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Clerk of the Senate

1970

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

JOINT COMMITTEE OF PUBLIC ACCOUNTS

ONE HUNDRED AND TWENTY-
SECOND REPORT

TREASURY MINUTES ON THE
EIGHTY-FIFTH AND EIGHTY-SIXTH
REPORTS

TOGETHER WITH

SUMMARIES OF THOSE REPORTS

JOINT COMMITTEE OF PUBLIC ACCOUNTS

EIGHTH COMMITTEE

J.D.M. Dobie, Esquire, M.P. (Chairman)

C.J. Hurford, Esquire, M.P. (Vice-Chairman)

Senator J.F.Fitzgerald

Senator J.J.Webster

Senator Dame Ivy Wedgwood

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B.W.Graham, Esquire, M.P.

A.W.Jarman, Esquire, M.P.

I.L.Robinson, Esquire, M.P.

The Senate and the House of Representatives appointed their
Members on 25 November, 1969.

DUTIES OF THE COMMITTEE

Section 8 of the Public Accounts Committee Act 1951-1966 reads as follows :-

8. The duties of the Committee are -
- (a) to examine the accounts of the receipts and expenditure of the Commonwealth and each statement and report transmitted to the Houses of Parliament by the Auditor-General in pursuance of sub-section (1.) of section fifty-three of the Audit Act 1901-1950;
 - (b) to report to both Houses 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.

Table of Contents

Chapter		Page
1	Introduction	5
2	Treasury Minute on the Eighty-fifth Report relating to Automatic Data Processing	7
3	Treasury Minute on the Eighty-sixth Report relating to Automatic Data Processing (The Bureau of Census and Statistics Network)	27

JOINT COMMITTEE OF PUBLIC ACCOUNTS

One Hundred and Twenty-Second Report

Treasury Minutes on the Eighty-Fifth
and Eighty-Sixth Reports

CHAPTER 1 - INTRODUCTION

In its Seventy-ninth Report dated 10th March, 1966, P.P.No.275
Your Committee set out in detail the basis of the Treasury of 1964-65-66
Minute arrangements which have been made to ensure that appropriate
action ensues from comments contained in our Reports.

As they now stand, the arrangements concerned are:-

- (1) The Report of Your Committee is tabled by the Chairman in the House of Representatives and by a Member of the Committee in the Senate. Motions are moved in both Houses of the Parliament that the Report be printed as a Parliamentary Paper.
- (2) The Chairman of Your Committee thereafter forwards a copy of the Report to the Departments affected and to the Treasurer with a request that he give the Report his consideration and inform the Chairman of the action taken to deal with Your Committee's comments.
- (3) The reply received, which is in the form of a Treasury Minute, is then examined by Your Committee and, together with the conclusions of the Report to which it relates, is submitted as soon as possible to the Parliament as a Report.
- (4) Where during its examination of a Treasury Minute Your Committee finds that there are recommendations not fully dealt with or which are subject to a further Minute, it holds an exploratory discussion with officers of the Department of the Treasury prior to the submission of the Minute to the Parliament.

- (5) In reporting a Treasury Minute to the Parliament, Your Committee does not usually make any comment on the Minute other than to note recommendations not fully dealt with or subject to a further Minute. In special cases where comment is thought to be necessary, Your Committee makes it.
- (6) Your Committee reviews a Treasury Minute, if necessary, when it again examines the department concerned.
- (7) The Department of the Treasury furnishes Your Committee with a half-yearly report on outstanding Treasury Minutes, indicating the progress made in dealing with Your Committee's comments.

CHAPTER 2 - TREASURY MINUTE ON THE EIGHTY-FIFTH
REPORT RELATING TO AUTOMATIC DATA
PROCESSING

On 27 August, 1970 and in accordance with the arrangements relating to follow-up action on Your Committee's Reports, the Treasurer conveyed to the Chairman a Treasury Minute dated 21 August, 1970 which reported the action taken on Your Committee's Eighty-fifth Report.

Committee's Conclusions
(19 October, 1966)

Treasury Minute
(21 August 1970)

The Treasury has examined the Report and has discussed with the departments and authorities concerned the observations and conclusions of the Committee which have, where necessary, been brought to the notice of the officers concerned.

340. In deciding to initiate an inquiry into Automatic Data Processing, Your Committee was mindful of the growing awareness of Industry and Government alike in this field of technology and of the rapid development of computer applications both in Australia and overseas. Your Committee itself had encountered problems associated with A.D.P. in its various inquiries into departments and we had noted observations made by the Auditor-General in his Reports to the Parliament from 1963-64 onwards. We were aware also of Reports on other countries experience in this field. Your Committee felt that a useful purpose would be served if a general inquiry were to be undertaken in a context sufficiently broad to embrace technological changes occurring concurrently with the growth of computer usage on the one hand and an examination of the co-ordination

Committee's Conclusions
(19 October, 1966)

Treasury Minute
(21 August 1970)

processes involved in its introduction to the Commonwealth Service on the other. From this we sought to draw out useful guidelines for management in this developing area, with particular reference to the Commonwealth Service.

341. Arising from the broad nature of the inquiry, Your Committee extended its range of witnesses to include the suppliers of computer and ancillary equipment to the Australian market and acknowledged experts in the field of computer usage. This procedure enabled a variety of evidence to be obtained and points of view expressed on relevant areas of the Commonwealth Administration, as is evidenced particularly by the observations and suggestions made by witnesses for improving Commonwealth operations, and enriched greatly an already stimulating and challenging field of inquiry.

342. As the evidence taken in the present inquiry does not, by design, cover all of the computer applications within the Commonwealth Service there are, of necessity, areas of evidence recorded in this Report, on which Your Committee would not, at this stage, feel competent to reach firm conclusions. At the same time, however, some of these areas are of such importance and the evidence taken sufficiently conclusive for us to offer tentative conclusions or observations which it is hoped might serve as guides to a successor Committee

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

should it decide to conduct further inquiries into specific aspects of A.D.P. within the Commonwealth Government administration.

Computer Technology in Australia

343. The evidence submitted suggests that while the number of computer installations in Australia has not been large compared with the number of installations in highly industrialised countries overseas, Australia's position would compare favourable with that of some of the more significant countries of Western Europe. The evidence also suggests that Australia's growth rate for computer installations will be high compared with corresponding growth rates in overseas countries.

344. From the outset the Australian computer market has been supplied wholly by overseas-based companies, mainly of British or American origin. It would appear from the evidence, that, by comparison with the position in some overseas countries, the supplying industry is in a competitive position, but at the present stage may not be highly profitable. In these circumstances the evidence also suggested that a manufacturing industry might not be established in Australia within the next decade.

345. In regard to market growth for computers in Australia, estimates

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August, 1970)

supplied by witnesses varied widely but suggested that by 1970 the number of computers installed might increase to a level in the vicinity of 1,200 to 1,400.

346. In regard to technological advances made within the computer industry the evidence shows that changes arising from research and development are now being implemented commercially at a more rapid rate than was the case a decade ago and this has resulted in declining costs of computation, based on power-cost ratios in industrial, scientific and commercial applications.

