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Report by the Comptroller and Auditor General

Administrative Computing in Government Departments

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Gordon Downey
Comptroller and Auditor General

National Audit Office
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Management and Control of the Development of Administrative Computing in Government Departments

Summary and conclusions

1. The Government is the country's major user of administrative and scientific computing resources, operating some 600 large to medium size computers and employing about 18,000 staff. Expenditure on the purchase and hire of computers in the Computer and Telecommunications Vote in 1982–83 was some £106 million; and the total annual expenditure on computing is several hundreds of millions of pounds.

2. The present and prospective uses of computers and information technology offer major potential benefits across a wide range of departmental operations. To realise this full potential departments should reconsider and adapt their operational requirements, and develop long-term planning of computer strategy as a framework for deciding upon individual projects.

3. Securing the benefits of such developments also involves heavy investment of financial and staffing resources; there is a high level of inherent risk because of the complexities involved and shortages of qualified and experienced staff in systems development, programming and project management; and the long timescales involved present problems in project control.

4. Examination by my officers of selected projects in four departments at the end of 1982, in conjunction with their audit experience from other areas of computer development and the results of studies by the Central Computer and Telecommunications Agency (CCTA), indicated a number of areas of common weaknesses in planning and control. There were significant penalties in terms of wasteful expenditure and delays in securing the financial savings and improvements in departmental operations originally expected. Whilst the extent of the difficulties encountered is not necessarily typical of the majority of departmental computer developments — and there is evidence to suggest that similar experiences are to be found in the private sector — they confirm the seriousness of the risks involved and the need for improved planning and control procedures. The main issues arising are dealt with in the following paragraphs; and the results of the detailed examination on which these findings are based are summarised in the Report and in Appendices 1–3.

Strategic planning

5. In all departments, the development of administrative computing requires long-term strategic planning as a framework for decisions on individual projects. This planning should reflect full consideration of the potential of computerisation to meet departmental requirements; but it should also be undertaken with adequate recognition of the staffing needs for successful developmental work. It should lead to clear definitions of priorities and of operational objectives, and be approved and supported by senior management.

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6.   My examination suggested that although it is five years since the Longer Term Review identified the need for strategic planning (Report, paragraph 4) adopting and implementation of such planning by departments remains patchy. At the time of my examination, of the four departments examined only the Department of Health and Social Security (DHSS) had embarked upon full strategic planning with strong senior management involvement (Report, paragraphs 13 and 17). To varying degrees the position was less satisfactory in the other three departments, the Lord Chancellor's Department (LCD), the Manpower Services Commission (MSC) and Her Majesty's Stationery Office (HMSO). Across the main computer-using departments as a whole the extent and pace of improvement did not seem to be commensurate with the importance of the problem and the financial and operational benefits at stake (Report, paragraph 21). I have since been informed of some further progress in this respect (Report, paragraphs 22 and 23).

Computer management structure

7.   The development and implementation of ADP strategies and the co-ordinated planning of individual projects requires an effective computer management structure, at sufficiently senior levels and with appropriate support.

8.   My examination suggested that many departments are strengthening control of ADP at senior levels; and all the major departments have set up ADP committees. However, such committees will not be fully effective until there has been more progress with the longer term planning referred to in paragraph 5 above; and CCTA have recognised the need for further improvements in this and other areas (Report, paragraph 24).

9.   In the four departments examined the co-ordinated development of individual projects, over the significant timescales involved, is now being tackled most significantly in DHSS (Report, paragraph 13). MSC (Appendix 2, paragraph 8) have now reviewed and strengthened their arrangements and HMSO (Appendix 3, paragraph 5) and LCD (Appendix 1, paragraph 8) are currently engaged in doing so. Co-ordinated planning of projects is now one of the factors being looked for by CCTA when deciding whether to delegate greater financial authority to individual departments (Report, paragraphs 5 and 24).

Project management and system design and development

10.   It is essential to have firm project management based on sound monitoring and review procedures to give early warning of difficulties and delay, and to enable prompt remedial action to be taken. Effective procedures should be established for controlling and progressing system design and development, with the active involvement of users.

