

Country Focus



Mr R Chandramouli, the Indian Assistant Comptroller & Auditor General Commercial, writes about the use of Information Technology in the Supreme Audit Institution of India

Background

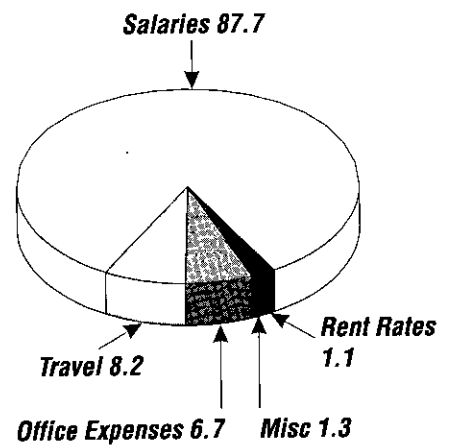
India is a Union of 26 States. The Comptroller and Auditor General of India (CAG) is the Supreme Audit Authority, common to both the Union and the States. As the most important instrument of accountability, the CAG has a combination of accounting and auditing functions. He is responsible for the compilation of the accounts of the States and auditing the accounts of both the Union and the States as well as a large number of bodies and authorities owned, controlled or financed by governments. He ensures uniformity of accounting and auditing standards for the Union and State governments. He also plays a fiduciary role in Union-State financial relations.

The CAG is the head of the Indian Audit & Accounts Department (IA&AD) which comprises 105 offices, 26 of these offices deal with accounting, 68 with audit, 10 with training and one is the Headquarters Office at the apex. The CAG generally has two separate representatives, called Accountants General, for Accounting & Entitlement and Audit function in each State.

IA&AD employs 59,875 persons as detailed below:

The executive management cadre, called the Indian Audit & Accounts Service is common to both accounting and auditing.

The audit operations of the IA&AD span the geographical length and breadth of a fairly vast country. However, except for auditors of Union Government Departments and commercial undertakings including companies for which major shareholding is with the government, auditors generally tend to be confined to their respective States. Functional specialisations include revenue, commercial, railway, posts and telegraphs, defence and the others (called civil). The expenditure audited by IA&AD is approximately US \$227 billion per annum. IA&AD's budget of US \$105 million is expended as follows:



<i>Audit Supervisors</i>	11,506	<i>Accounts Supervisors</i>	2,974
<i>Auditors</i>	15,911	<i>Accountants</i>	14,198
<i>Clerical Staff</i>	2,854	<i>Clerical Staff</i>	4,784
<i>Staff Services</i>	4,763	<i>Staff Services</i>	2,885
TOTAL	35,034	TOTAL	24,841

The IT Strategy

The Computer Policy

IA&AD first used computers in the 1960s as soon as some auditees started using them. For nearly a decade thereafter, attention to computers waned as other pressing accounting and structural adjustments took precedence due to major changes in the accounting set-up. Computerization started seriously again in the mid-1980s, initially with the assistance of external consultants and with in-house expertise a few years later. After acquiring a little experience over a couple of years, a "Computer Policy" paper was widely circulated in 1987 for comments and as a broad indication of the Department's policy. In 1989, a formal "Computer Policy" was put out, setting out the objectives of the policy, a broad strategy and, most importantly, an assurance that computerization would not result in retrenchment of staff.

Centralised Direction and Control

While approving the policy, the CAG also set up an EDP Steering Committee comprising very senior officers representing different interests within the Department and empowered to deal with all matters relating to the use of IT in the Department. The Committee was charged with the responsibility to direct and oversee the IT function as a whole, and was specifically mandated to acquaint itself with the progress made by SAIs of developed countries in computerised accounting and audit.

The IT Strategy

The Steering Committee took the following initial steps:

- a) Standardised hardware (DOS-based IBM-compatible PCs).
- b) Standardised major software packages (Lotus 123, dBase IV and MS-Word 5).
- c) Centralised the IT Budget and procurement of hardware and software.
- d) Formulated a Training Strategy and detailed training plans.

These steps were intended to facilitate optimum utilisation of IT-skilled manpower resources and funds. Competitive prices were obtained through tenders and bulk purchases while simultaneously ensuring that after-sales support and maintenance would be

available in all cities for which procurements were being made. This also obviated the need for procurement capability in all offices. The standardisation of software enabled formulation of detailed training plans.

The IT Strategy focussed initially on word-processing for the following reasons:

- a) Successful results could be demonstrated quickly and widely which:
 - i) helped to assure management about our ability to harness IT, and
 - ii) enabled staff to see the beneficial impact of computers.
- b) It re-inforced the assurance in the Computer Policy that introduction of computers would not necessarily involve retrenchment of staff and partially allayed fears that jobs would be lost.
- c) It introduced a computer culture in offices and associated disciplines like virus control, daily back-ups, etc. before more serious data-processing applications were taken up.
- d) It provided lead time for software developments for various applications.

