Computers (TOC) microcomputers, on an Ethernet Local Area Network, for PPS online enquiries. These are multiplexed within the ELAN onto 2 Cyber lines per office which currently connect directly to MFC.

Of the 73.9 GB of disk storage, 13.6% is used for the Operating System. The remaining 63.8 GB is used for permanent master file storage or temporary files such as the transaction files for the batch updates. The percentage utilisation of this 63.8 GB varies from 48% to 81%, depending on the system, with an overall utilisation of 75%.

The Systems Group also has 24,000 2400ft reels of tape. Except for some old data holdings at 1600BPI, most are phase encoded at 6250BPI, giving a total capacity of about 2532GB. The major use of these tapes is backup of master files for recovery and audit purposes.

The Statistics system is the only major system which has most of its data stored on tape rather than disk. Six years of data are currently stored on 3,555 tapes, about 5% of which are used for backup. This leaves 3,377 tapes holding about 356.25 GB of live data.

Approximately 0.5 GB of archived NTS data is currently stored on tape. Another use of tapes is for sending large one-off print runs to branch offices or, occasionally, update print-runs if a transmission line has failed.

Branch Offices

Three types of hardware are used in the branch offices: Prime and Honeywell minicomputers, and Ethernet Local Area Networks (ELAN) on TOC microcomputers.

The numbers of each type of minicomputer in each branch office are tabulated in Annex 11. An overview of the ATO communications network, as at June 86, is depicted in Annex 12. A hardware diagram for a representative branch office is shown in Annex 13. Sydney was chosen as it has one of the more complex arrangements.

To supplement the numbers of Honeywell H316's, CMAD 202's are used in some branches. Both of these minicomputers will be referred to as Honeywells in this report.

The Honeywells were used to run the Direct Data Entry (DDE) system, which handled data entry for all mainframe system except PPS. PPS uses TOC 5000 and 6000 series microcomputers in an ELAN for data entry.

DDE has been moved from the Honeywells to a new ergonomically designed series of TOC microcomputers, the 6000 series. Only some minor functions remain on the Honeywells. The main one being the transmission of data collected by the Olivetti cash receipting terminals. This will be taken over by the Primes when the Olivetti - Prime link has been established. The Honeywells are therefore due to be de-commissioned by end February 1987. Simultaneously with the removal of the Honeywells, the Primes are being upgraded to handle communication functions previously handled by the Honeywells.

C. Computer Software

The Systems Group supports local enhancements and urgent corrections to a range of Cyber systems software including the NOS/BE operating system, Cyber Record Manager software, various compilers, and system utilities such as the sort package.

The Systems Group is also responsible for the development and maintenance of all major National Office and Branch Office application software systems.

There are currently 9 major mainframe systems, divided into 19 subsystems, comprising just over 1.1 million lines of COBOL in 491 programs; 83.5 thousand lines of FORTRAN, BASIC and PASCAL in 254 programs; and 12.5 thousand lines of Cyber assembler (COMPASS) in 22 programs and utility subroutines. In addition to the 1.1 million lines of COBOL batch programs, there are also 19.5 thousand lines in 12 online programs, mainly COBOL (90%) with FORTRAN subroutines. Additionally the Systems Group maintains TXIO, a locally developed indexed sequential file package for the major application system, which is highly machine and application optimised, using FORTRAN and COMPASS.

The Systems Group's responsibility for applications systems on minicomputers and microcomputers includes the following:

- Direct Data Entry (DDE) on TOC microcomputers.
- File marking and file location online enquiries (FLOE) on the Primes.
- The communincation package TARDIS/PC on the Primes.
- Various small applications on the Primes, such as the Superfund calculation programs.
- Several applications on the TOC ELAN, such as edits developed under the Taxation Interactive Data Entry (TIDE) system and PPS online enquiries.
- Cash receipting programs currently on Olivetti cash registers.

Annex 14 shows the size of mainframe application systems, including the lines of Cyber Control Langauge (CCL) set up to run each system. Annex 15 shows similar information for minicomputer/microcomputer application systems. These mainly run in branch offices, with the Freedom of Information (FOI) system being the only minicomputer system, run in National Office (maintained by the Systems Group). The Finder registry file marking system also runs on the National Office Primes, but is not maintained by the Systems Group.

Annex 16 shows the amount of maintenance occuring in each system. It illustrates that most of the existing systems are 15-20 years old and have been re-implemented, when the implementation of the current system took place in 1974/75. They therefore require extensive continuous maintenance. Approximately 2400 Programming System Request (PSR) are processed each year. They require about 10,000 days per year of maintenance activity to resolve them. At an average internal personnel cost of $36 per hour, maintenance is presently costing $2.5 million per year. It has been determined that existing systems should be redesigned/implemented to reduce the annual cost of maintenance, address current user requirements and take full advantage of the latest technology.

Annex 17 provides an overview of the transaction volumes presently being processed by the existing application systems.

The following descriptions provide an overview of each application system:

1. National Taxpayer System (NTS)

A random access NTS master file is maintained at the central computer installation and is accessed throughout the day by on-line enqyiry and on-line inter-office transfer transactions from Branch and Regional offices. The master file is updated once daily by batch processing. Individual taxpayer records contain identification, assessment, lodgment, accounting, file location, control and statistical information.

The update of the master file is the major computer run in the system. Edited transactions received from Branch Offices and NTS master file records are input to the run.

The update run performs the following major operations:-

- Records lodgment of individual, company, partnership, trust, superannuation funds income tax returns, sales tax and other miscellaneous taxes/duties returns as appropriate.
- Updates taxpayer identification information, such as, changes of name and/or address, tax agent numbers and dates of birth and notations.
- Calculates taxable income in computer assisted assessments and generates adjustment advices or queries in appropriate cases for subsequent printing.
- Calculates tax medicare levy, and where appropriate, provisional tax, penalties for late and irregular returns, and interest on overpaid tax related to provious objection/s for all types and years of income tax assessments, amended assessments, and notices of variation of provisional tax processed by the system.
- Performs all arithmetic required to complete assessments and include in such calculations amounts of provisional tax credit, prescribed payments credit, interest payable and company instalments of tax to be allowed as credit in assessments and previous account balances.
- Identified from the appropriate taxpayer computer file record.

- Generates notices of assesment and refund cheques.
- Updates master file records with account postings assessment history, account review information, statistical information, assessing information including details of provisional tax raised, average details, and company instalment details, loss information if any can be adjusted in the "carry-forward" assessing information portion of the record, and details of involvement in tax avoidance schemes.
- Writes original group certificate and tax stamp sheet details for subsequent processing in the PAYE system.
- Records account transfers, account variations and payement details.
- Generates transactions for subsequent processing such as statistics, Tax Agent Sub-System update, control account update and Assessing information system update.
- Records details of the locations of manual files on appropriate master file records.
- Generates transactions in response to batch processing requests for information maintained on master file records.
- Completes the tansfer of taxpayer records between the files of Branch Offices.
- Exercises control over the actioning of correspondence received in the office.

Following the update, subsequent processing at the central installation is aimed at minimising the amount of processing to be performed once transactions are transmitted by a leased line network to Branch Offices for printing.

Print transactions are sorted into print files, according to type, for transmission to Branch Offices. Acquittance registers for the control of subsequent manual processing of assessment notices, cheques and other advices for issue to taxpayers are generated and transmitted to Branch Offices for printing.

All print transactions are converted to line images and transmitted by leased line to Branch Offices. As refund cheques are printed off line, cheque details are transmitted to Branch Offices. A magnetic tape of cheque issues, and cancellations including cheque numbers, is then prepared for the Department of Finance.

There are a number of different periodically run reviews in the NTS. The major functions of the reviews are to:

(i) perform account reconciliations between control accounts and components of file records.

(ii) perform debt collection activities such as final demand for payments, referral to recovery, recovery review reports.

(iii) Output of control lists and analyses of lodged unissued returns, unresolved requests for amendment and current year retuns.

(iv) Output of control lists and analyses of not lodged retuns and produce final demands for lodgement.

(v) Bulk issue of company instalment notices.

(vi) Print and/or delete file location details of paper files.

(vii) Output of listings and analyses of taxpayers involved in tax avoidance schemes.

(viii) Monitor unanswered correspondence.

2. The PAYE System

The PAYE System has been designed to carry out the following tasks:

(i) To maintain a full up-to-date record in respect of each group employer, defaulting stamps employer and post office. To achieve this, details relating to registration, accounting, group certificates and tax stamp books issued and returned, together with other relevant data are maintained on each computer record.