11.   My examination suggested that inadequate project management and insufficient senior staff and user involvement, together with the failure to adopt suitable design and development procedures, were major factors in the difficulties encountered in all the projects reviewed (Report, paragraphs 12 and 19). CCTA's action in identifying and encouraging the use of recommended project control and design and development procedures (Report, paragraphs 5 and 24) is an important step in improving departmental control over projects. Each of the departments examined had begun to adopt such procedures for future system developments and have recognised the need for more senior management involvement. But reaching a satisfactory standard will take time and effort; and across departments as a whole it will be important that CCTA ensure that proper procedures are in place, and are working satisfactorily in practice, before delegating financial authority more widely.

Staffing

12.   It is widely recognised that to embark on developmental work with too few qualified and experienced staff is a recipe for serious trouble. Staffing requirements must be carefully assessed in advance. Action must be taken to ensure that suitable numbers of staff are obtained and training needs are provided for; and that specialist consultants are engaged as necessary.

13.   My examination showed that during the DHSS CAMELOT development the heavy loss of staff during its early stages and the lack of real-time computer expertise were major contributory factors in the failure of the project (Report, paragraphs 11 and 12). The successful implementation of the DHSS Operational Strategy will depend on the department overcoming current computer staff shortages, particularly among staff experienced in advanced computer techniques (Report, paragraph 18). There were similar staffing problems in the other departments examined (Report, paragraph 32).

14.   My examination of central and departmental records indicated a serious and increasing shortage of experienced and highly skilled staff; that long-term plans for training and recruiting such staff are inadequate; and that further action is needed (Report, paragraphs 29 to 31). Certain departments have experienced lengthy delays in recruiting staff (Report, paragraph 32 (iii) and (iv)). Action appears to be needed to shorten recruitment timescales, improve trawling and exchange arrangements between departments and ensure that pay and conditions of service are adequate to retain staff of the required calibre and to provide the senior specialists and managers of the future. Where staffing needs cannot be met from departmental resources additional funds will need to be provided, at least in the shorter term, for the employment of specialist outside consultants.

15.   Finally, whilst CCTA and some departments are well aware of the areas where planning, project management, systems design and development, and staffing need to be improved, and are doing an increasing amount of work in such areas, the position generally seems to give grounds for concern. More effort, with more senior staff support and with a larger allocation of resources, appears to be necessary. Giving higher priority to such work, even at a time of general staffing and other constraints, will help to secure the enormous potential benefits afforded by computers and associated new technology. It is right to acknowledge that a good deal is being done; but equally necessary to recognise that in many areas there is a long way still to go.

Management and Control of the Development of Administrative Computing in Government Departments

Report

The CCTA and the role of departments

1. The Central Computer and Telecommunications Agency (CCTA) within the Treasury is responsible for overall policy and financial control of computers and telecommunications used in Government for administrative purposes. It advises and supports departments in the identification and assessment of potential computer and telecommunications applications, on the selection of systems and equipment, and on project and installation management and control. It also provides central technical and procurement services.

2. CCTA financial approval is required for individual computer projects in departments, although the Agency is increasingly seeking to delegate financial authority where it is satisfied with the department's computer management structure, planning and control procedures, expertise and experience. The maximum level of delegation for selected departments has recently been increased to £3 million per project. CCTA's aim is to devote more of its own efforts towards assessing future developments in computers, telecommunications and office technology and providing advanced technical support to departments. The role and functions of CCTA are currently under review.

3. Each government department is responsible for its computer strategy; for the management and control of its computing resources; and for the initiation, design and implementation of individual computer projects. Departments are expected to co-ordinate their computer developments, and to establish priorities, so as to meet their main operational objectives economically, efficiently and effectively. These operational objectives may themselves need to be reviewed so as to realise the full potential of computer developments or, if need be, to recognise difficulties which may arise as computer projects are being implemented. Plans may also need to be revised as new computer requirements, or opportunities, emerge; for example, there will undoubtedly be increased requirements in due course for computerised management accounting and management and financial information systems as a result of current departmental responses to the Treasury's financial management initiative.