Training

The computer Policy expressly recognised the importance of training for building and sustaining IT-skills. In view of a large workforce and relatively very poor base of IT-skills, the EDP Steering Committee formulated a training strategy based on a needs-analysis. This strategy had the following fundamental principles:

- a) In-house training would be cost-effective for large-volume and long-duration training courses.
- b) For maximising learning, all skill-oriented training courses should have 1 PC per trainee and the practical (computer lab) sessions must include lab assistants on a ratio of 1 for a maximum of 4 trainees.
- c) All training courses should be customised for the Department and standardised; they should be delivered through trained trainers.
- d) To optimise resources, skill-building would be in phases: initially, a small group in each office would gain a

reasonable standard of skills on each of the standard software packages and, in subsequent rounds, advanced or specialised courses would be made available.

- e) The executive management cadre should be compulsorily trained on computers; new entrants could be trained during induction training and the others could be covered in a phased manner.

To implement the training plan, five of our nine training institutes were upgraded for computer training with 14 PCs each, computer-projection equipment, lab assistants, computer faculty, library of computer books, programmed learning (tutorial) software and standard training course-ware which included course-outline, objectives, exercises, instructor's guide, etc. The infra-structure for round-the-year training created in these five institutes has been serving us very well and the Department can now boast of a wide base of IT-skills scattered through most of its offices. 837 supervisory staff and 1038 support staff members were trained through our training institutes; field offices have also trained many of their staff in-house.

Hardware

The announcement of the Computer Policy was followed by a rapid expansion of computerisation in terms of number of PCs employed and types of applications covered. The annual procurement of hardware is shown in the chart below:

Computers used have been growing in sophistication from the PC-XT to the 286s, 386s and the 486s. A predominant DOS environment is being gradually converted to a Novell-Netware-based LAN environment since 1993; a few UNIX-based systems which were in use before standardisation continue to be used under

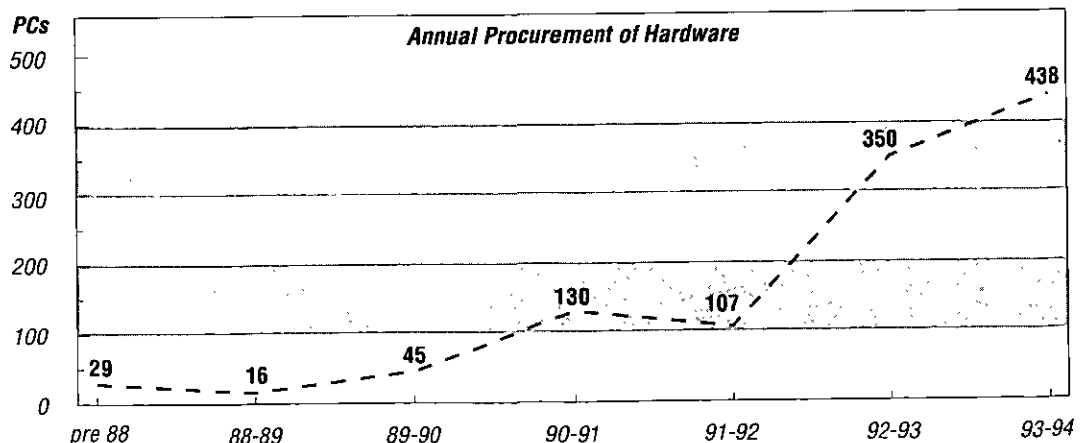
UNIX. The gradual migration from stand-alone PCs to LANs in our opinion, enables technology absorption and prepares the offices for proper LAN administration. Applications have also been moving in tandem from individualised word-processing to shared data base management and processing.

With field offices gaining IT experience, the procurement of hardware is being gradually decentralised with the Steering Committee still laying down the standard configurations.

Software

Standard Software: Besides the three standard DOS-based software products viz. Lotus 123, dBase IV and MS-Word 5, a number of other software packages are also used: (i) Pagemaker for desk top publishing, (ii) Freelance Graphics for Windows and IBM Storyboard plus for presentations, and (iii) Harvard Graphics, Graphwriter-II and Freelance Graphics for graphs. Several Windows-based software packages are also used though not formally standardised: 123 for Windows, Word for Windows, Lotus Improve, Microsoft Project and Microsoft Access. On LANs, cc-Mail has been standardised as the e-mail software. Software procurement is still regulated centrally even though hardware procurement is being gradually de-centralised; this is to prevent proliferation of packages for which training and support cannot be sustained.

Application Software: Application software is usually developed only in dBase IV or Foxpro. All important application software is subject to a two-stage review by the Steering Committee: (i) at design stage to assess the cost effectiveness, feasibility and theoretical soundness, and (ii) before implementation, to assess controls, documentation, test results, etc.



Software Development: Application software is mostly developed in-house and concentrated in a few offices only. Persons showing aptitude have been trained in systems analysis and design and programming and formed into software development teams. Their sound knowledge of the functions being computerised reduces greatly the risk of producing systems that do not meet user-needs or address basic problems. The review by the Steering Committee, which has access to sound technical advice, is intended to ensure acceptable standards of design and programming. The preference for in-house software development is a conscious decision that has been paying off.