(ii) Using this record, to reconcile the amount of tax instalment deduction credit to be allowed in assessments to the value of tax instalment deductions remitted to the Australian Taxation Office by employers; this reconciliation is achieved through the provision of a Credit File on which original tokens and duplicates are matched. The duplicates are in turn matched to the value of remittances using the group employer/defaulting stamps/post office file.

(iii) To regularly review the state of employers accounts, particularly in relation to the allocation and return of stationery and the payment of outstanding tax instalment deductions by employers.

(iv) To provide option facilities whereby particular functions can be performed as desired eg. production of demands or listings of group employer records exhibiting characteristics such as large debits, outstanding group certificates etc.

(v) To provide information which will enable management not only to be aware of the current state of processing in relation to work objectives but also to plan for contingencies.

The above description covers both the Update and Review processing. Update processing is carried out daily while Review processing is undertaken on a weekly basis.

3. Tax agents Sub-System

The Tax Agents Sub-System (TASS) is based on a separate national file and is designed to maintain a record of every registered tax agent and to produce periodic reports on any agent's lodgment progress as well as management information relating to the performance of agents generally.

Each agent's computer record includes details of name and address, reference number, lodgment programme type, and a table indicating lodgment performance for the current year and prior year. A separate client look up file is maintained which contains for each agent the NTS file reference numbers of all the agent's clients ie., maintaining a link between the NTS and TASS.

There is a two way flow of information between TASS and NTS.

(i) Any "bulk" TASS input transaction (ie. extension of time for lodgment, change of agent's name and/or address, or change of tax agent number) will generate separate transactions, in the appropriate circumstances, for each client of the agent in order that each and every client affected will have their NTS master file record updated with latest information.

(ii) Conversely any transaction input to the NTS which can affect the Tax Agent master file (TAF) eg. change of tax agent number on a client record meaning that details of clients in the TASS has to change, or change in lodgment status of a tax agent client will generate a transaction or series of transactions to update relevant records on the TAF.

NTS and TASS transactions are input to daily updates. Each agent's lodgment performance is determined from the NTS lodgment recording porcess. New or old clients can be added to or deleted from the index of the agent's clients. Agent's lodgment performance tables are adjusted accordingly.

Tax agents' lodgment performance is monitored by the TASS review. This is run weekly during the period end of October to the end of June. Each review produces a control list of those agents who have failed to achieve their lodgment programme and for, internal use only, an individual performance report for each agent on microfiche. The control list is used for manual follow-up action by members of the Tax Agent Liaison Centre. Critical review periods are the end of October, end of November and end of December. Performance reports generated from the reviews at these times are forwarded to agents for their perusal.

4. Statistics System

The statistics system tabulates the data processed in each edition of the Nation Taxpayer System (NTS). The cumulative tabular data are maintained on computer files that are used to periodically produce a variety of statistical reports. The system also maintains a file contraining a record for each aassessment type transaction processed in the NTS.

The major categories of statistics available from the system are -

(i) NTS performance monitoring statistics which include -

Transaction Volumes
Error statistics
Lodgment recorded and debit statistics
Statistical tables for evaluation of the operation of computer assisted assessing.

(ii) Publication statistics represented by -

Statistics for the Commissioner's Annual Report and the supplement to that report covering Taxation Statistics.

Tabulated statistics for individual taxpayers and partnerships and trusts for publication by the Australian Bureau of Statistics.

(iii) ATO Revenue Analysis Branch statistics which are produced for purposes such as Budgetary estimates of revenue and the costing of proposals for legislation changes.

(iv) Enforcement activity monitoring -

Statistics are produced which are used to monitor the performance of investigation and audit enforcement programs.

(v) Special computer programs -

Statistical tables and lists of assessments are produced when required by ATO National Office or any of the Branch Offices. This information is taken from the separate period to date file of assessing type records.

5. Law Enforcement Systems

There are currently six computer based systems designed to support direct enforcement activity, viz:

(a) Dividend and Interest Check System
(b) Husband and Wife Check System
(c) Field Audit System
(d) Distribution Advice Matching System
(e) Dividend and Interest, Spouse Rebate Cross-Check System, and
(f) Valuer General System

These enforcement systems operate independently of each other and are dependent on statistical data generated via the NTS. The systems are described separately below.

- Dividend and Interest Check System

Provides the means of comparing the quantum of income received by taxpayers in the form of dividends, interest, rents, lump sum payments, unemployment benefits and other earnings as disclosed in income tax returns with similar information advised by paying institutions.

Information is obtained from a considerable number of paying institutions involved in a broad spectrum of financial activities. In order to minimise the input resources required institutions using computing facilities are encouraged to supply payment details on magnetic tape in acceptable form.

All payment transactions keyed in Branch Offices are transferred to the central installation where, after amalgamation with data received on magnetic tape and a number of other preprocessing steps, a matching process is effected utilising assessment data extracted from the NTS files. The system is run on a national basis and accordingly the matching process can be successfully effected regardless of the State of origin of the paying institution or the location of the Branch Office handling the taxpayer's affairs. The checking of discrepancies is undertaken in Branch Offices and has proved to be highly cost effective.

- Husband and Wife Check System

A system for matching the returns of married taxpayers with a view to detecting invalid claims and/or rebates has also been in operation since the early seventies. The present system is designed to detect false or inaccurate rebate claims. In relevant years, the system also serves to validate deductions for housing loan interest and medical expenses and levies for health insurance.

Twice each year around February and August the system is run to match the current year assessment data of married taxpayers. In the main, the system is directed at checking the validity of claims for "spouse" rebate. As the level of this rebate can be affected by the income of the spouse, the system attempts to match the return of the taxpayer and the spouse and calculate the correct rebate entitlement on the basis of the information available. The checking of discrepancies is undertaken in Branch Offices and has proved to be highly cost effective.

- Field Audit System

Initial systems development involved the creation of a computer based file for each Branch Office consisting of business (non-corporate) taxpayers and containing one year's assessment data (i.e. for 1977) and the production of a number of financially-oriented analyses from which selection criteria could be derived (e.g. net/total business income ratios, gross profit rates, stock turnover rates and investment allowance claims). A screening program was developed to identify taxpayers meeting specified criteria.

In 1979, the system was modified to produce analyses on a regional basis in order to facilitate the framing of more precise selection criteria. A computer file of company records was also established and the total system then encompassed 2.2m records. Since 1979, the system has continued to be improved with further analyses and selection criteria. In 1980, the screening program was extended - for cases selected, the prior year's assessment data was included and various year-to-year analyses provided.

- Distribution Advice Matching System

In mid-1979 a computer-based matching system was introduced to check distributions disclosed in main returns (partnerships and trusts) with amounts disclosed in subsidiary returns (i.e. returns of partners and beneficiaries). The system entails the input of partnership and trust distribution details to enable matching against individual assessment records. Returns lodged in sets (i.e. where main and subsidiary returns are lodged together) are excluded from this processing.

- Dividend and Interest, Spouse Rebate Cross-Check System

This system is run after both the Dividend and Interest Check System, and the Husband and Wife Check System. It uses the Dividend and Interest transactions that were not matched in the Dividend and Interest system and the Married males records that did not match against Married females in the Husband and Wife System.

The Dividend and Interest transactions are run against the Married males file seeking to match against the taxpayer's surname and his spouse's initials. If a match is made, the amount of the spouse rebate claimed is check against the amount of spouse income found. The detailed checking of discrepancies identified is undertaken in Branch Offices and has proved to be highly cost effective.

- Valuer General System

The Valuer General System at the moment only uses information received from the Queensland Valuer General. The information supplied is of details of property bought and sold in the last three calendar years for vacant land and the last two calendar years for improved land. The vendor name and the profit are extracted from the details provided and the data sorted to bring together all resales by the same vendor. The resales details are then printed in the Branch Office and checked for disclosure against the taxpayer's return.

6. The Prescribed Payments System (PPS)

The prescribed payments system covers deduction of tax at the source from certain payments for work as prescribed by law. The new system applies to payments for work outside the pay-as-you-earn system. Responsibilities for deduction from payments lies with all individuals, companies, partnerships, trusts, governments, authorities and organisations making prescribed payments.

A deduction form completed in part by the person receiving a prescribed payment - the payee - and the person making the payment - the payer - provides a record of the gross amount of the payment and the tax, if any, deducted. On a monthly basis the "payer" forwards to the ATO the tax deducted together with the original of the deduction form. The duplicate copy of the completed deduction form is returned to the payee for inclusion in the payee's income tax return. Credit for tax deducted is allowed in the payee's assessment for income tax.