347. The evidence indicates that computers have already been applied to a significant range of scientific and commercial applications in Australia and that this range is expected to increase substantially in future years. The need to accelerate the rate and increase the range of applications, in response to the need for increased productivity was emphasised by witnesses.

STAFFING AND EDUCATION

348. It would appear from the evidence submitted that there is a world-wide shortage of skilled personnel in the computer industry. Conservative estimates relating to staffing in Australia suggest that whilst about 1,000 trained staff are available in 1966, about 12,000 would be required by 1970 and that the demand for trained staff would increase by about 1,500 per annum between 1969 and 1976.

The attention of the Department Education and Science was directed to the observations made in Chapter 3 of the Committee's Report.

The Department has advised that some form of computer education is now available at all Australian universities. Special academic studies in computer sciences are provided at Monash, Sydney,

Committee's Conclusions
(19 October 1966)

Witnesses emphasised the role which must be taken by educational institutions if the growth of computer usage in Australia is not to be impeded in the years ahead. Specific proposals for future education programmes were made by Professor Ovenstone. These and other related observations, which are set out in Chapter 3 of the Report are commended to the Authorities concerned for examination.

Treasury Minute
(21 August 1970)

New South Wales, Melbourne and Adelaide universities; the Australian National University plans a similar course in 1971, while the Universities of New England and Western Australia will introduce similar courses later in the 1970-72 triennium. For students with general degrees, post graduate diploma courses in various aspects of computer usage and technology are provided at the Universities of Sydney, New England, Queensland, Adelaide and Western Australia. In addition, all universities provide short introductory courses in data processing and programming for undergraduates. Training for computer engineers is also provided within a number of university engineering faculties. In the 1970-72 triennium there will be a further expansion of computing facilities in universities to meet teaching and research needs, and there is a continuing up-dating of courses in these institutions to keep abreast of developments in this field.

Significant developments in facilities for computer education have also occurred in the colleges of advanced education. Flowing from the recommendation of the Commonwealth Advisory Committee on Advanced Education, which the Government established in 1965 to advise on the development of the colleges, many colleges acquired computing facilities for teaching purposes in the 1967-69 triennium. More colleges will acquire computing equipment to be used for instructional purposes from capital grants available in the 1970-72 triennium, and there will be an expansion

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

of the computer facilities already available at some of the colleges.

The Department has also mentioned that a start has been made on the introduction of instruction on computer usage into the secondary school system. Extra curricula courses have been introduced on an elective basis at selected high schools in Victoria, New South Wales, South Australia and the Australian Capital Territory, and in South Australia a limited programme has been commenced to train teachers. These developments are still at the experimental stage, however, and further development will depend on the availability and cost of equipment and adequate provision being made for the training of teachers.

The Public Service Board has advised that it has encouraged the introduction or expansion of suitable courses at tertiary educational institutions through its representation on the University of Sydney E.D.P. Careers Committee and through contact with various bodies such as the Institutes of Technology. In particular, the Canberra College of Advanced Education has taken over the responsibility for conducting the formal and theoretical training of a proportion of the 1970 intake of Programmers-in-Training. The Board believes, however, that even with training courses in systems analysis, programming and allied topics being provided by educational institutions, further training by the Commonwealth of its A.D.P. staff will continue to be necessary because of the special conditions applying to government

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

procedures, systems applications, operating environments and programming languages which are essential to the effective application of A.D.P. within the Public Service. Additionally, the need will exist for management orientation courses, and courses in systems analysis for subject matter staff working with programmers in the conversion of departmental systems to A.D.P.

CRITERIA BY WHICH COMPUTER INSTALLATIONS MAY BE JUSTIFIED AND THEIR EFFICIENT USAGE MEASURED

349. Chapter 4 of the Report contains criteria that may be adopted as guidelines to the installation and productive usage of computers. Some criteria referred to in that chapter were developed from a survey conducted into the results achieved in company installations in the United States of America. Whilst these criteria may be applicable to such installations, Your Committee recognises that some of them, particularly those relating to profitability, may not be applicable to Governmental installations where profitability in the commercial sense is not relevant and where the uses to which computers might be put could, in the public interest, be somewhat different from the uses made of computers in commercial undertakings. Subject to these qualifications, Your Committee believes, on the evidence, that the following basic criteria are validly applicable to computer installations and usage within the Commonwealth Service:

The Treasury and the Public Service Board agree that the criteria set out by the Committee are basic to establishing the justification for computer installations and their efficient usage. They do not entirely accept the conclusion in paragraph 354 and their views are set out later in the Minute under the sub-heading "Management Participation". The systems adopted by departments need to be continually reviewed to ensure that they are achieving their objectives in the most economical and efficient manner and the procedures used are the most efficient and effective.

Detailed comments on the criteria mentioned by the Committee are:

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

(1) Installation Criteria
(a) Exploratory Studies

350. In respect of each proposed A.D.P. system an exploratory study should be undertaken to ascertain at relatively little cost whether the benefits likely to be derived from the implementation of A.D.P. are sufficiently evident to warrant the commencement of a feasibility study, to define the areas within which such a system should be applied and to determine whether the costs and inconvenience of introducing an A.D.P. system are justified.

An exploratory study or survey has been carried out by, or for, every Commonwealth Department or Bureau currently engaged on A.D.P. activities or considering the application of A.D.P.

(b) Feasibility Studies

351. In cases where exploratory studies satisfy the requirements mentioned, a feasibility study should be undertaken to investigate, in particular, the department's existing systems, procedures and reports, to determine records and information required for efficient operation and to design A.D.P. procedures for the maintenance of records and the production of required information. Such a study should be undertaken by a small group of officers with a knowledge of the management needs of the department concerned and also an understanding of the capabilities and limitations

Departments have completed feasibility studies in proceeding to A.D.P. application and will continue to do so.

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

of computers and other equipment and experience in management system analysis and design.

(ii) Usage Criteria
(a) Scope of Applications

352. When computers have been installed, the applications placed on them should cover the major functions of the department concerned and should not be limited to accounting and routine aspects of its work.

In all cases departmental investigations of potential have gone beyond a narrow consideration of the conversion of accounting and routine aspects of the department. However, notwithstanding that the ultimate aim may be to extend applications over the major functions of a department it is often necessary to accept applications of smaller scope such as the conversion of routine day-to-day processing to computer working as a first step before proceeding to a wider coverage of computer applications.

(b) Costs of Installation and Operation

353. Departments which have installed computers or ancillary equipment to be used in conjunction with other departmental installations should maintain accessible records of their installation and operating costs from which management appraisals of the use of A.D.P. equipment may be made.

A working party was set up by the Interdepartmental Committee on A.D.P. to establish on a more definitive basis all costs associated with the installation and operation of a computer centre and to recommend common standards for assessing such costs. However, because of the pressure of other priority matters on members of the working party, it has been necessary to make other arrangements for this task to be undertaken; it is now expected to be completed during the first half of 1971.