4. The importance of sound planning, control and monitoring arrangements was emphasised in a Longer Term Review of the efficiency of administrative computing in central government completed in 1978, and in a follow-up examination of the principles for the management and organisation of computing in departments completed in 1980. These reports also pointed out:

(i) the need to define operational objectives as a starting point for developing a co-ordinated computer strategy;

(ii) the importance of an effective computer management structure at senior level, with appropriate support;

(iii) the value of standard methods to control and monitor the quality of systems design and programming and day to day progress, and the provision of early warning of difficulties and delays;

(iv) the need to forecast longer-term staffing requirements, identify possible shortfalls of skilled and experienced staff, and assess training needs.

5. CCTA have issued guidance to departments based on these reports and are encouraging the adoption of the recommended procedures. The extent to which departmental arrangements reflect such controls, and how far they have developed and implemented the appropriate methodology, are factors taken into account by CCTA in delegating financial authority for computer projects to the departments concerned.

6. Sound procedures of the kind outlined in this report provide an essential framework of control but they do not, of course, guarantee successful and timely computer developments. The purpose of the planning, control and monitoring procedures in CCTA and in departments is essentially to minimise the risks which are inherent in the development and implementation of all advanced computer projects; to provide a framework of control which will continue to operate effectively if and when difficulties and delays arise; and in the final analysis to secure the maximum operational and financial benefits from the resources available.

Computer projects in departments

7. Controlling advanced computer projects presents significant difficulties, and there have on occasion been major problems and expensive mistakes in both the public and private sectors. Departments cannot always plan and implement computer projects in the theoretically ideal way, and priorities may change as systems develop. Slippage, deferment and cancellations have been the cause of heavy departmental underspending on computers in recent years.

8. There may be several hundred computer systems of varying sizes under development in departments at any one time. The following paragraphs deal with major projects in four departments on which serious difficulties were encountered. Though the extent of these difficulties may not be typical of the majority of computer developments, they illustrate the cost of project failure and delays and indicate a number of common problems and weaknesses in control. My officers' general examination in other areas confirms that the lessons to be learned are of wider application and require action. CCTA and departments are, in fact, committed to a programme of continuing improvements in all aspects of computer development. The projects concerned are in the Department of Health and Social Security (DHSS), the Lord Chancellor's Department (LCD), the Manpower Services Commission (MSC) and Her Majesty's Stationery Office (HMSO).

DHSS: Computerisation and Mechanisation of Local Office Tasks

9. The administration of social security benefits involves some 83,000 staff in DHSS and 30,000 staff in Department of Employment (DE). The work of DHSS central offices and the payment of unemployment and associated supplementary benefits in DE local offices have been extensively and successfully computerised. However, some 63,000 staff in 500 DHSS local offices continue to operate manual systems for short term incapacity and supplementary benefits. Since the 1960s this has been recognised as an important area for using computers nationwide to improve efficiency and provide more effective cross-checking of benefit claims.

10. In 1977 Ministers approved a pilot scheme for the Computerisation and Mechanisation of Local Office Tasks (CAMELOT) from which it was planned to develop, between 1981 and 1986, a national local office computer system. By December 1981, however, it had become clear that the project was unlikely to achieve its objectives of improved efficiency and tighter control and an ultimate saving of some 3,000 staff. It was therefore abandoned at a total cost — including earlier experiments in local office computerisation — of more than £12 million; the cost of CAMELOT itself was noted in the 1981—82 appropriation account (Class XII, Vote 4) at some £6 million. DHSS do not accept that this expenditure can properly be regarded as nugatory, but acknowledge that the cancellation of the project will defer the expected improvements and savings.