The computer system has been designed to maintain, on disc, a full and up-to-date record in respect of both payers and payees involved in the system.

7. Revenue Analysis

The Revenue Analysis Branch (RAB) provides estimates to the Treasury on the expected amount of tax to be collected and on the anticipated effects on revenue of alterations in the taxation legislation. To do this they conduct specific surveys, for example the confidential business survey. Also they maintain taxpayer models based on data sampled from the National Taxpayer System.

The RAB system consists of programs to extract data from NTS and the Statistics system, to enter survey data, and various statistical analysis programs to examine the data.

Many of these analyses are carried out on micro-computers, IBM PC's or compatible. This is to provide greater interactive flexibility and to avoid processing delays on the mainframes.

8. Internal Audit

The Internal Audit branch monitors the efficiency of office operations and ensures that operational procedures and standards are observed.

The Internal Audit application system deals mainly with examining the internal consistency of NTS files to ensure that branch office usage and NTS update programs have preserved various integrity constraints.

9. Manpower Planning

The major data collections for this system are the National Productivity Control System (NPCS) anhd the Field Audit Reporting System. NPCS collects resource usage and production achievement data for each functional area in the Branch Offices.

These figures are used by the Branch Offices to allocate their available mandays per year to the various functional areas to achieve their performance targets. The Forward Staff Estimate model also uses this data, for example to plan the staffing when the Newcastle office was opened.

The Manpower Analysis section have also been involved in supplying data for corporate planning, and in linear regression analysis of data from the Statistics system.

D. Inventory of Master Files

Annex 18 describes the files for the 9 major mainframe systems together with the average growth rate for each system.

In total, there are approximately 307 files requiring about 25GB of disk storage and 163GB of magnetic tape storage. On average, the files have been growing at an annual rate of 9%.

E. Systems Development Standards and Methods

Systems Development Methodology

Method/1 has been selected as the System Group's system development methodology. Presently, it is being phased in as training builds the required level of expertise. Also various Method/1 automated packages, executing on stand-alone microcomputers, are assisting ATO project managers and system analysts to implement systems.

Analysis/Design Techniques

Within the Method/1 methodology, structured analysis, design, and programming are used. The methodology also supports the Group's DeMarco/Yourdon approach to structured analysis and design. This is used both for new systems development and for maintenance where appropriate.

Current Program Maintenance/Development Techniques

Programming System Requests (PSR) require correction of a defect detected in a system. Unless the size of changes required for any PSR is large enough to give to a DPO for keying, the changes are developed by the relevant officer using one of two available character-based editors. Changes have to be developed in, or converted to, UPDATE line deletion, line replacement, and line insertion command format. Full screen editors have been evaluated and have been introduced into the Group since late 1986.

For systems maintenance, the UPDATE version tag on a source line contains a reference to the Request for Program Change (RPC) form which authorised the change. The RPC form, as well as showing the originator, the reviewer, and the officer who authorised the change, also has a brief description of the reason for the change, often containing a reference to a task or subject file with more detail.

For new systems development, programs are written out on coding sheets to be keyed by a Data Punch Operator (DPO). Each new program is set up in the form of an UPDATE program module for incorporating it into an existing or new source library.

Present Standards

There are a number of minor standards for the presentation of various types of diagrams. The major programs in NTS have COBOL stylistic standards, mainly to do with data descriptions. Beyond this there are few Group-wide standards. Instead, most application teams apply their own standards to programs under their control.

The creation and usage of Group-wide standards is becoming necessary with the continuing influx of programmers inexperienced with present systems. A project under the control of the Quality Assurance Unit has commenced the task of compilation/creation of appropriate standards for the Group.

F. Training for Systems Group Personnel

A high turnover of staff and an expansion of the Systems Group has resulted in a loss of experienced staff and a high proportion of inexperienced staff in the Group.

Training methods are being put in place to ensure that each officer receives adequate training in skills for their present postion as well as development for progression in the Group, and in the ATO in general. All persons in a managerial or supervisory role are to become involved in training as well as specially trained education unit staff.

Competency models for each CSO and project clerical level are being established for staff to measure their current abilities against, both in their present postion and with a view to promotion. An individual education program will be set up for every member of the Group by the education unit in consultation with the officer and the officer's supervisor.

Presently, training courses in five different classes of skill requirements are being established to augment on-the-job training.

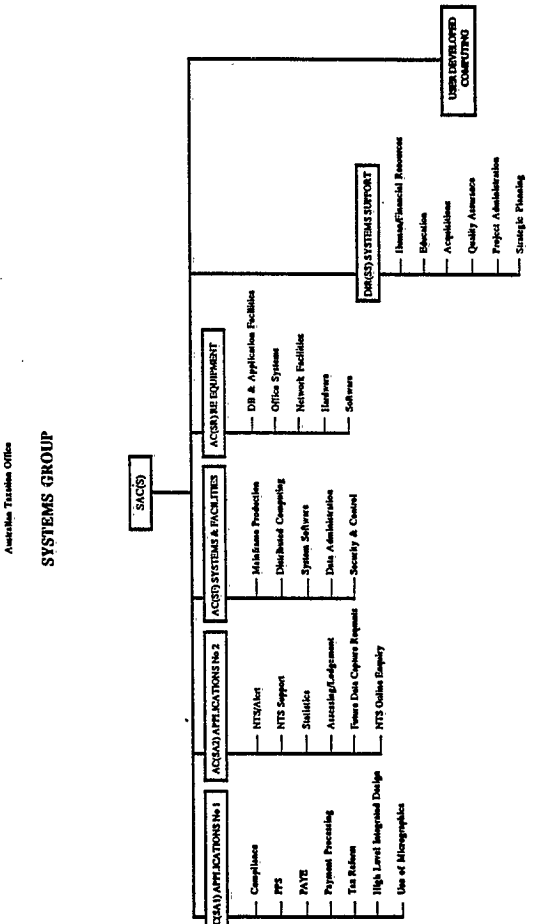
The main theme of training for the first half of 1987 will be to build expertise in the use of Method/1, the ATO's systems development methodology.

8. PRESENT STATUS OF SYSTEMS

G. Systems Group Skills Survey Results

During May-June 1986, a skills survey was conducted within the Systems Group to determine the level of detailed business and technical knowledge of personnel within the Systems Group. It was distributed to all design, programming and user-liaison staff in each of the four branches of the Systems Group. Production control and operating staff, and clerical support staff were omitted since the survey was mainly concerned with requirements needed for future systems development and maintenance. Approximately 180 questionnaires were distributed and approximately 80 responses were processed.

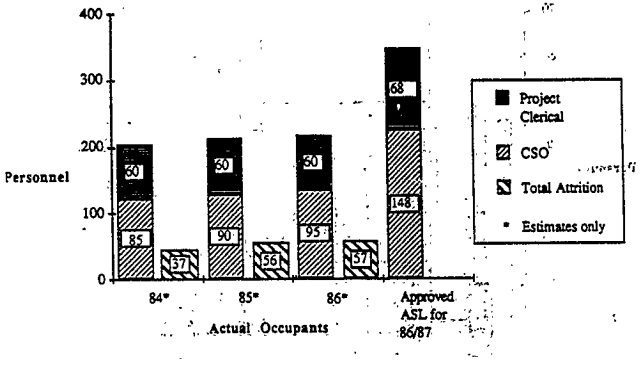
The survey results will be used, to plan future training and education programs, orientate the Group's recruiting program, and to meet future system development requirements. In summary, the survey result highlighted the need for training and acquistion of skills in key areas such as data base management systems, fourth generation development tools and techniques, telecommunications design, and online systems implementation.



Annex 2

AUSTRALIAN TAXATION OFFICE
SYSTEMS GROUP

Average Staff Levels for Systems Development/Maintenance



Assumptions :

- The number of Project Clerical Staff remained constant between 1984 and 1985.

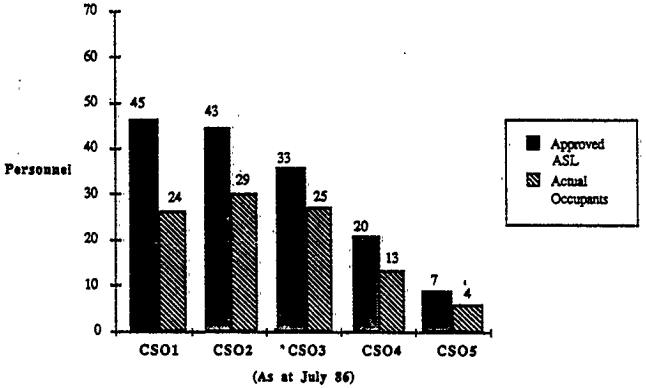
Observations :

- The rate of personnel attrition for Project Clerical Staff is lower than for CSO's.
- There is a history of a high percentage of staff attrition (about 22%-26% per year) within CSO ranks available for systems development and maintenance.
- A major recruiting/hiring program is being implemented to address staff shortages.
- There is a need for an extensive training/orientation program to replace lost skills.
- There is a need to analyse why personnel attrition is so high and address the resultant issues.