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

(c) Management Participation

354. It is clear that for departmental installations to achieve maximum success in concept and implementation, the Permanent Head of the department concerned should identify himself with the project prior to the initiation of an exploratory study and with all subsequent major phases of acquisition, installation and operation. It is also probable that the closer the level of the chief A.D.P. officer in a department to the Permanent Head, the greater will be the operative success of the installation.

The degree of interest which Permanent Heads have been required to take and the ultimate level of the Chief A.D.P. Officer has depended to a large extent upon the size of the department, the scope of the A.D.P. system and the stage of development as well as the existing hierarchical pattern of the organisation. The Treasury would agree that it is essential that senior departmental management should be involved from the outset and should take a continuing direct interest in such projects. The Public Service Board has commented that the appropriateness of the level of the Chief A.D.P. Officer for the stage reached is reviewed at significant points of development.

(d) Normal Usage of Installed Capacity

355. In regard to criteria relative to computer usage, we were informed that capacity can depend on the nature and extent of peripheral equipment in use and that a computer has a wide range of capabilities. It was said that saturation point is the determining factor in the introduction of new equipment and that while additional equipment may be added to the original computer to enable it to process more complex problems and additional work, the value of this procedure would be limited by the capacity of the original processor portion of the computer. In the case of Commonwealth installations, it was claimed that a two shift operation on the basis of a five day working week would constitute normal

So far as it is possible to foresee in the context of a rapidly developing technology, specification and selection criteria for equipment are designed to ensure that the total configuration may have a reasonably long productive life and be capable of accommodating both the increased volume of work and the changed nature of the work processed.

It is considered that lack of capacity is equally as serious as surplus capacity, if not more so, particularly as the number of systems converted to A.D.P. working increases. Once the A.D.P. system becomes operational, capacity must be provided to ensure that the service is not seriously interrupted or inordinately delayed.

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

usage for A.D.P. equipment.

The pattern of expansion of facilities is often a complex one with many interacting factors. In general, though, additional capacity, when required, may be provided by either an upgrading of the present installation or by the establishment of another centre. Action to obtain the necessary approvals should commence at a sufficiently early stage to ensure that increasing workloads and further applications do not give rise to a situation of serious overloading before the requisite capacity is available.

A.D.P. IN THE COMMONWEALTH SERVICE

356. Positive action for the development of A.D.P. in the Commonwealth Service commenced in 1958. Whilst the planning for commercial operation of A.D.P. in the Commonwealth Service is the responsibility of the individual departments concerned, overall co-ordination has been the responsibility since 1960 of an Interdepartmental Committee appointed by the Prime Minister. This Committee comprises representatives of the Public Service Board (Chairman), the Departments of the Treasury and Defence and the Postmaster-General's Department, with representatives of other departments to be co-opted as required. The Secretariat for the Committee is supplied by the Public Service Board.

Committee's Conclusions
(19 October, 1966)

Treasury Minute
(21 August 1970)

357. Your Committee supports the concept of an Interdepartmental Committee to undertake overall co-ordination between departments in the A.D.P. field. It feels, however, that any observations which it might make as to the range of functions of that Committee, the composition of its membership or its success in the co-ordination role, would be premature at this early stage in a broad inquiry. In particular, for example, Your Committee has not had the opportunity to take evidence from Departments which have submitted A.D.P. proposals to the Public Service Board for consideration by the Committee, but which are not included in the membership of the Committee. Their experiences would require careful evaluation.

358. In its relation to the co-ordination of computer usage, the Public Service Board is vested with particular responsibilities under Section 17 of the Public Service Act. It also exercises certain responsibilities in regard to training which, as has been indicated, is a very vital area in A.D.P.; and it also provides direct practical assistance to departments in the investigation of computer methods and applications.

359. The role of the Department of the Treasury in A.D.P. includes the responsibility for the financial management of the Commonwealth's affairs, membership of the Interdepartmental Committee, administration

Committee's Conclusions
(19 October 1966)

of the Audit Act and the operations of the Stores, Supply and Tender Board.

360. The Treasury's function in the realm of financial management is traditionally more widespread than the field of A.D.P. and in general, constitutes the basis for Treasury participation in a wide variety of Commonwealth interests. In these circumstances, and having regard to the growth of Commonwealth expenditure on A.D.P. in recent years, our attention was drawn to the fact that the Commonwealth Statistician has represented the Department of the Treasury on the Interdepartmental Committee since its inception in 1960. Your Committee is most anxious that its views on this appointment should not be misunderstood. Having regard to the nature of the Interdepartmental Committee's functions and its power to co-opt members, Your Committee would express some concern if it were to find that, with his wide experience, the Commonwealth Statistician were not a member of the Committee. At the same time, however, we must question whether in the appointment of the Statistician as its representative on the Committee, the Department of the Treasury is able to exercise the same degree of direct financial responsibility that it would feel bound to accord to other interdepartmental committees and administrative agencies on which it serves.

Treasury Minute
(21 August 1970)

A Treasury representative (in addition to the Commonwealth Statistician) now attends all meetings of the Interdepartmental Committee on A.D.P.

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

361. In regard to the administration of the Audit Act by the Department of the Treasury, we note Mr. Harris' comment that in practice, A.D.P. installations in the Commonwealth Service had been modelled in accordance with existing legislation but that a more efficient A.D.P. system could possibly be devised in respect of some procedures if the Audit Act or Treasury Regulations were to be amended. In particular, he indicated that an examination that an examination is required of Section 34 of the Audit Act, as that section, in its present form, may place some limitations on the efficiency of future A.D.P. installations. We note with approval, Mr. Harris' advice that agreement has been reached with the Auditor-General to seek an urgent examination of this section and we trust that the Department will give early consideration to the amendment of other sections of the Act and attendant Regulations and Directions which in their present form, might impede the efficient introduction and operation of A.D.P. in Commonwealth departments.

362. We note that estimates have been made of A.D.P. staff requirements within the Commonwealth Service for the period up to 1970 and that whilst the Public Service Board does not expect to experience problems relative to the recruitment of data

The Audit Act and Treasury Regulations are subject to a continual examination to ensure that amendments are recommended where the existing legislation tends to impede the efficient introduction and operation of A.D.P. systems provided, of course, that the amendments would not detract from the overall efficiency of the Commonwealth's accounting system and there would be no derogation of the main principles embodied in the Act or Regulations. In this context a number of amendments have already been made to the legislation giving a greater degree of flexibility and facilitating the operation of A.D.P. systems and other amendments, including an amendment to section 34 of the Audit Act, will be recommended shortly.

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

preparation staff or computer operators, difficulties have been experienced in obtaining sufficient programmers in the past and this difficulty is expected to persist in the future. Compared with some 450 programmers available in 1966 in the Commonwealth Service, about 1,500 are expected to be required by 1970 on the basis of a normally expected wastage rate of approximately 10 per cent per annum. We note with approval the assurance given by Mr. Gleeson that the Public Service Board is making progress in overcoming the A.D.P. staff shortage within the Commonwealth Service and that the Board's recruitment for the programmer-in-training scheme, commenced in 1964, has significantly improved the staffing position.