11. CAMELOT encountered problems in the early stages because of a heavy loss of DHSS programming staff to better paid jobs in the private sector. Despite support from consultants, programming difficulties continued and by early 1981 computer programs were increasing in size to a point where it was unlikely that the approved equipment could cope with the planned workload. There were also weaknesses in the monitoring of progress and achievement against defined work plans. By mid-1981 the project was in serious difficulties and consultants were asked to advise on the status of the project and its chances of success. They reported in December 1981 that CAMELOT as currently conceived could not result in a useful or operable system and should be halted.

12. DHSS consider that the main cause of the CAMELOT failure lay in the quality of computer programming. The consultants had also recommended improved project control and design methods and the introduction of appropriate technical support to overcome the lack of real-time computer expertise; and DHSS told me that they fully accepted the need for more effective management and control of future projects (see paragraph 17 below).

DHSS: Operational Strategy and the Local Office Project

13. Since 1977 DHSS have been considering their needs for a medium and longer term strategy for the administration of social security, particularly in local offices, with a view to using new technology to improve operational efficiency and service to the public. A DHSS report in 1980 was followed by a second report "Social Security Operational Strategy: A Framework for the Future" published in 1982 for consultation. Experience on CAMELOT has emphasised the conclusions in these reports that maximum gains are unlikely to be achieved unless individual projects are developed as part of an overall plan; and the latest strategy proposals envisage the co-ordinated development of some 14 major computer projects over a 15 year period at an additional cost of £700 million. DHSS estimate the total potential savings from the projects over a 20 year period will reach some £1,900 million.

14. The strategy proposals provide for the extensive use of computers and associated technology in virtually all areas of social security operations. The objectives and nature of these operations are to be fundamentally reviewed to avoid the mere computerisation of existing procedures. On the basis of present complements DHSS envisage potential savings of some 20,000 staff when the various systems are fully operational. The Department have recently informed me that with the help of management consultants work is now well advanced on a detailed plan for phased implementation of the strategy and considerable progress has been made on a number of first stage projects.

15. One of the projects started is the Local Office Project (LOP) which is intended to replace CAMELOT. The LOP was designed in the light of a basic re-examination of objectives and user requirements recommended by the consultants called in to review CAMELOT; and it incorporates lessons learned in the form of changes in management structure and control procedures. There is, however, no intention to use either the equipment or programs hired or developed for CAMELOT.

16. The first and main part of the LOP is estimated to cost some £200 million for the provision and maintenance of equipment and associated costs. Phased implementation at local offices is currently planned to begin in 1987 with the system being fully operational from 1991 onwards. Savings in staff and other costs are expected to produce a cumulative net saving over 20 years of some £380 million at 1981 net present value.

17. The improvements being introduced for the LOP and other computer projects include:

(i) a stronger committee structure at senior management and operational levels, meeting regularly to co-ordinate user requirements and to monitor technical plans and progress;

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(ii) strengthened DHSS direction, with outside consultant support;

(iii) greater use of outside technical expertise, particularly during the initial feasibility and development stages;

(iv) tighter procedures, approved by the CCTA, for systems design, development and control.

18. Whilst these improvements should increase the chances of the successful implementation of the LOP and other computer projects there is, of course, a long way still to go. Costs and benefits within the operational strategy as a whole, and for individual developments and projects, will be matters for continuing DHSS review as circumstances change and requirements are altered. And in the shorter term, success will also depend on overcoming current shortages of staff with skill and experience in advanced computer techniques, and on securing the agreement and co-operation of staff in introducing new technology. These latter aspects are consider further in paragraphs 26–34.

Computer projects in other departments

19. The results of my officers' examination of computer projects in the LCD, the MSC and HMSO are summarised in Appendices 1, 2 and 3 respectively. The main causes of the significant difficulties and delays noted appeared to be:

(i) Over-ambitious design; little review of existing objectives and procedures before computerisation; limited consultation and liaison with systems users.

(ii) Inadequate project management and senior staff involvement; poor project control and monitoring procedures; difficulties in ensuring prompt remedial action as problems and delays arose.

(iii) Shortage of experienced staff.