Annex 3

AUSTRALIAN TAXATION OFFICE
SYSTEMS GROUP

CSO's Available for Systems Development/Maintenance



Observation :

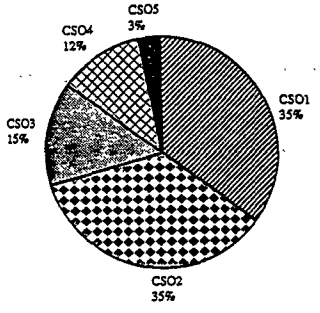
- There is a consistent shortfall of personnel at the CSO levels because of the ATO's difficulty in
  (a) attracting base grade CSO's and specialist CSO's (CSO 3's) and
  (b) in retaining CSO 2's
- The hiring program must recruit personnel at all CSO levels.

Annex 4

AUSTRALIAN TAXATION OFFICE
SYSTEMS GROUP

CSO Personnel Attrition % (1985)

Breakup of the 34 CSO staff who left during 1985, by level.



Observations :

- There is a high mobility at the CSO1 & CSO2 levels.
- There is a rapid reduction in attrition as years of experience are gained.
- The hiring program is recruiting more heavily at the CSO1 level, to offset expected losses.

Annex 5

AUSTRALIAN TAXATION OFFICE
SYSTEMS GROUP

Systems Development/Maintenance Staff Hiring 86/87

	Staff Attrition At Peak Levels (a)	*Staff Short Fall At Peak Levels (b)*	*Vacancies (c=a+b)*	*Estimated Promotions (d)*	*Number To Be Recruited (e=c-d)*
CSO1	17	61	78	-10	88
CSO2	16	22	38	10	28
CSO3	7	14	21	5	16
CSO4	6	13	19	5	14
CSO5	1	3	4	2	2
Total	47	113	160	12	148

Peak level for CSO Staff = 208 ASL = 148
for Project Clerical Staff = 78 ASL = 68

If we assume that the attrition of Project Clerical staff is approx 2/3 of the CSO attrition percentage, and that promotions are primarily internal especially at the higher levels and account for 60% of vacancies.

Project clerical attrition = (2/3 of 24%) of 78 = 15% of 78 = 12
Short Fall = 18
Promotions = 60% of (12+18) = 18

Project clerical recruitment required = (12+18-18) = 12

Systems development/maintenance recruitment required = 148+12 = 160

Australian Taxation Office

TOTAL HARDWARE EXHIBIT

	QUANTITY	TOTAL SIZE
CPU		
Mainframe	4	46.2 Mb
Minicomputer	59	96.4 Mb
DISKS		
Mainframe	116	73.9 Gb
Minicomputer	138	6.19 Gb
Microcomputer	416	12.5 Gb
TERMINALS		
Dumb	650	
Microcomputers		
- Networked	855	
- Data Entry Terminals	489	
- Data Entry Controllers	174	
- Stand alone	271	
PRINTERS		
High Speed	32	40000 Lines/min
Low Speed	500	50000 Lines/min
MAG TAPES		
(National Office Only)	24000	2532 Gb
OFFICE AUTOMATION		
Number of Vendors	8 *	WP & Stand alone micros
Number of WP Workstations	279 *	*

* *includes 1 graphics station in Forms Control*

Australian Taxation Office

Current Terminal Usage

See the associated table for the numbers of each type of terminal in each branch office.

FUNCTIONS SUPPORTED

1. Enquiry to Central Systems
   - Prescribed Payment System (PPS)
     currently any 20 of an office's TOC 5000 series microcomputers can be used for FPS online enquiries

   - National Taxpayer System (NTS)
     - the Wyse terminals connected to the Cyber can do all NTS online enquiries
     - the Prime terminals can do only NTS online file marking enquiries

2. Data Entry for Central Systems
   - the TOC 6000 series microcomputers can do all Central System data entry apart from PPS
   - the Prime terminals are also used for keying NTS file marking transactions
   - the TOC 5000 series microcomputer ELAN handles all PPS data entry

3. Distributed Real Time Update
   The Prime minicomputers with TOC 4000 terminals and the TOC 5000 series microcomputers in PPS are used to do real time updates to local systems when not in use for online enquiries. IBM PC's and NCR and Ericsson IBM-compatibles are used for local spreadsheet and personal database applications.

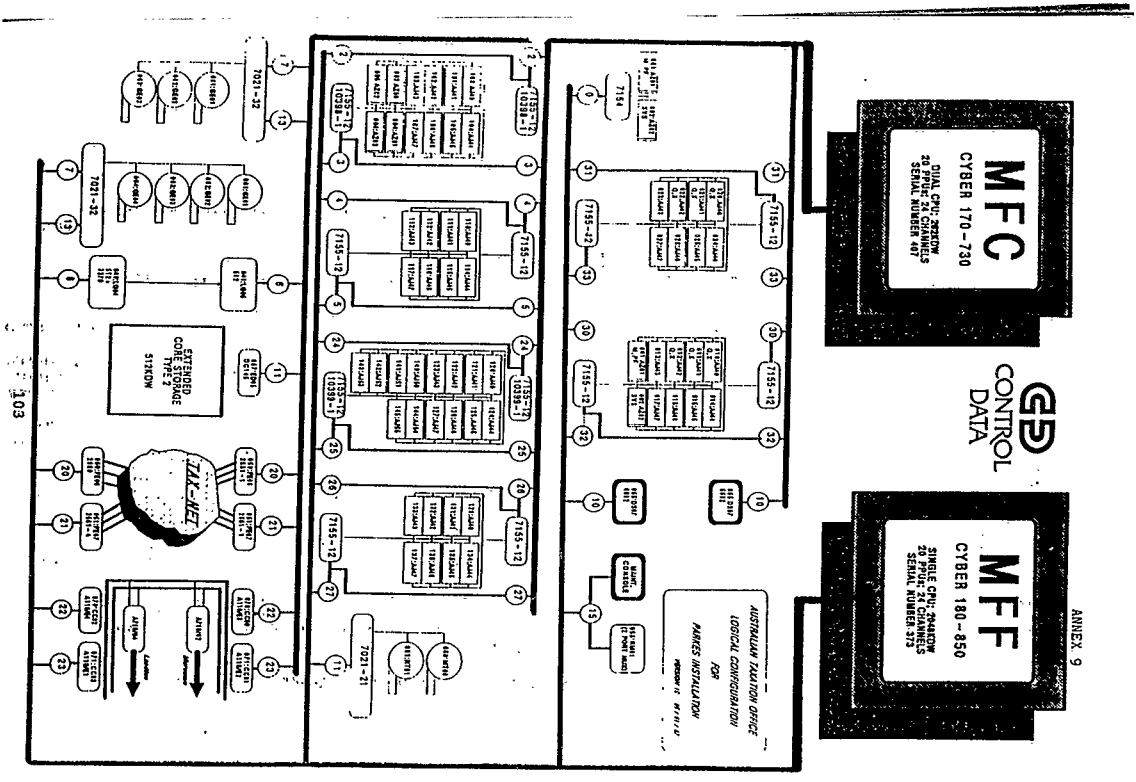
Australian Taxation Office - Current Terminals January 1987