363. The provision of training in the Commonwealth Service is undertaken partly by the Public Service Board and partly by departments within the Administration. In this regard we note the views expressed by Mr. Pridmore that while the programmer-in-training course conducted by the Bureau of Census and Statistics and the Systems Analysis and Design course (or Programmer Course) conducted by the Public Service Board serve different purposes they are complementary in some respects.

The two main courses provided within the Commonwealth Service are Programmer-in-Training courses and A.D.P. Systems courses. While these courses are complementary, the trainee populations and objectives are quite different, consequently they are not repetitive nor do they overlap or conflict. The Programmer-in-Training course is now the main point of entry to higher level Programmer positions; completion of this course, or its equivalent is regarded as basic to the effective and competent performance of tasks at the higher Programmer levels. The A.D.P. systems course, on the other hand, is

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

This raises the question of whether or not the courses concerned might be either repetitive or in conflict in respects in which they are not complementary and we would expect the Public Service Board to ensure that neither of these possibilities should arise. We also note that whilst the Public Service Board and the Department of Defence provide training courses for systems analysts (or programmers) of three months duration, Mr. Pridmore expressed the view that over a period of six months it would only be possible to train staff in the rudiments of programming. Your Committee believes that due to the importance of programmer training and its close link with optimum usage of installations and programmer staff requirements over the next few years, this variety in duration of courses offered should be examined by the Public Service Board and departments concerned without delay.

364. Management training courses of one day's duration have been provided by the Public Service Board for Permanent Heads of departments, whilst management training courses of three weeks duration have been provided by the Bureau of Census and Statistics for senior staff of departments. We note with interest Mr. Archer's remarks that if the resources

designed to provide a basic knowledge and understanding of A.D.P. to staff who will be closely associated with the development and introduction of A.D.P. systems, either as subject matter specialists who will work with and assist Programmers in the analysis of requirements, who will be involved in re-casting the clerical procedures leading to and from the computer system or who will have responsibility for the flow of data to, or output from, the computer system when operational.

Management appreciation courses conducted by the Public Service Board have been from 1-3 days duration. The objective of this type of course is to impart to senior staff of departments an initial awareness of the way in which a computer operates, the stages of study and implementation, the extent of the effort required, the possible impact of A.D.P. on an organisation,

Committee's Conclusions
(19 October 1966)

were available to increase the duration of the Bureau's course and if senior staff were able to attend them, he would prefer the course to be extended and that consideration had been given to offering refresher courses to officers who had attended the Bureau's earlier courses. Your Committee would support the extension of the Bureau's present training course and would exhort departments to ensure that suitable officers are made available to take advantage of that course and of such refresher courses as the Bureau finds it is able to make available.

365. During our inquiry evidence was taken relative to the question of conducting economic studies relating to the costs of installing and operating A.D.P. systems in the Commonwealth Service. We note the views expressed by Mr. Harris that although such a task would prove difficult to accomplish it would serve a useful purpose. Attention is invited to Mr. Harris' view that the Interdepartmental Committee would be a suitable body to undertake such a task and that he would fully support any move that was made to extend, if

Treasury Minute
(21 August 1970)

the time scales over which implementation can be expected to be achieved, the costs and the potential benefits to be derived.

At the time of introduction of these courses, it was envisaged that departments would provide, at appropriate stages, supplementary training of longer duration for its management staff, oriented towards its own A.D.P. applications and giving a more detailed treatment of the field.

This in fact has occurred with, for example, Defence, Postmaster-General's Department, the Treasury and the Statistician's Branch conducting training courses of from 1-3 weeks duration. Generally all departments engaged in A.D.P. development are encouraged by the Board to adopt this practice. The courses provided by each department are tailored to the needs of the respective management personnel in accordance with the impact of the A.D.P. systems being introduced at the time.

The Interdepartmental Committee on A.D.P. and the Public Service Board are conscious of the need to examine the costs and benefits of each proposal before supporting any specific project and also of the necessity to undertake periodic economic studies. When the task of establishing common standards for assessing costs is completed (as referred to under the heading "Costs of Installation and Operation"), further attention will be given to the matter of periodic reports of progress, benefits and costs. Under current circumstances, cost/benefit relationships

Committee's Conclusions
(19 October 1966)

necessary, the terms of reference of that Committee to enable the work to be undertaken. We note also the views expressed by Mr. Gleeson that the Public Service Board obtains reports from departments as at 31 March each year relative to activities in their management services field including A.D.P. and that whilst progressive reviews are made by particular departments, no written annual review has so far been made.

366. Your Committee believes that the undertaking of economic studies of achievements for each Commonwealth A.D.P. installation, would prove to be a valuable task and might well elucidate whether or not optimum use is being made of equipment. In this connection we believe that the data relating to installation and operating costs of A.D.P. systems which we have obtained readily from a wide range of departments in connection with the present inquiry may prove useful in such a study.

367. As an adjunct to the question of developing economic studies some witnesses suggested that inter-departmental charges should be levied on user departments by departments supplying computer services. In particular it was suggested that user departments should be aware of the costs of using computers and that this awareness is not achieved unless

Treasury Minute
(21 August 1970)

and general progress are assessed from time to time by departmental management, and this invariably happens when proposals for substantial extension of existing computer systems or applications to new areas are being considered. The Inter-departmental Committee on A.D.P. also reviews cost/benefit aspects when considering departmental proposals.

Departments operating computers have calculated an economic hourly rate for computer processing. A review of these rates will be necessary when common standards for assessing costs have been formulated.

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

charges are actually levied. It was stated that the apparent provision of free computer services can result in the preparation of inefficient programmes and their repeated use with the result that management loses all sense of the due costs of projects involved and the capacity of the computer is taken up sooner than would otherwise occur. As indicated by the Department of the Treasury, Your Committee examined the question of interdepartmental payments in its Fifty-fifth report, and, subject to certain qualifications doubted the desirability, or necessity, for one department, as a general rule to charge another for any service or function. Whilst Your Committee sees no reason to depart from the views expressed in the Fifty-fifth Report, it believes that the arguments raised in support of the levying of interdepartmental charges for computer services are basically valid. In addition, we believe that Members of the Parliament should be able to make their own assessment, in money terms, of the extent to which certain departments are providing computer services for others. In all the circumstances we believe that the objectives concerned would be achieved if departments providing computer services were to assess economic hourly charge rates for the use of their computers and to apply these rates to

Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

the computer time used by client departments. The annual figures resulting from these calculations could, with advantage, be published for the information of the Parliament either in the Report of the Auditor-General or in the Report of the Public Service Board, both of which already supply certain information relative to A.D.P. operations in the Commonwealth Service.

368. During the course of our inquiry a number of observations were made by witnesses in connection with the planning, implementation and use of A.D.P. in the Commonwealth Service including administrative and commercial applications, the question of hire or purchase of equipment and tendering procedures. In addition, specific suggestions were made in support of the establishment of a network of Service Bureaux for general purpose computing. The main observations and suggestions made are set out in part (vi) of chapter 5 of the Report. We would commend their consideration to the authorities concerned.