20. Though the significance of each of these factors varied in the individual cases, the overall pattern was essentially the same as that which emerged from the review of DHSS experience on CAMELOT. The departments concerned, with the advice and assistance of the CCTA, have all recognised the need to improve overall control and co-ordination by revising their computer management structure and by strengthening their systems development and design and project control and monitoring procedures.

21. However a further common factor in LCD, MSC and HMSO at the time of my officers' examination was the limited progress made towards developing a co-ordinated computer strategy and appropriate long-term planning. An examination of CCTA records at the end of 1982 indicated a similar situation in a number of other departments. The 22 largest computer users had established ADP committees to oversee developments, but only three had developed long term strategic plans. Eight departments were actively working towards such plans and one major department had achieved a partial coverage of its operations; but the remaining ten departments had made little or no progress.

22. LCD, HMSO and MSC have now informed me that they have made significant progress since the time of my officers' examination towards meeting the concern expressed in paragraph 21:

(i) LCD's ADP review committee has approved a programme of projects with an order of priority and further work to develop the programme is in hand.

(ii) HMSO in consultation with CCTA have completed a comprehensive strategy to form the basis of co-ordinated planning of future projects and are now identifying and evaluating projects in order to determine priorities.

(iii) MSC have agreed a strategic framework within which computer developments will be carried forward under central control and to appropriate standards.

23. In addition CCTA have informed me that by October 1983 seven of the other main computer-using departments had completed long-term strategies and twelve were actively working towards such strategies, leaving three departments yet to start.

24. The CCTA have confirmed the need for improved control arrangements from the outset of computer planning and implementation; and they have announced that the use of appropriate procedures and methods for individual projects will be mandatory for all departments as part of CCTA delegation of financial authority. CCTA have also reviewed a number of weaknesses or failures to achieve full potential in the work of computer committees in departments and have issued further guidance on strengthening their strategic planning role and widening their scope.

25. The complexity of computer development means that the preparation of strategic plans, and their integration with the operational and administrative objectives of departments, underpins the very large financial investment in new projects. The position outlined in paragraphs 21 to 23 above indicates that despite recent progress there remains a continuing risk that departments will not realise the full benefits of computers and associated technology in improving the economy, efficiency and effectiveness of their operations.

Staffing

26. The successful and timely development and implementation of computer projects is critically dependent on having sufficient skilled and experienced staff. Inadequate resources for systems analysis, programming and project control — particularly on the development of advanced computer systems — were significant causes of the difficulties in the four departments reviewed in this report; and shortage of more highly specialised staff is an increasing service-wide problem as computer operations become more complex.

27. Departments are responsible for the adequate staffing of their computer developments and operations and for the management, training and career development of their staff in the functional specialism concerned. They have to act within the framework of policies on pay, recruitment and personnel management set by the Treasury and the Management and Personnel Office (MPO). CCTA are responsible for co-ordinating central departments' activity in relation to computing and thus are engaged in reviewing computer manpower requirements and discussing with the

MPO appropriate recruitment, training and career development policies. These arrangements were reviewed by the PAC in 1975 and again in 1979; the Committee noted the high losses of expensively-trained staff for better paid jobs elsewhere, and trusted that measures to improve the management of and career structure for staff would bring down the loss rate to a more acceptable level (Ninth Report, 1979–80, paragraphs 16 to 18).

28. Measures have been taken since 1979 aimed at reducing the outflow of experienced programmers, to widen recruitment from other occupational groups within the civil service and from outside, to improve career planning, and to increase training in project management. There are at present some 5,000 staff engaged on systems analysis and programming and project management for administrative computer systems. Voluntary wastage rates have fallen significantly from the 1978–79 figure of about 22 per cent to the present level of some 5 per cent. Nevertheless staff numbers fell slightly in 1982 and there was an increased level of vacancies, reflecting the general planned reduction in civil service numbers.