	Adelaide	Albury	Brisbane	Canberra	Chatswood	Dandenong	National Office	Hobart	Melbourne	Newcastle	Parramatta	Perth	Sydney	Townsville	Victoria North	TOTAL
Cyber	10	7	14	8	8	4	75	8	26	6	8	16	29	4	9	232
Prime	32	12	44	15	26	15	25	12	59	20	27	31	61	14	25	418
TOC 6600	12	8	18	6	6	10	3	4	27	10	12	14	30	4	10	174
TOC 6100	36	24	54	18	9	30	0	12	66	30	36	42	90	12	30	489
Total 6000's	48	32	72	24	15	40	3	16	93	40	48	56	120	16	40	663
TOC 5800	6	0	2	4	0	1	13	5	6	3	5	8	6	1	2	62
TOC 5700	2	2	3	2	0	2	1	2	4	2	2	4	6	2	2	36
TOC 5600	33	7	24	10	0	7	35	16	21	11	18	19	32	6	16	255
TOC 5100	37	8	39	10	0	9	142	9	23	11	20	29	69	10	40	456
Total 5000's	78	17	68	26	0	19	191	32	54	27	45	60	113	19	60	809
Wang (WP)	17	6	28	6	10	7	50	8	36	18	11	29	32	9	12	279
Stand alone micro	17	1	17	9	0	1	97	11	27	11	16	17	27	9	11	271
Networked Micro	3	0	3	3	0	0	14	3	3	3	3	3	3	3	0	44
Cash Receipting Terminals *	12	6	10	4	0	2	1	5	17	4	8	8	18	7	6	108
TOTAL	217	81	256	95	59	88	456	95	315	129	166	220	403	81	163	2824

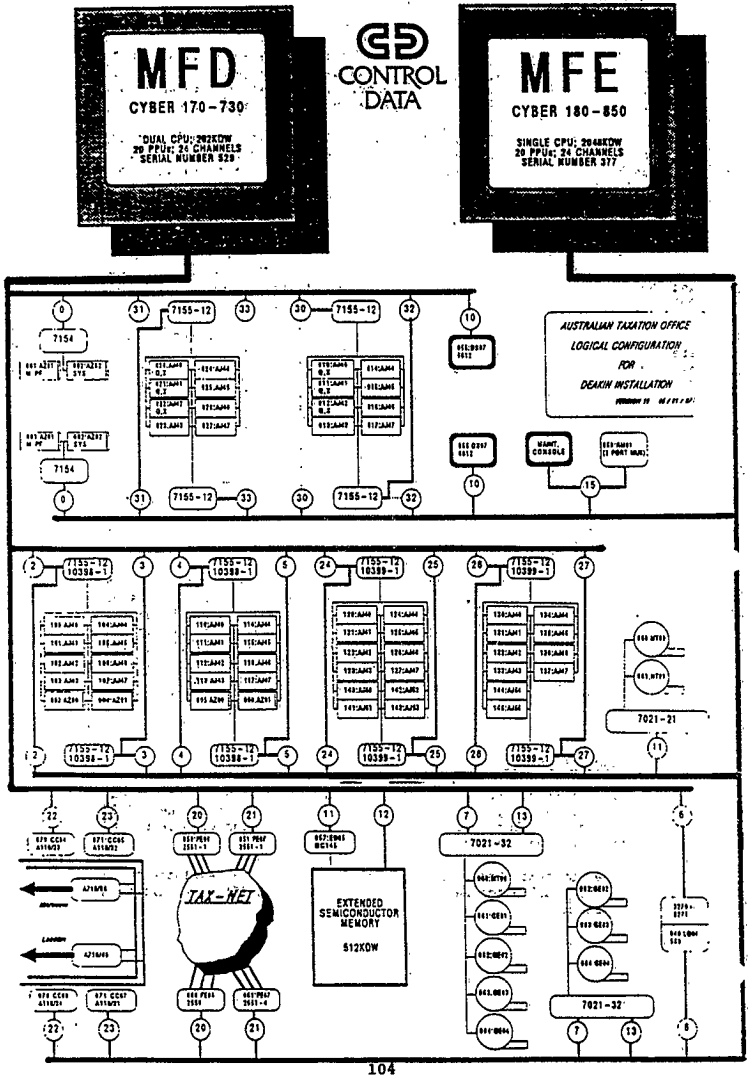
NOTE:

* Number of terminals networked to each site for Tax Receipting

ANNEX 8



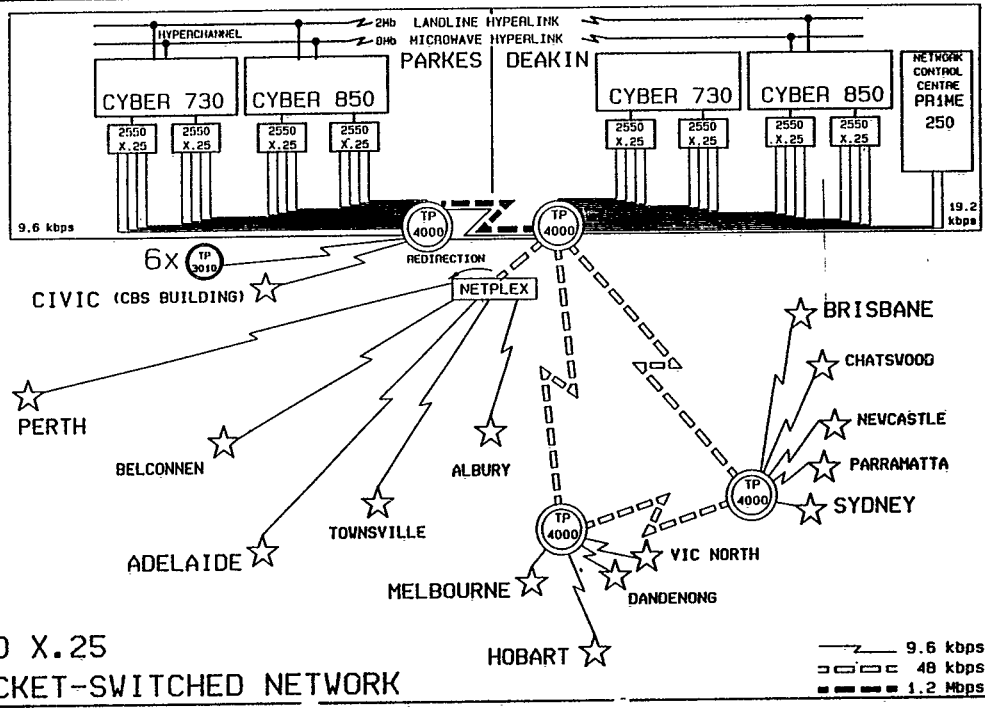
ANNEX 9



Australian Taxation Office

Minicomputer Configuration

Office	PRIME Quantity	PRIME Type	HONEYWELL Quantity	HONEYWELL Type
Adelaide	1	750	2	H316
	1	550		
Albury	2	250	2	H316
Brisbane	2	2655	2	H316
Canberra	2	250	1	H316
Chatswood	2	250		
Dandenong	2	250	1	H316
National Office	1	250	1	H316
	1	550	1	CMAD 202
	1	750		
Hobart	2	250	1	H316
Melbourne	2	9655	1	H316
			2	CMAD 202
Newcastle	2	250	2	H316
Parramatta	1	250	1	H316
	1	550	1	CMAD 202
Perth	1	750	2	H316
	1	550		
Sydney	2	9655	2	H316
			2	CMAD 202
Townsville	2	250	1	H316
Victoria North	1	250	2	H316
	1	550		
TOTAL	31		27	



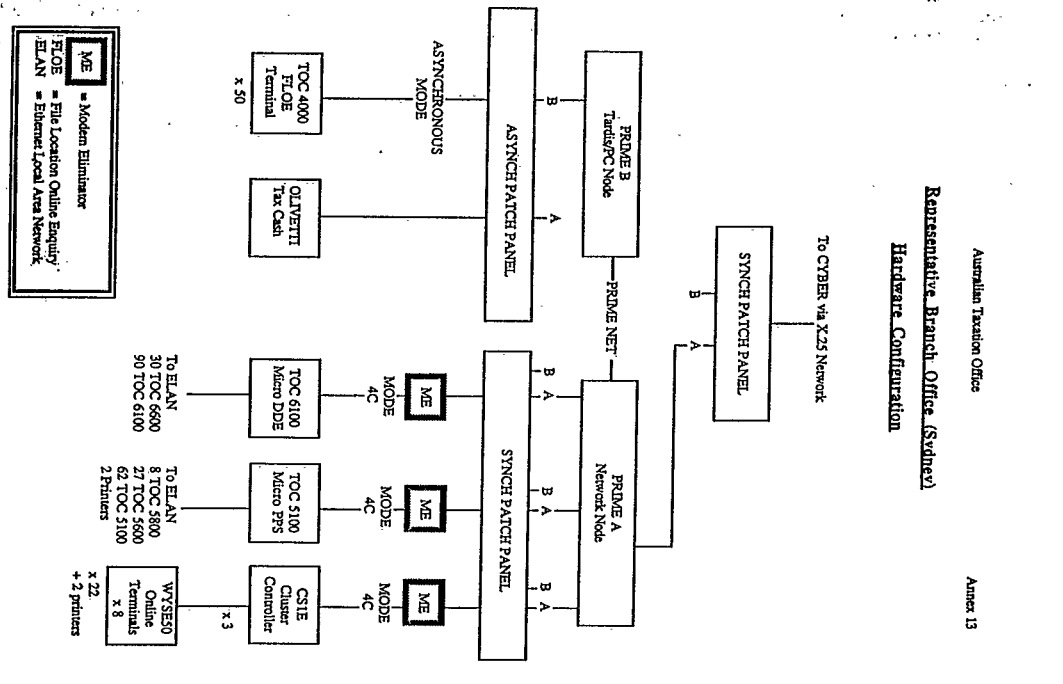
Annex 12.