CHAPTER 3 - TREASURY MINUTE ON THE EIGHTY-SIXTH REPORT
RELATING TO AUTOMATIC DATA PROCESSING
(THE BUREAU OF CENSUS AND STATISTICS NETWORK)

On 27 August, 1970 and in accordance with the arrangements relating to follow-up action on Your Committee's Reports, the Treasurer conveyed to the Chairman a Treasury Minute dated 21 August 1970, which reported the action taken on Your Committee's Eighty-sixth Report.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

The Treasury has examined the Report and has discussed the observations and conclusions of the Committee with the departments concerned.

153. This Report relates to the computer system installed by the Bureau of Census and Statistics and includes evidence taken from the Department of the Treasury, the Taxation Branch, the Superannuation and Defence Forces Retirement Benefits Boards and the Department of Health, all of which are operating on the Bureau's network. Throughout the Report a uniform format has been preserved as far as possible for the presentation of evidence by each of these Departments and authorities. A similar format has been used in this Chapter for the summation of evidence and statement of conclusions.

(i) Historical Background

154. The Bureau of Census and Statistics commenced its evaluation of A.D.P. with studies undertaken in 1958-59 in the United States of America, Britain and Canada. It completed a detailed

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

analysis of the potential use of A.D.P. equipment during the period 1960-62. Reports on these feasibility studies were reviewed by the Public Service Board and the Interdepartmental Committee on A.D.P. in May 1962. The Treasurer's approval of the Bureau's proposal was obtained in August 1962 and after the formal issue of specifications by the Commonwealth Stores Supply and Tender Board in June 1963 the first of the six installations was accepted by the Bureau in December 1964.

155. The Bureau's network comprises a large scale installation in Canberra and five smaller installations in all State capitals except Hobart. The installations are not linked by transmission equipment although this possibility was examined when the specifications were issued. In 1966 the capacity of the various installations was expanded due mainly to the speed of implementation of much of the work and the fact that, earlier, the requirements of departments intending to utilise the Bureau's A.D.P. facilities could not reasonably be anticipated. The Equipment installed by the Bureau was said to comprise the largest complex of computer installations in Australia.

156. The central Treasury A.D.P. section was formed about two years ago by the recruitment of four experienced A.D.P. officers from Britain. Since that time progress has been made in converting punched card and other systems to the Bureau's computer. Despite staff short-

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

ages the section has been able to meet the essential requirements of the Department and significant elements of Treasury accounting work in Canberra, Sydney and Melbourne are now being processed on computers. The use of the Bureau's computer installations by the Budget and Accounting Branch of the Department was said to be an appropriate continuation of an established practice. The accounting requirements of the Department were taken into consideration in determining the extent of equipment to be acquired by the Bureau.

157. In the case of the Taxation Branch, an exploratory study had been completed and a feasibility study was nearing completion when, in April 1963, following discussions with the Public Service Board, Department of the Treasury and the Bureau of Census and Statistics, it was agreed in principle that the possibility of processing Taxation Branch work on the Bureau's network would be examined. It was claimed that, generally the decision to use the Bureau's equipment did not result in any major additional expenditure by the Taxation Branch which would not have been eventually incurred. On the other hand it ensured an earlier entry by the Branch into automatic data processing and should ensure a speedier and less costly specification of suitable equipment for the needs of the Branch should such a course be undertaken.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

158. The use of the Bureau's A.D.P. equipment by the Superannuation and Defence Forces Retirement Benefits Boards was not attributable to a single specific decision. The Bureau had undertaken work on behalf of the Boards since 1923 and this arrangement had developed progressively over the years. It was therefore taken for granted that the work concerned should continue with the Bureau into the A.D.P. field and this work was taken into consideration by the Bureau in its preliminary systems analysis. Although the Branch was not directly involved in decisions connected with the type of equipment installed and software support acquired by the Bureau, extensive formal and informal negotiations occurred between the Boards and the Treasury. The availability of the Bureau's equipment coincided with the requirements of the Boards.

159. The initial introduction to the use of A.D.P. by the Department of Health was its participation in a working party, appointed in 1961 by the Interdepartmental Committee on A.D.P., the main purpose of which was to establish the Commonwealth-wide potential for computing facilities. In May 1962 the Department requested, as an interim measure, that its processing be undertaken on equipment proposed for the Bureau of Census and Statistics but without prejudice to its right to seek its own computer facilities at a later stage. The Bureau provided assistance to the Department in respect of exploratory

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

work associated with the introduction of
A.D.P. in the pharmaceutical benefits
area.

(ii) Development and Implementation

160. Because the Bureau of Census
in the United States of America had
demonstrated the practicability of
processing statistical and administrative
data on computers, the Commonwealth
Bureau of Census and Statistics did not
carry out an exploratory study but proceed-
ed direct to a feasibility study, which
involved between five and eight officers
and cost \$61,600.

161. In its approach to implement-
ation the Bureau was influenced by the
need to dispense quickly with hired punched
card equipment which at that time involved
an annual cost of \$317,000. It was
claimed that in these circumstances a
progressive implementation of applications
was adopted. The success of this approach
was said to be demonstrated by the fact
that the forty-one applications had reached
operational status within two and a half
years of acceptance of the first install-
ation. The Bureau considers that the
experience gained from the progressive
implementation of a wide variety of work
will lead to the creation of integrated
systems of even greater value.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

162. In the case of the Department of the Treasury, exploratory and feasibility studies were made and incorporated in the feasibility study undertaken by the Bureau of Census and Statistics.

163. As at 30 June 1966 the Department of the Treasury had developed or was in the course of developing ten A.D.P. applications.

164. Of the priority projects under immediate consideration 13 per cent were in full operation at the time of our inquiry. Proposals for the conversion of specific manual accounting procedures to A.D.P. is expected to be implemented over a period of two years.

165. In the case of the Taxation Branch an exploratory study was commenced in November 1960 by four officers and following the establishment of an A.D.P. organisation within the Branch by the Public Service Board a feasibility study group recommended the introduction of A.D.P. using the Bureau of Census and Statistics network. The feasibility study was of eighteen months duration and its cost, together with that of the exploratory study, amounted to \$300,386. The feasibility study was undertaken on a 'fully integrated' approach in accordance with the views of the Public Service Board and the Interdepartmental Committee on A.D.P.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

166. The projects listed in the initial implementation schedule covered two large scale areas in terms of volume and both reached operational status as scheduled.

167. The Taxation Branch feasibility study had estimated that savings of \$2,348,600 should be achieved following the introduction of A.D.P. Although the Branch has made some calculations of comparative operating costs in respect of procedures converted to A.D.P. it was unable to demonstrate overall savings from the use of computers and was unable to give an accurate estimate as to when the costs associated with the introduction of A.D.P. might be recovered.