29. Special arrangements have been introduced to co-ordinate inter-departmental needs for highly-qualified specialists for advanced computer systems. CCTA reports on progress made over the last three years indicate that, after some initial reluctance, departments are now adopting a more positive attitude toward annual planning exercises to identify requirements for specialist staff. These exercises only cover a period of two years ahead and reports from departments have confirmed the continuing shortage of such staff; each year the forecast requirement has increased but departments have consistently under-estimated the necessary rate of increase. Estimated figures for 1983–84 show that qualified staff in post were expected to be some 241 (26 per cent) below the 937 required; shortages of more senior staff and staff skilled in certain advanced techniques were running at even higher levels.

30. Departments are trying to bridge this gap in various ways, for example by short-term secondments from the private sector and — particularly — by training schemes to improve the qualifications and experience of existing computer staff. But these schemes could take up to four years to meet the estimated specialist staff shortfall for 1983–84; and meanwhile the gap might well increase further.

31. CCTA have expressed fears that the growing shortage of highly-specialised and other computer staff may produce wider effects on the efficient conduct of departmental business. Conscious of the long training timetable, they have pressed departments to identify forward staffing needs as part of their development of a long-term computer strategy, and in their annual manpower planning exercises.

32. The effects of computer staff shortages vary from department to department and from one period to another, depending on the current extent and pace of computer development. As indicated in paragraph 26 above, the position in the four departments examined for the purposes of this report confirmed the serious consequences that can arise.

(i) In DHSS, which employs about 850 staff in the computer functional specialism, there are current shortages of both ordinary and highly-specialised staff; and the increased demands of the Operational Strategy will put the position under further pressure. Further, the modest average wastage rate for analysts and programmers of just over 6 per cent in 1982 did not reflect the range of variation from location to location which meant that the Local Office Project suffered a wastage rate of 35 per cent for the same period. There is also a continuing shortage of more senior and experienced staff.

(ii) In LCD, where staff levels are much lower, a recent review of· requirements in the light of the approved programme of computer projects has identified the need for a substantial increase in the complement of the ADP Unit.

(iii) In MSC difficulties in forecasting longer term computer staffing needs arise because the Commission might have to respond to Government initiatives and to new programmes at short notice. But, although the Commission have not so far carried out such longer term planning, they now intend to do so. During my examination the Commission also drew attention to problems of resource allocation, which was a difficult matter of reconciling priorities within available resources, and to the long timescales in staff recruitment.

(iv) In HMSO the Main Distribution Centre project suffered from a shortage of skilled and experienced staff. The reasons advanced for this included insufficient pay and the long drawn out procedures for approving additional posts and trawling for staff. HMSO also considered the arrangements for employing outside consultants were insufficiently flexible. They had not made any detailed forecast for their highly specialised and other computer staff needs beyond 1984.

Relationships with trade unions

33. Negotiations with the trade unions at national level have been under way for some years with a view to an agreement on the introduction of new technology. An interim agreement in March 1982 on some aspects of consultation procedures and exchange of information was withdrawn by the unions in September 1982. The Government is still committed to the introduction of new technology and CCTA have advised departments that in the absence of a national agreement negotiations should proceed department by department. At the time of my officers' examination none of the four departments reviewed in this report had concluded departmenal agreements, but they did not consider this to be a factor in the difficulties met in the implementation of the computer projects concerned, nor a threat to future developments. DHSS have since informed me that they have reached an interim agreement running until May 1985.

34. There has also been some trade union resistance to exercises to identify and train highly qualified specialist staff, on the grounds that all computer staff should be similarly treated. But there have been no instances of departmental planning in this area being impeded by trade union opposition.

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Appendix 1

LORD CHANCELLOR'S DEPARTMENT

1. The LCD employs about 10,000 staff and is responsible for the administration of courts in England and Wales, other than magistrates courts. This includes responsibility for the custody and management of court funds and the administration of certain trusts. Many of the latter are the responsibility of the Public Trustee Office, which since 1982 has been part of the Department. Computer developments are being considered or introduced in a number of areas of LCD, including County Courts, Crown Courts, funds management and operations and information and support services areas.