Annex 13

Australian Taxation Office

Representative Branch Office (Sydney)

Hardware Configuration



AUSTRALIAN TAXATION OFFICE - NATIONAL OFFICE SOFTWARE INVENTORY

Inventory of Application Software Systems Run on National Office Mainframe Computers

SYSTEM	First year of System Implementation	COBOL No of Progs	COBOL No of Lines ('000)	FORTRAN/ BASIC/PASCAL No of Progs	FORTRAN/ BASIC/PASCAL No of Lines ('000)	COMPASS No of Progs	COMPASS No of Lines ('000)	ONLINE * No of Progs	ONLINE * No of Lines ('000)	CCL No of Lines ('000)		TOTAL No of Progs	TOTAL No of Lines ('000)
Assessing	1975 +	36	383.5									36	383.5
Accounting	1975 +	53	49.2	6	0.6							59	49.8
Reviews	1975 +	21	41.7									21	41.7
TASS	1983	33	47.3	8	6.5					*PGJ#*	*IPD#*	41	53.8
NTS & TASS	1975 +									8.1	10.2		18.3
Online Processing	1975 +							4	16.95			4	17.0
EOY	1975 *f*+	33	50.9	3	0.2							36	51.1
Regionalisation	1985	15	19.8									15	19.8
CSSLIB	1975 *f*+	6	2.6	17	6.3	14	10.857			2.3		37	22.1
Law Enforcement	1978	62	49.1	61	7	2	0.165					125	56.3
Statistics	1977	32	93.3	25	20.1	1	0.462					58	113.9
Revenue Analysis	1982			100	20.7	1	0.141			1.2		101	22.0
PAYE	1974 +	50	162.9	9	9.7	2	0.825	2	0.845	1.4		63	175.7
Payer Processing	1983	94	161.4									94	161.4
Exemption/Var'n	1983	23	29.4									23	29.4
Payee Processing	1983	25	21.3									25	21.3
PPS	1983									3.2		0	3.2
Payer Online	1985			2	6.2	1	0.055	6	1.664			9	7.9
FOI	N/A	1	0.2									1	0.2
Internal Audit	N/A	8	3.1	8	0.1							16	3.2
TOTAL		492	1115.7	239	77.4	21	12.505	12	19.459	16.2	10.2	764	1251.5

NOTES

\+ Date systems transferred from ABS to ATO

f means that the first year is shown, but new programs have been added since then.

* ON-LINE is primarily COBOL (90%) with FORTRAN subroutines.

\# PGJ (Program Generator Job) and IPD(Integrated Production Deck) are both methods, unique to NTS, of storing CCL (Cyber Control Language), similar to JCL on IBM's, to allow Production control some flexibility in running NTS.

AUSTRALIAN TAXATION OFFICE - BRANCH OFFICE SOFTWARE INVENTORY

Inventory of Application Software Systems* on Minicomputers/Microcomputers

Honeywell Systems (DAP Assembler)	No of Progs	No of Lines (x 1000)
Edits	396	529
Operating System & Utilities	285	162
Total	**681**	**691**

Elan Systems ("C" Programming Language)	No of Progs	No of Lines (x 1000)
PPS	200	80
DDE	827	228
Utilities	57	16
Total	**1084**	**324**

* *Only systems developed and maintained by Systems Group are included.*

Prime Systems	PASCAL No of Progs	PASCAL No of Lines	FORTRAN No of Progs	FORTRAN No of Lines	PLP No of Progs	PLP No of Lines	PMA (Assembler) No of Progs	PMA (Assembler) No of Lines	CPL/COM1/TEXT No of Progs	CPL/COM1/TEXT No of Lines	TOTAL No of Progs	TOTAL No of Lines
BRANCH OFFICES												
File Marking	59	21281	14	2473	5	1271			20	1328	98	26353
File Location Online Enquiry	4	1443							9	626	13	2069
TARDIS - Utilities	8	2577	5	2411	10	1074	2	22	17	1884	42	7968
+ TARDIS Configuration									284	32819	284	32819
+ Print/Communications	22	9958	82	20040	162	30312	49	5135	35	1345	350	66790
Libraries (Utilities)	25	3065	4	224	6	289	16	767	2	122	53	4467
Superfund Calculation	1	14	1	474					2	73	4	561
HEAD OFFICE												
Freedom of Information	4	3370	2	281	34	3184			3	319	43	7154
Total	**123**	**41708**	**108**	**25903**	**217**	**36130**	**67**	**5924**	**372**	**38516**	**887**	**148181**

SYSTEM	Yr of sys. impl.	NOTE	Estimated 1984 Type of PSR	Days per PSR	Completed PSR's Oct 85-May 86		Estimated Days of Maintenance Since Implementation	CALCULATIONS #PSR per year	#days per year	#yrs	#PSRs
Assessing	75		35.00%	5	471	30.4%	38,824	706	3,529	11	7,765
Accounting	75		10.00%	4	159	10.3%	10,523	239	957	11	2,631
TASS	83		5.00%	3	25	1.6%	334	37	111	3	111
NTS Support (incl. EOY)	75	f [1]		4	218	14.1%	14,406	327	1,310	11	3,601
Law Enforcement	78		5.00%	3	60	3.9%	2,173	91	272	8	724
Statistics	77		10.00%	5	80	5.2%	5,433	121	604	9	1,087
PAYE	74		5.00%	3	90	5.8%	4,848	135	404	12	1,616
Sales+Misc Tax	75		5.00%	3	29	1.9%	1,456	44	132	11	485
PPS	83		10.00%	3	300	19.4%	4,054	450	1,351	3	1,351
Central Software	75	f [1]	5.00%	8	5	0.3%	613	7	56	11	77
Distributed Software	75	f [2]		4	56	3.6%	3,678	84	334	11	920
DDE (Data Entry)	75	[2]		4	54	3.5%	3,576	81	325	11	894
FB/FM	76	[1]	5.00%	3							
Other			5.00%	3							
Total			100.0%	4	1548	100%	89,919	2,322	9,386		
Present Annual Maintenance Cost, based on $36/hr internal cost =							$2,534,091				

NOTES:

f following the year means that development continued for several years.

[1] In 1985 the NTS support team was formed. They took over FB/FM, part of Central SOftware, and EOY.

[2] Branch office systems figures not available '84.

Unknown

Development note: data in cols 8 & 11 was obtained by distributing unknown PSRs across cols 7 & 10.

dev note 2: cols 7 &10-14 omitted from final report.

TRANSACTION VOLUMES——

SYSTEM	ANNUAL Input	ANNUAL Output*	DAILY PEAK Input	DAILY PEAK Output*
PAYE	27,539,000	28,174,750	613,300	637,750
PPS	3,531,000	188,006,000	100,000	837,955
NTS	85,861,000	305,435,875	592,390	2,312,688
TASS	1,500,000	1,937,500	18,000	19,750
Statistics	20,010,000	28,790,000	134,180	169,300
Law Enforcement	10,500,000	10,500,000	350,000	350,000

* Output figures assume that 25% of records reviewed produce an output transaction. This may be a high estimate for some reviews. Reviews are weekly, fortnightly or monthly. For daily peak figures, reviews have been averaged over 5, 10 or 20 days as appropriate.

AUSTRALIAN TAXATION OFFICE - FILE INVENTORY

SYSTEM	Total No of Files	No of Word Addr	No of Indexed Seq.	No of Seq.	No of Record Types	Volume (M Bytes) Disk	Tape		Expected Annual Growth Rate NOTES	
Revenue Analysis	16	0	0	16	16	625			[1]	0%
Online	7	0	0	7	7	8183				
Internal Audit	16	2	0	14	21	0			[2]	0%
Law Enforcement	29	5	1	23	23	1219				10%
TASS	47	1	0	46	151	515			[3]	8%
PPS	47	1	4	42	89	3330			[4]	23%
PAYE	49	16	1	32	436	1467				11%
Statistics	9	2	0	7	65	1092	162875	Tape	18%	10%
NTS	87	1	18	68	1041	5317				11%
Systems Division						2998				
TOTAL	307	28	24	255	1849	24746	162875		Average	9

NOTES

[1] The main A.A file is the ITM; a fixed size extract from NTS - it only increases due to legislative change.