168. In the case of the Superannuation and Defence Forces Retirement Benefits Boards exploratory and feasibility studies were not undertaken as formal investigations as its accounting systems had, over a long period of time, been designed to permit advanced mechanisation. In these circumstances and because the Boards were not required to draft a hardware specification it was claimed that the necessity for such studies was eliminated.

169. As at 30 June 1966, the Boards had implemented or partially implemented eight applications and had a

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

further nine applications under development. Details of these applications are set out in Tables Nos.11 and 12.

170. In the case of the Department of Health, a feasibility study relating to the Pharmaceutical Benefits Scheme was undertaken between August 1962 and March 1963 at a cost of \$5,000.

171. The A.D.P. system for pharmaceutical benefits was introduced in Queensland in July 1965 and adopted in New South Wales, South Australia and Western Australia in July 1966. This gradual approach to implementation was adopted to obviate disruption to the payments processing and to co-ordinate a number of factors including machine acquisition and staff recruitment and training. The successful implementation of the scheme also required that doctors and pharmacists should be aware of the new method of processing.

172. In March 1965 the Department introduced computer analysis of biological assays undertaken by the National Biological Standards Laboratory and, as indicated above, introduced pharmaceutical benefits payments (A Management Control Information System) on 1 July 1966. It proposes to conduct a continuing survey in January 1967 into the effects on children's teeth of fluoride introduced into the Canberra water

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

supply. The Department expects the pharmaceutical benefits payments system to be fully operative in all States by July 1967.

173. Your Committee is satisfied that the departments and agencies currently operating on the computer network established by the Bureau of Census and Statistics developed, through exploratory and feasibility studies, an acceptable approach to the implementation of A.D.P. In the case of the Bureau itself, Your Committee regards the initial study undertaken in conjunction with the Bureau of Census in the United States of America as a valid approach to the conduct of a feasibility study. Your Committee also accepts as sound, in the circumstances, the eventual incorporation of exploratory and feasibility studies, for the Superannuation and Defence Forces Retirement Benefits Boards within the studies carried out by the Bureau.

174. As the Bureau of Census and Statistics had completed its exploratory and feasibility work in 1962, Your Committee believes that had a decision been taken at an earlier stage for the Taxation Branch work to be placed on the Bureau's computer, the Bureau would have been able to assess more precisely, during its feasibility stage, the range of applications which might be required.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

(iii) Administrative Arrangements Between the Bureau and Users

175. Apart from the programme development and production running associated with the compilation of statistics, the Bureau provides computing facilities for the Budget and Accounting Branch of the Treasury; the Taxation Branch; the Superannuation and Defence Forces Retirement Benefits Boards and the Departments of Health, Supply, Civil Aviation and Repatriation and the Public Service Board. Of the 22,431 hours of operation of the network to 31 May 1966, Bureau applications accounted for 14,479 hours; Treasury applications for 2,278 hours; Taxation Branch applications for 2,290 hours; Superannuation and Defence Forces Retirement Benefits Boards applications for 856 hours; Department of Health applications for 2,181 hours and other users 347 hours.

176. The existing arrangements which were envisaged in concept when the hardware specification was drafted, involved the allocation of computer time based on negotiations between the Bureau and users. In practice the Bureau provides the computer and ancillary equipment and operating staff, etc. and clients are responsible for systems design, data preparation and, where accountable stationery is used, paper handling facilities. The Bureau allots blocks of time and provided there is no idle capacity or obvious time waste, has no jurisdiction over the use made of time allotted.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

177. Scheduling problems involving the fixing of priorities had to be resolved especially during the initial stages of production running but this was said to have been materially assisted by the co-operation of users. The Bureau stated that a situation has not yet arisen where two or more departments have claimed equal priority for urgent processing of data. So far any urgent requests for computer time by clients have been met by a re-arrangement of the Bureau's own programme.

178. The Budget and Accounting Branch of the Treasury proposes to utilise the Bureau's network for the remaining 87 per cent of its specific A.D.P. applications over the next two years, provided sufficient computer capacity is available. It is expected that the future requirements of the Budget and Accounting Branch in terms of computer time will be fairly extensive. We note Mr. Hill's comment that although at present client departments negotiate computer time with the Bureau it should not be implied that the Budget and Accounting Branch is prepared to leave future planning entirely with the Bureau and suggested that a 'Users Committee' to advise the Bureau on the allocation of time might be preferable to the existing practice of bilateral consultation. He stressed that while all users should be represented on such a Committee, it should be advisory

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

only and the final decision should be taken by a single authority in the interests of efficient management. In this regard we note Mr.Pridmore's comment that a proposal along the lines mentioned is currently under consideration and that a conference of users will be convened to examine the whole question of computer capacity in relation to user needs.

179. It would appear that the joint use of A.D.P. equipment has not presented any real administrative problems to the Taxation Branch. The evidence indicated that the Bureau has been co-operative. Estimates of time by the Branch are advised to the Bureau and mutual agreement as to time allocation is reached by negotiation.

180. It appears that in the case of the Superannuation and Defence Forces Retirement Benefits Boards, special tasks such as changes made in payments of pensions in 1959 and the adjustment of the quinquennial surplus as at 1962 have made it necessary for the Branch to concentrate its A.D.P. activities on short-term needs in relation to its use of the Bureau's computers.

181. The Department of Health claimed that its use of the Bureau's A.D.P. equipment had proved particularly satisfactory and the Bureau had done its utmost to ensure that its requirements are met.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

182. Your Committee notes that at present the allocation of computer time is undertaken by the Bureau and that, generally, users have been able, so far, to negotiate changes which they require to make in their time allocations. We also note that due to the future expected requirements of the Budget and Accounting Branch of the Department of the Treasury a change in the method of time allocation may be required. In this regard we believe that careful consideration should be given to the proposal for the establishment of a Committee of Users to advise the Bureau. The use of such a Committee would ensure that users of the Bureau's equipment, as well as the Bureau itself, are kept fully informed of the nature and extent of applications which are currently placed on the computers and those which are in prospect.

Allocation of computer time continues to be a function of the Bureau by bi-lateral negotiations with individual users. A technical liaison group on which all users are represented was formed in 1967 and meets about every two months to discuss problems and proposed changes in matters which have operational significance.

(iv) Management Structure

183. The highest level officer whose responsibilities are wholly involved in A.D.P. systems is an Assistant Statistician in the case of the Bureau of Census and Statistics; a Director in the case of the Central Treasury; A Director in the case of the Taxation Branch; a senior Programmer in the case of the Superannuation and Defence Forces Retirements Benefits Boards and a Director in the case of the Department of Health. These positions vary somewhat in their relationship to the Permanent Heads of the organisations concerned.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

184. Whilst noting the variations in management levels applying between the Departments and agencies concerned, Your Committee considers that it would be premature to form any judgment on them until the corresponding levels have been examined in other Commonwealth networks.

(v) Management Training

185. We note that in the case of the Bureau and the Taxation Branch, considerable attention has been paid to management training in A.D.P. In the former case, the Commonwealth Statistician has directed his senior officers to undergo courses of training in this field. In the latter case conferences and courses ranging from one to fourteen days duration have been provided for senior staff from the level of Commissioner down to the Director of the A.D.P. Branch.