2. Examination showed that the LCD had encountered difficulties and delays with the development of several computer systems. The County Courts project, aimed at substantial improvements in efficiency and with expected net savings identified at the preliminary study stage of some £1.7 million discounted over 7 years, has only developed slowly. Full development has yet to be authorised. The scale of a Public Trustee Office project was substantially underestimated by contractors and has been delayed by 18 months, deferring potential savings of £720,000 a year. A project to replace an existing computer operation in the Court Funds Office is also experiencing some delay. An Official Solicitor's project which went wrong was halted in November 1981; my officers examined the reasons for its cancellation.

3. Criticism of the the Official Solicitor's accounting system, which was largely manual and supported by obsolete accounting machines, made it a priority area for computerisation. After some early delays, the CCTA gave LCD financial authority to proceed with a Phase I development in December 1979. This was expected to show a net discounted saving over 7 years of some £90,000, based on a live running date of June 1980. It was recognised, however, that the project would cease to be cost-effective if delayed by more than 8 months.

4. The project was to be handled in house but LCD had little systems or programming experience and staff resources had to be supplemented by recruitments and secondments from another department. Almost immediately it was discovered that the time needed for programming had been seriously under-estimated and the project was rephased with a new implementation date for Phase I of early 1981. No financial re-appraisal of the project was undertaken at that stage.

5. As work progressed it became apparent that systems specifications were inadequate and the system was unlikely to be implemented before January 1982. In November 1981 LCD decided to abandon the project on the recommendation of senior project staff; the system was constantly being revised and amended, morale had suffered and staff were leaving the project. Because of the resultant delays and a falling work-load in the Official Solicitor's department, the project was no longer cost-effective. The work done cost some £600,000, not all of which the LCD regarded as nugatory.

6. The main reasons for the difficulties and delays on this project can be summarised as follows:

  (i) shortage of experienced staff;

  (ii) the poor quality of initial systems analysis and design; failure to freeze design at an early stage, insufficient liaison with users;

  (iii) inadequate project management, including senior staff involvement, and lack of firm project control procedures.

7. Accounting work in the Official Solicitor's Department is now handled by a bought-in accounting package and small computer system. This will deal with only part of the work originally intended for the abandoned project, and represents a return to proposals originally rejected in 1979.

8. LCD lack sufficient staff resources to develop all their planned computer projects. At the time of my review the Department had not developed a co-ordinated strategy but they have recently informed me that they have approved a programme of computer projects and have initiated action to recruit the additional ADP staff required to support the programme. In the light of the weaknesses brought out by the Official Solicitor's project they are also moving to strengthen their procedures for planning, development and control of computer projects, and have improved their management and monitoring arrangements.

MANPOWER SERVICES COMMISSION

Spectrum Project

1. The Spectrum computer project was a high priority development intended to assist with administrative and financial aspects of the Youth Opportunities Programme (YOP), and to collate management information for the 32 area offices involved. It was a complex and ambitious project based on mini-computers in area offices linked to a head office system.

2. Because they lacked the necessary staff for in-house software development, the Commission placed a £600,000 contract for the provision of the necessary hardware, software and documentation. The project was originally expected to produce net savings of some £0.9 million discounted over 8 years and it was hoped the system would be operating in some offices by mid-1979, with full implementation planned by mid-1980. However, by mid-1981 the system was running in only 4 of the 32 area offices and was not meeting the required contractual performance. The fact that software production was subcontracted to a company which was going through a period of re-organisation contributed to these delays.

3. A report by independent consultants in February 1982 noted that the principal reasons for the difficulties and delays were:

    (i) the computers in the area offices were too small and imposed systems design and programming constraints;

    (ii) implementation plans were too ambitious;

    (iii) there had been a three-fold increase in the volume of work which could not be predicted and which impacted adversely on the implementation plans;

    (iv) project control was ineffective and firm remedial action was not taken as problems developed.