[2] Internal Audit mainly examine data from other systems. Program storage is insignificant.

[3] TASS is growing more than necessary since there is currently no archive facility.

[4] 23% is the natural growth rate (new system). Additionally for 86/87 there is an anticipated 10.4% record size expansion + 76% due to new industries being included + new system functions, giving an anticipated growth of 110%. However archiving is currently being implemented.

Extract from: Australian Taxation Office,
Information Systems Plan, Revised
February 1987, Section 9.

9. FUTURE SYSTEMS PROJECT DESCRIPTIONS

OVERVIEW OF FUTURE APPLICATIONS ENVIRONMENT

The Australian Taxation Office intends to re-equip its offices with modern computer facilities and provide the best opportunities to take advantage of new technology in future as it becomes available thus improving the overall efficiency of the Office and enabling it to best respond to Government initiatives.

The ATO intends to acquire new hardware and software which will provide for:

(a) the timely processing of tax returns in an increasingly complex and growing workload environment;

(b) rationalisation of taxpayer identification;

(c) a single image of each taxpayer and taxpayer liability across all Branches of the Office and all types of tax;

(d) modern facilities in all Branches allowing appropriate online real time access to tax payer information and tax data;

(e) a well integrated office and corporate systems environment which minimises the complexity of interfacing to corporate and local data and processing, and which maximises office productivity, timeliness and availability of relevant ATO data;

(f) a computer processing environment which will enable the ATO to readily take advantage of future developments in information, data processing, networking and office systems technology;

(g) a modern systems development and maintenence environment to maximise productivity and responsiveness in the development and maintenence of computer systems;

(h) a processing environment which maximises end user access to corporate data whilst maintaining appropriate response times and the ability to process, in batch and online, large volumes of update transactions.

The environment must guarantee integrity of the corporate data models across all processing environments required to maintain the data and processing volumes of the ATO.

The corporate data processing environment must be a 'single system image' capable of supporting simultaneously thousands of users operating in a variety of modes on the whole body of the corporate data base. This number of users is expected to generate ultimately up to 120 transactions per second once the systems, detailed in Sections 9A to 9D, have been developed.

The overall environment must be capable of achieving security and integrity of data in all its forms from the corporate store through the network to local processing nodes.

Additional hardware and software will be acquired over time to complemant or replace existing facilities when it is required to support new applications coming on stream or changes or growth in existing systems.

Whilst corporate data is expected to be disseminated through the network to local processors (including personal computers), it is not anticipated that 'processed' data will be returned to the corporate data base.

It is essential that online processes be capable of operating on the same data as batch processes concurrently. Thus it is essential that software is capable of controlling the environment with full integrity protection. The applications, data base and transaction processing environments must be capable of self synchronisation where a fault occurs requiring the backout of any incomplete task.

The software developed for strategic applications will be used frequently and used concurrently by many users. The object code generated by the applications data base and systems software must be re-usable and re-entrant.

In order to achieve the above goals the ATO intends:

(i) to convert the application systems contained in Sections 9A through 9E to the new technological environment as quickly as possible with a minimum of change to application functionality; and

(ii) in parallel with conversion, redevelop and develop new systems from scratch which take full advantage of the new technology.

The aims for conversion are specifically:

(i) enable the ATO information systems to process in the new environment producing the same outputs (from the same network and other inputs) as the existing parallel systems running on the Control Data equipment;

(ii) assuming the Data Base Management System (DBMS) option is selected, a DBMS structure will be used for each of the master files used by each information system;

(iii) provide limited new functionality which will allow -

(a) online taxpayer identification;
(b) generation of overnight queries and reports at the work face rather tha via data entry (DDE). Output reports to be printed at a local nominated work place printer;

(c) some downloading capability of current corporate data which is being rekeyed from host generated reports into micro computers;

(d) improved support for public enquiries regarding status of returns etc;

(e) the ATO to rapidly change existing systems of create additional systems by use of an improved development environment.

Redevelopment and development of new systems will occur in parallel with conversions. It is intended to migrate from the converted environment to the new developed environment. The aims of migration are:

(i) to allow phased implementation of new systems and sub systems without disruption to services,

(ii) to provide a framework for the integration of systems.

The redeveloped environment will enable the ATO to respond more quickly to change and within resource constraints imposed by the Government. The elements of such an environment are:

(i) A mainframe database environment providing -

(a) a common taxpayer identification system for all tax collections (income tax, PAYE, PPS, FBT etc) using either Australia card or a taxation number system;

(b) cross referencing of taxpayers where significant associations occur;

(c) comprehensive taxpayer profiles, including extensive returns, assessment, accounting, status and personal information. Such information will be recorded and accessed as structured data and unstructured text;

(d) taxpayer profiles for all levies will be accessable,

(e) minimal movement of paper files as a result of widespread access to comprehensive data holdings;

(f) greatly improved facilities for management reporting, control and exception reporting.

(ii) Enhanced data capture facilities:

(a) minimising the amount of keying required for the capture of taxation data via electronic lodgement of tax agent prepared returns and use of character recognition equipment;

(b) allowing electronic funds transfer to replace the need to use cash receipting equipment in the collection of taxes;

(c) allowing extensive receipt of income data from financial institutions and other organisations on electronic media.

(iii) Office wide availability of workstation terminals to individual officers and groups of officers linked as required to the main tax data bases, external data bases and local processing for:

(a) data entry from individual terminals for appropriate low volume transactions;

(b) data entry from pooled terminals for high volume transactions not received on electronic media;

(c) online editing of data;

(d) online updating as required;

(e) widespread online access to the main taxpayer data bases;

(f) online access to taxpayer data and requisition of hardcopy file information;

(g) online access to tax rulings and other technical information contained on internal and external data bases;

(h) word processing facilities for preparation of original standard letters, reports and legal processes;

(i) standalone applications such as local data analysis, project management, management reporting etc processing a combination of local and corporate data;

(j) processing Branch office applications including personnel and resource management, assets control, financial management, etc.;

(k) facilities for office tasks such as document and information distribution, document filing and retrieval, connection to telex and facsimile services;

(l) use of 'expert systems' for audit, case selection and case analysis;

(m) automation of the despatch of computer ouput including pre-identified returns, together with automation of the receipt, recording of lodgement and sorting of returns.

(iv) Automation of the despatch of computer output and receipt of returns.

(a) Maximising the use of pre-identified returns; and

(b) Envelope opening, extraction and presorting (by recognition of forms) of return types.

The work that the ATO Systems Group intends to undertake in the next five years has been classified according to whether the work unit is an ongoing activity or a "once only" project. Furthermore the projects have been classified according to the financial year in which the project commences. The classifications are:

9. FUTURE SYSTEMS PROJECT DESCRIPTIONS

A	Projects Commencing July 1986 to June 1987
B	Projects Commencing July 1987 to June 1988
C	Projects Commencing July 1988 to June 1989
D	Projects commencing July 1989 to June 1990
E	Continuing Systems Group Activities

APPENDIX D

National Production Control System (NPCS)

Extract from: Letter to Secretary, JPCPA,
from Commissioner of Taxation
dated 13 April 1987.

QUESTION 44.3

Please provide details of the National Productivity Control System (NPCS).

ANSWER : The National Production Control System is a micro-computer based system which enables the planning and monitoring of resources and workloads. Its features are focused at a functional area level in that nearly all NPCS plans and reports are presented on this basis. In essence, it requires the input, by functional area, of resource usage and workload plans at the beginning of a financial year and provides, at predetermined frequencies, monitoring against these plans by the production of a number of reports.

The planning and reporting levels in NPCS are based on a hierarchical structure of work activities. At the lower end are "Work Units" representing a base level of work activity which enable counts of units of work and/or staff days to be planned and monitored. Work Units provide the basis for preparation of functional area Annual Plans and, after the input of actual data, enable monitoring through Achievement Reports against these plans.

By amalgamating a number of like work units anothe level of planning and monitoring is formed. This level, called "Work Processes", allows average resource usage to be planned and monitored against broader work groupings which are designed to reflect office priorities as far as resource usage is concerned. In this regard, NPCS provides facilities to prepare functional area Resource Utilisation Plans based on four weekly periods and provides related reporting, in the for of Resource Utilisation Variation Reports.