(vi) Staff Recruitment and Training

186. In the case of the Bureau a total of forty-one experienced officers were recruited from Britain during the first three or four years of the Bureau's A.D.P. operations at a cost of \$88,000. Of these, twelve had resigned at the time of our inquiry due mainly to inadequate salaries and lack of promotional opportunity.

187. In the case of the Budget and Accounting Branch of the Department of the Treasury, fifteen A.D.P. staff have been recruited from Britain at a cost of \$31,800. Of these, two had resigned at the time of our inquiry.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

188. Twelve A.D.P. officers have been recruited by the Taxation Branch from Britain at a cost of \$21,040 and as at 30 June, 1966, four of these had resigned.

189. One officer has been recruited from overseas by the Superannuation and Defence Forces Retirement Benefits Boards at a cost of \$300 and one officer has been recruited by the Department of Health from overseas at a cost of \$2,700.

190. On the basis of this evidence, seventy A.D.P. officers have been recruited from overseas by the Bureau and departments and agencies operating on its network, at a cost of \$143,840. Of these, eighteen had resigned at 30 June 1966.

191. The Bureau considered that while overseas recruitment had proved costly, it could not otherwise have reached its present level of achievement. The growth of knowledge and experience in Australia was said to have now reached the point where the need to recruit staff from overseas had been substantially reduced. The Taxation Branch, however, saw advantages in recruiting A.D.P. staff from overseas and, in terms of the need to achieve cross-fertilisation of ideas, agreed that advantages would accrue from the overseas posting of locally-trained officers. The Department of Health claimed that it had had practically no success in attracting staff from overseas countries.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

192. In regard to training, the policy of the Bureau is to seek proficiency and experience rather than staff numbers. Programmer-in-training courses conducted by the Bureau are designed to provide a continuing supply of trained personnel. To date 139 programmers and seventy-nine computer operators have been trained by the Bureau and a number of other specialised courses provided.

193. The Budget and Accounting Branch of the Department of the Treasury initially arranged for new appointees to its A.D.P. Section to attend one of the basic FORTRAN courses held periodically by the Bureau or by C.S.O.R.O. Subsequently all staff joining the Section and having previous experience and training in A.D.P. were required to undergo a six-months familiarisation and training course in basic FORTRAN programming. The Section also undertakes the training of Sub-Treasury staff required to operate production systems. Four trainees were enrolled on a Programmer-in-training course conducted by the Bureau of Census and Statistics on behalf of the Public Service Board in 1964 and this number was increased to eleven in 1965. Nine officers undertook the course in 1966.

194. In the case of the Taxation Branch staff, training has been provided internally within the Branch for 2,157 officers and externally by the Public Service Board (seventy-six officers), the Bureau of Census and Statistics (fifty officers), the Department of Defence (three officers) and Machine companies (sixteen officers). The training provided ranged from data preparation

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

courses and Programmer-in-training courses to management and language training courses.

195. Two officers of the Superannuation Branch have completed a programming course of six weeks duration conducted by the Bureau of Census and Statistics whilst two other officers qualified as programmers from the 1965 Programmer-in-training course conducted by the Bureau on behalf of the Public Service Board. These courses, supplemented by in-service supervision and assistance given by the Programmer-in-charge were said to be adequate.

196. The Department of Health has arranged its own training programmes for data processing operators. It claimed that it had found it necessary to provide supplementary training for officers who had completed the programming training organised by the Public Service Board. In addition, particular attention has been paid to the problem of educating all staff generally for the introduction of A.D.P. and keeping all staff informed of the progress made towards implementation.

197. Your Committee notes that while recruitment of A.D.P. staff from overseas sources has evidently been necessary in the early stages of the implementation of A.D.P., the cost of such recruitment has been substantial. This situation emphasises

The Bureau of Census and Statistics and the Public Service Board agree that recruitment of A.D.P. staff from overseas should be minimised as far as practicable. To further this aim training courses within the

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

the need for the A.D.P. training programmes provided by the Public Service Board, the Bureau and departments to be of the highest quality and sufficiently extensive to reduce recruitment from overseas to a minimum.

198. The evidence shows that a wide variety of training is being provided by the departments currently using the Bureau's computers, partly in response to their individual needs, and that basic training, particularly for programmers is being undertaken by the Bureau on behalf of the Public Service Board. Your Committee invites attention to the conclusions it reached in paragraph 362 of its Eight-fifth Report and trusts that the Public Service Board, in its co-ordination role, will ensure that the courses provided by the departments currently under examination are efficiently integrated to provide maximum effective training at minimum cost.

(vii) Capital and Operating Costs

199. Summaries of capital expenditure and operating costs of the Bureau of Census and Statistics network to 30 June 1966 are set out in Tables No.s 17 and 18. (see appendix A)

Treasury Minute
(21 August 1970)

Commonwealth Service have been expanded as requirements in terms of numbers have increased and the form of training has been varied to conform with changing needs. More detailed information on the type of training provided within the Service is included in the Treasury Minute on the Committee's Eight-fifth Report.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

200. In regard to Table No.18 Your Committee notes the relative significance of salaries and wages, incidental expenses and maintenance costs attributable to the central processing unit and its ancillary equipment. As indicated in our Eighty-fifth Report, the information set out in these tables and obtained readily from the departments concerned, should prove useful in the formulation of economic studies of achievements for Commonwealth A.D.P. installations.

(viii) Benefits and Advantages Attributed to the Use of A.D.P.

201. Your Committee noted that, generally little tangible evidence was submitted by witnesses relative to the benefits or the advantages which had been obtained from the use of A.D.P.

202. The Bureau of Census and Statistics referred to improvements made in the service which it provides to users of statistics and the fact that tasks can now be undertaken beyond the capacity of older types of equipment. It also instanced specific savings of \$155,000 per annum on hiring of equipment and staff savings of \$110,000 per annum.

203. The Taxation Branch stated that some procedures had resulted in savings but in other areas of its operations it had found that expenditure incurred had exceeded the level it would have reached without the introduction of A.D.P. The witness agreed, however, that an early approach should

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

be made to the measurement of savings achieved from the use of A.D.P. He estimated that savings amounting to \$76,263 per annum had been achieved in New South Wales, Victoria and South Australia as a result of processing tax collection instalments on computers, whilst a further annual saving of \$83,650 had resulted from the proposal by the Treasury to reconcile drawing accounts for those offices.

204. The Superannuation and Defence Forces Retirement Benefits Boards claimed that the development of A.D.P. techniques has provided basic records which will be of assistance to the Commonwealth Actuary and for other purposes and has resulted in a lesser increase in staff than would otherwise have been required.

205. The Department of Health claimed that under its previous system of operation in the pharmaceutical benefits area the stage was being reached where it would no longer be possible to maintain the desired level of efficiency in prescription processing and that the introduction of A.D.P. had rectified this situation.