4. Based on the consultants' recommendations, the Commission decided to introduce a revised scheme at an estimated additional cost of £1.1 million. This new scheme took account of some additional requirements arising from the introduction of the Youth Training Scheme but excluded the financial operations included in the original scheme which were no longer required. MSC have informed me that it has recently become clear that the new requirements are significant and will require more equipment than estimated originally; and that, plus other factors outside MSC's control, has increased the additional cost to £1.8 million. The target date for introduction of the revised Spectrum system is now April 1984, and the provision of an interim clerical system in 1983–84 will require some 200 temporary staff at a cost of £800,000.

5. As well as the financial consequences, the delay in implementing Spectrum meant that MSC had to continue to rely for YOP management information on an interim computer assisted system. As I noted in my separate Memorandum on Special Employment Measures the interim system did not fully and reliably meet all the information requirements. Spectrum was designed to provide more complete and accurate information and to make it more readily available; MSC's decision to proceed with the project, despite its problems and marginal cost-effectiveness, reflected the continuing operational need for it.

6. The Commission have now taken steps to improve control of the Spectrum project and other computer developments. They have strengthened their computer steering committee, re-defined responsibility for planning and monitoring of projects, and are introducing improved systems design and project management and control procedures.

7. The consultants brought in to advise on Spectrum noted that there were significant overlaps between the various computer systems in the Commission, and concluded that it was vitally important to develop an overall computer strategy as soon as possible. The Commission had, in fact, for some time been considering the need for greater co-ordination of their computer developments, but without reaching a firm conclusion. At the time of my examination the position was under further review by senior management.

8. MSC have now informed me that they have made significant progress towards achieving a co-ordinated strategy; and that at its March 1983 meeting the MSC Chairman's Policy Committee strongly endorsed and approved recommendations relating to an Information Processing Strategy and the role of Computer Branch and the Computer Committee which took full account of CCTA guidance and the issues highlighted by this report.

HER MAJESTY'S STATIONERY OFFICE

1. Three HMSO computer projects have run into serious difficulties in recent years. I reported on their 1979–80 and 1980–81 Trading Accounts on problems with their computerised management information systems; in general these now appear to be operating satisfactorily within the limitations of their design capability. A project for the introduction of decentralised stock control has been delayed. And the following paragraphs deal with difficulties with HMSO's Main Distribution Centre project.

Main Distribution Centre Project

2. HMSO's storage and distribution operations are at present carried out in old and unsuitable premises by labour-intensive methods. In 1978 they proposed the development of a purpose-built warehouse with modern mechanical handling devices and an on-line computer system to control order processing, bulk packing and sorting of publications, stock management and customer accounting. This was expected to save some 300 staff and to reduce staff costs by more than £2 million a year. The first stage of the necessary computer hardware was purchased in September 1979.

3. Early in 1981, concerned over slow progress with the project, HMSO called in consultants who reported that the likelihood of implementation by the target date of October 1982 was negligible. They identified the main problems as:

(i) the complex and advanced nature of the system;

(ii) inadequate project staff numbers and experience;

(iii) the inexperience of project management in such a complex and advanced field, resulting in over-ambitious system objectives;

(iv) ineffective project-control, with insufficient senior management involvement;

(v) unsatisfactory systems specification, with insufficient user involvement and too much computerisation of existing clerical processes.

4. HMSO subsequently took steps to increase the project staff and improved project management and control. They re-phased the development and were able to introduce the essential parts of the original project by July 1983; later stages of the work are expected to be completed by April 1984 but HMSO have accepted that the operational and financial benefits expected from the project as originally planned have been deferred.

5. The Main Distribution Centre project is only one of several proposed HMSO computer developments. A number of aspects of these developments have been reviewed from time to time by senior management and the main lines of policy and priorities agreed, but at the time of my examination HMSO had not completed a comprehensive strategy as a basis for co-ordinated planning of the projects concerned. That has now been done and HMSO are consolidating and improving the planning of future computer needs.

6. Management and planning of projects and liaison with users are also being strengthened. HMSO will control and monitor future projects using methods recommended by CCTA, and are to introduce improved systems analysis and design procedures.