The top level of this hierarchy is represented by "Programs". These have been determined in the context of the governments' Program Budgeting initiative. Work processes are capable of being linked with NPCS to the various programs and, as such, NPCS will provide the lower level support structure for Program Budgeting.

In terms of operation, NPCS is a stand alone system in all ATO Branch Offices. It is being implemented in the National Office and is scheduled for operation from 1 July 1987. The system in each office presently comprises two networked TOC 5600 terminals which store all files, run updates and produce reports. Because of the large volume of transactions involved, keying of actual achievement data is arranged through the Direct Data Entry facility. A new feature termed Screen Manipulation, will enable planning data to be manipulated on a terminal screen and, once Annual Plans have been cast in this manner, will automatically prepare a Resource Utilisation Plan from the Annual Plan.

APPENDIX E

Description of METHOD/1

Extract from: Letter to Secretary, JPCPA,
from Commissioner of Taxation
dated 13 April 1987.

QUESTION 42.1

What is METHOD/1?

ANSWER : Method/1 (M/1) is a structured project management and systems development methodology designed to assist organisations to produce high quality ADP systems on time and within budget.

A methodology assists in the determination of what, when, why, and how work should be done. It organises all the necessary activities into phases, segments, tasks and work steps, and details the output in terms of deliverables.

M/1 is supported by a number of automated productivity tools which are designed to assist in the application of the methodology.

Estimate/1 (E/1) is a system which simplifies the task of estimating the work effort of any project that follows a basic M/1 work program.

Using standard estimating factors, E/1 automatically generates a total project estimate complete with work day estimates at both detail and summary levels.

Track/1 (T/1) is an automated time control and reporting system which assists project managers with the administration and control of a project. It simplifies the development of a work program, and the control of program updates. It tracks time spent by project team members and monitors their performance. It can also produce periodic project status reports.

Change/1 (C/1) is a change management system to assist in the monitoring and control of change requests. It processes change requests from the time a request is identified until all appropriate action is completed.

Design/1 (D/1) is an integrated set of software tools that automates system design tasks and techniques. This tool significantly improves the quality of the design and the productivity of the designer, while at the same time it reduces the total time spent on system development.

QUESTION 42.2

Please provide explanatory details of how this system is used by the ATO.

ANSWER : Project Management Guidelines (PMG) specifying the application of Method/1 (M/1) as the Systems Development Methodology (SDM) were promulgated in July 86 and revised early this year and re-issued.

Project Management workshops designed to train senior staff on the use and application of M/1 were held in October 1986. These workshops identified areas of the PMG's, which required "fine tuning" to reflect the Commissioners requirement that all ADP System Development projects use the M/1 SDM.

Whilst the PMG's are oriented towards the development of computerised information systems, the specific project management principles and techniques contained therein are equally applicable to non-computer projects.

The PMG's specify the minimum acceptable use of M/1, and clearly outline the responsibilities and involvement of the Management Advisory Committee (MAC), Project Steering Committee (PSC), Project Manager (PM), QA Reviewer, QA Unit and the Project Administration Unit.

Briefly, the application of M/1 within the ATO, is that projects will commence with a Project Initiation Request (PIR) identifying a requirement for an ADP system. If the MAC approves the PIR, an officer will be identified to produce a Project Initiation Brief (PIB) which describes and documents the project as initially envisaged in terms of its size, scope, complexity, risks and priority. The M/1 procedures will enable estimates of resources required to meet the time scale planned to facilitate a MAC decision for the project to proceed.

Continuance of the project depends upon satisfactory completion of the current phase, a plan and time scale for the subsequent phase, and endorsement from the Quality Assurance Reviewer.

QUESTION 42.3

How will METHOD/1 be used in the re-development program?

ANSWER : ATO policy supported by the Project Management Guidelines state that all ADP systems development projects will use the Method/1 Systems Development methodology as a tool for all development work undertaken within the office.

APPENDIX F

Extract from: Australian Taxation Office, Information Systems Plan, Revised February 1987, Section 9A, pp. 57-60.

AUSTRALIA CARD

Purpose

Australia Card is being introduced in order to facilitate positive identification of taxpayers.

The extent of reporting of transactions from financial institutions will be increased, and with the high level of matching afforded by the use of the Australia Card number, compliance functions will become more effective. All systems in the ATO should become more effective due to the improved accuracy of taxpayer identification. Better identification of taxpayers and enhanced compliance function will help combat tax evasion.

The purpose of this project is to make the system changes to support the use of Australia Card.

Key Users

Compliance officers and auditors will use the information reported on prescribed transactions.

All officers who use the Name/Address index or On-line enquiries will use the enhanced accuracy of identification, and the access to the new identification data base.

The chairperson of the Project Steering Committe will be the responsible Second Commissioner, or his nominee.

Project Scope

The "Australia Card" system, is the original system as proposed by the Government, which would be administered by the Health Insurance Commission. The H.I.C. plans to commence the issue of Australia Card by July 1987, and complete the task by July 1989.

AUSTRALIA CARD

Critical dates for the Australia Card system are:

July 1988 - Communication with H.I.C. data base established via 100 on-line enquiry terminals.

July 1989 - All references to Individual taxpayer records will be by Australia Card number.
- Details of prescribed transactions reported under Australia Card number.

At the time of writing, implementation of this project is dependent upon passage of legislation through the Parliament. The scope of the project for the Australia Card system is to:

- Enable On-line Enquiries to H.I.C.'s Australia Card data base for the identification of Taxpayers
- Allow the identification of individual records within all ATO systems using the Australia Card number
- Allow access to details of prescribed financial transactions reported under Australia Card number for use by compliance systems.

System Interface Requirements

The major interface for the Australia Card system will be the new compliance system, and the communications systems required to receive the reports of prescribed transactions. The other areas affected are the On-line enquiry system and the Index system.

The Australia Card proposal involves a new numbering system for Individual records, so all ATO systems which hold records of Individuals will be affected. These include NTS, PAYE, PPS, Law Enforcement and the NTS Statistics sub system.

System Development Approach

Communication with the H.I.C. database will require setting up lines and terminals to their equipment. The major work will be done by H.I.C. people with assistance from 2 analysts from the ATO.

AUSTRALIA CARD

Renumbering of Tax Files is a considerable task, involving rewriting of all I/O routines to allow for an extra character in the (packed) file number. Since the format of the file number will need to be changed as systems are converted to new equipment it is considered more economical to do this task once only as a phased effort with re-equipment. In order to be able to refer to all Individual records using Australia Card number, (both for input of enquiries or reports of prescribed transactions, and as output in printed reports, response to enquiries etc.) it will be necessary to create an intermediate "LOOKUP" file and associated access routines to intercept all input and output streams and change between Australia Card number and Tax File Number. Since a lookup file of this type would be required for a transitionary period even if immediate renumbering was considered, this approach seems to be most reasonable for both effort and timing to fit in with re-equipment. No new development tools are required.

The development and implementation of the Australia Card project will be undertaken in accordance with the Preliminary Systems Design and Systems Installation phases of Method/1. Exhibits 17 and 18 describe the tasks and deliverables for each of these phases.

Economic Evaluation

Costs:

Staff Costs:

1986/87

CSO4	x 210 days
CSO3	x 210 days
Clerk Class 9	x 105 days
Clerk Class 7	x 105 days

1987/88

CSO4	x 210 days
CSO3	x 210 days
Clerk Class 9	x 210 days
CSO2	x 420 days
Clerk Class 7	x 210 days
CSO1	x 420 days

1988/89

As per 1987/88

AUSTRALIA CARD

Hardware Costs:

	$
Terminals and lines to H.I.C.	300,000
Maintenance (2 Yrs @ $50000)	100,000

Development Hardware:

4 Terminals	$20,000
10 Mb disc space	$ 1,000
1 Micro system	$10,000
	$31,000

	31,000
	1,540,955

Benefits:

Significant increases in staff would be required if this system were not automated.

Resource Requirements

Hardware - 100 terminals and lines to H.I.C.'s Australia Card data base.
- 200 Mb disc space for "LOOKUP" file to convert from AC numbers to File numbers.

Personnel Requirements:

Task Description	Total Number of Workdays	Start Date	End Date	Elapsed Time	No. of Systems Group Personnel
*Preliminary System Design:					
. 1986/87	630	Jul	Jun	12	3
. 1987/88	420	Jul	Jun	12	2
System Installation:					
. 1987/88	1260	Jul	Jun	12	5
1988/89	1260	Jul	Jun	12	6

* Assumed to be approximately 30% of total workdays