206. The nature of the evidence received in this field reinforces the views expressed by Your Committee in paragraph 365 of its Eighty-fifth Report that the undertaking of economic studies of achievements for each Commonwealth A.D.P. installation would

The Interdepartmental Committee on A.D.P. and the Public Service Board are conscious of the need to examine the costs and benefits of each proposal and also of the necessity to undertake periodic economic studies. Under

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

prove to be a valuable task and might well elucidate whether or not optimum use is being made of equipment.

Treasury Minute
(21 August 1970)

current circumstances, cost/benefit relationships and general progress are assessed from time to time by departmental management, and this invariably happens when proposals for substantial extension of existing computer systems or applications to new areas are being considered. The Interdepartmental Committee on A.D.P. also reviews cost/benefit aspect when these proposals are submitted to it by departments. The Public Service Board has advised that further attention will be given to the matter of periodic reports of progress, benefits and costs when the task of establishing common standards for assessing costs associated with the installation and operation of a computer centre has been completed.

(ix) Future Development of the Bureau Network

207. The Department of the Treasury indicated that its forward planning is, at this stage, limited to conversion of the specific systems in the current programme in accordance with the schedule of target dates set for each project. No termination of the present relationship with the Bureau was considered likely unless such a course was mutually agreed upon.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

208. In the case of the Taxation Branch the present level of processing comprises only a small fraction of its total proposed system which will include recording and indexing systems, a complete accounting system and the extension of A.D.P. to sales tax, payroll tax and estate and gift duties. The Branch is examining the possibility of establishing its own computer installation and stated that whether or not the Bureau could continue to provide sufficient computer time to enable the Branch to extend its A.D.P.system is the critical factor in that decision.

209. The evidence suggests that the Bureau's equipment may not be suitable for the type of systems envisaged by the Superannuation and Defence Forces Retirement Benefits Boards e.g. systems incorporating real time interrogation facilities. Whether or not the Boards would acquire their own computers was said to depend partly on whether the Bureau's network is expanded to include instantaneous inquiry facilities and partly on necessary consultations with the Department of the Treasury and other organisations directly concerned.

210. In connection with projected A.D.P. developments in the Department of Health it appears that there is a wide range of activities, such as the pensioner medical service, medical benefits scheme and drug reaction and toxicology reporting, where

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

large volumes of data must be processed and which the Department desires to convert to A.D.P. as soon as practicable. Implementation beyond the medical benefits scheme, however, was said to depend on several factors of which available computer capacity is a critical element. The Department expects to install its own computer ultimately.

211. As at July 1966 the Bureau's computers were operating on three shifts in Canberra and Sydney, two shifts in Melbourne and Adelaide and one shift in Brisbane and Perth, per five day week. By December 1966 the Bureau expects that three shifts will be worked on its computers located in Melbourne and two shifts in Brisbane and Perth. Indications which it gave suggest that it may not be possible to meet the whole of its clients' requirements by the end of 1967 and that the probable extension of existing applications within the Bureau itself would reduce the computer time available for clients. Mr. Archer informed us that if applications continue to exceed those anticipated when the equipment was ordered, some additions will be necessary to cope with extended work loads.

212. It appears that in the near future the Public Service Board intends to make a detailed examination of long-term proposals. This will involve interdepartmental consultations designed to determine whether additional installations should be established

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

or whether existing facilities, such as the Bureau network, should be extended.

213. The evidence suggests that within the foreseeable future the growth of applications by the Bureau and its clients will place a heavy demand on the Bureau's equipment. Some clients will be unable, in the long term, to proceed to full implementation of their A.D.P. applications, unless satisfactory alternative arrangements are made for them. Three basic approaches to this problem have been suggested. The first and apparently simplest, is to establish a large number of computer installations on a regional basis and the third is to establish a complex of very large scale computing centres operating as Service Bureaux for Commonwealth departments generally.

214. In regard to the problems referred to and the solutions proposed, we note with approval that the Public Service Board intends in the near future to undertake, in consultation with the departments, a detailed examination of proposals for the establishment of additional computer installations or the extension of existing facilities such as the Bureau

At this stage in the consideration of the long-term computer requirements of Commonwealth departments it is not possible to indicate with any certainty how the Bureau computer network might be expected to develop over the next decade. However, it is not envisaged that the Bureau will provide computing facilities for all of its major user departments for an indefinite period.

Since the Committee's Report was presented one of the Bureau's clients, the Department of Health, has obtained approval to establish its own computer facilities. Delivery of the equipment is expected to commence in September 1970 and operational running on the installation is scheduled to begin in January 1971.

Summary of Evidence and
Committee's Conclusions
(19 October 1966)

Treasury Minute
(21 August 1970)

network. This examination will embrace the possible establishment of a separate 'Bureau of Information Processing' which could possibly provide computing facilities for a group of departments which do not at present have their own computing equipment. We would commend the Board for this imaginative approach to what is clearly a complex problem.

For and on behalf of the Committee,



DAVID N. REID,
Secretary,
Joint Committee of Public Accounts,
Parliament House,
CANBERRA. A.C.T.
3 September, 1970.



DON DOBIE,
Chairman.



TABLE NO. 17
BUREAU OF CENSUS AND STATISTICS NETWORK
CAPITAL EXPENDITURE TO 30 JUNE 1966

Item	Bureau of Census and Statistics	Department of the Treasury	Super- annuation and D.F.R.B. Boards	Tax- ation Branch	Depart- ment of Health	Total
	\$	\$	\$	\$	\$	\$
Central Processing Unit and ancillary equipment	5,264,300	..	..	..	..	5,264,300
Data Preparation and Transmission equipment ..	223,600	65,400	..	23,132	33,400	345,532
Construction and modification of Buildings	799,200	..	..	34,093	44,300	877,593
Other Capital Expenditure	107,500	..	..	47,659	20,400	175,559
Total	6,394,600	65,400	..	104,884	98,100	6,662,984

TABLE NO. 18
BUREAU OF CENSUS AND STATISTICS NETWORK
OPERATING COSTS TO 30 JUNE 1966

Item	Bureau of Census and Statistics	Department of the Treasury	Super- annuation and D.F.R.B. Boards	Tax- ation Branch	Depart- ment of Health	Total
	\$	\$	\$	\$	\$	\$
Maintenance-Central Processing Unit and Ancillary equipment	312,100	..	..	..	..	312,100
Maintenance-Data Preparation Equipment ..	..	..	..	290	400	690
Maintenance-Buildings ..	7,000	..	..	7,967	100	15,067
Hire/Rental-Central Processing Unit and ancillary equipment	38,400	..	..	..	..	38,400
Hire/Rental-Data Preparation equipment ..	220,600	4,600	16,485	90,466	67,500	399,651
Hire/Rental-Buildings.. ..	17,100	..	..	91,840	5,000	113,940
Salaries and Wages	1,513,000	327,000	398,250	725,559	561,900	3,525,709
Power	40,000	..	..	3,942	..	43,942
Incidentals	415,700	500	22,000	180,755	62,000	680,955
Total	2,563,900	332,100	436,735	1,100,819	696,900	5,130,454