Audit Software: Auto-Import, IDEA and ACL for Windows are used. IDEA has been more widely used as ACL for Windows was acquired only recently.

Organizational Structure

The IT strategy, standards, budget, short-term periodic plans and monitoring of implementation are handled by an EDP wing in Headquarters, headed by a Director (EDP & MIS) from the executive management cadre. He reports to the Chairman of the EDP Steering Committee. Director (EDP & MIS) is assisted by a small team of technical and administrative staff to discharge his administrative and technical responsibilities.

The field offices generally have "EDP Cells" comprising a few computer-skilled persons; their size tends to vary according to the volume of transactions and the complexity of the EDP systems being used. Separate IT departments will be necessary only in offices where machine and other resources have to be shared by more than one user department; this situation may be arising shortly in several offices.

How IT is used

Accounts Offices - Accounting and related services

IT is widely used for accounting functions as their qualitative improvement through computerization is one of the main objectives of the Computer Policy. Applications in accounting and related services include the following:

a) Compiling the accounts (financial statements of State Governments from primary documents, ie vouchers, or from an intermediate level).

- b) Maintaining employee-wise, centralised accounts of social security deductions (provident fund deductions) of State Government employees whose payroll is drawn and disbursed by a large number of State Government functionaries located in numerous places.
- c) Authorising retirement benefits of State Government employees.
- d) Some applications dealing with intermediate accounting processes where the compilation of accounts itself is not computerised.

While (a) & (b) are run on LANs, (c) & (d) are run on stand-alone PCs or LANs depending on volume and availability of LAN.

Audit Offices - auditing

The main application software for auditing deals with audit planning and audit follow-up. The software has been designed in a modular fashion to permit addition of modules as and when data bases are built up. This standard software for all audit offices is in various stages of implementation in different offices; the initial data conversion relating to all auditees, running into several thousands in each office, and all unsettled audit observations is a major and time consuming exercise.

Word-processing, desk-top publishing, graphs and graphics are used widely for producing audit reports for camera-ready offset printing in multiple languages.

Common to Accounts and Audit Offices:

The following applications common to all offices are also computerised:

- a) Personnel Management.
- b) Budget.

In the Headquarters office, a number of applications are computerised:

- a) Management Information System.
- b) Examinations results processing.
- c) Recommending chartered accountants for public sector companies.
- d) Library information.

Importance of IT to the Department

The Department considers computerization to be a necessity for improving the efficiency of its accounting functions and for improving customer servicing relating to provident fund accounting and authorisation of retirement dues like pension. As the Department acquires the ability to manipulate large volumes of accounting data quickly, it can provide better management accounting services to State Governments.

In audit offices, computerization is expected to facilitate follow-up action on management letters to auditees. As data bases of audit observations are being built electronically auditee- and subject-wise, in course of time, these are expected to provide valuable inputs to the audit planning process also.

The Department also expects to benefit greatly from the use of audit software for downloading data from mainframe and other computers, extracting and analysing data and applying statistical sampling in audit.

Computer Auditing

The Department is keen to upgrade its capabilities for auditing computer-based systems pari passu with the quickening of the pace and sophistication of computerization among auditees. This interest is reflected in a special project that has been taken up to acquire this capability rapidly and sustain it.

After a detailed survey of auditees' systems and applications, a computer audit strategy was formulated. This strategy was based on the assessment of the probable impact of auditees' computerization on audit methodologies. After identifying the skill-base needed to properly discharge the CAG's mandate in such areas, a plan was formulated for created the skills. As part of this plan, 3-member computer audit groups have been set up full-time in 32 of the 68 audit offices in two years. These groups are given specialised, 5-spell 20-week training sandwiched by on-the-job-training. Besides, a few pilot teams possessing comparatively high-level IT skills are

carrying out special audits and translating the experience into training course material.

Future Strategy

A major factor in the Department's IT Strategy is the support of the staff to the computer policy. Fears about displacement and retrenchment caused by automation, have to be addressed and allayed. Applications have to be selected carefully, having regard to the assurance in the policy that staff will not be adversely affected. Action plans are formulated periodically (once every two years) and the staff are sought to be convinced about their utility. This is a time-consuming but inevitable process. So, technology is harnessed selectively.

Most of the software needed has been developed. While newer areas are being explored, largely in accounting, the emphasis currently is to replicate, in a number of offices, the applications which have already been developed. The training infrastructure is also being strengthened to increase the pace of skill-building.

Two major areas are likely to be the focal points for development in the near future; text-retrieval systems and WANs. Preliminary work in both areas is in progress already. The present system of floppy-based transfer of MIS data from field offices to headquarters will be gradually replaced by modem-based or other network-based communications.

Other areas being explored are new audit software like Centrelink for downloading from ICL-mainframes and CRAMM for Information Systems Security Reviews.

Conclusion

We are moving forward the way we would like to: with the support of the staff who have to run the systems and at a pace at which we can assimilate the changes and sustain them. We are also conscious of the importance of remaining in sync with the nature and pace of computerization among our auditees.