

# The OAG Audit Briefcase



## **John Adshead and Eric Anttila look at moves to empower the individual auditor and the audit team in the Canadian Audit Office**

### **John Adshead**

*John Adshead joined the OAG in 1983 with a 10 year background in EDP auditing with Coopers & Lybrand. He is now Principal of the Informatics Audit and Consulting Team at the OAG. His team provide consulting expertise on the use of IT in audit, and research and develop new audit tools and methodologies.*

### **Eric Anttila**

*Eric Anttila is Principal of the Information Systems and Technology Team at the OAG. With a technology background in both the public and private sector, he managed the development of the "electronic audit briefcase". His team research and develop new IT systems for the Office.*

### **Background**

Over the last 18 years, computer auditing in the Office of the Auditor General of Canada (OAG) has changed direction and evolved dramatically. Influences on computer auditing have included: strong senior management interest and support; pressure to reduce cost; comprehensive auditing experience; and the explosion of technological opportunities, in particular the introduction of personal computers.

The OAG bought its first personal computer (PC) about fifteen years ago and began seriously investing in them about twelve years ago. The first machines were of course desktop units. The Office recognised early on that the real audit work was done at the job site. As soon as portable personal computers became available some ten years ago, the Office started buying them, starting with "lugables" that weighed well over twenty five pounds. Our more recent purchases are lightweight, 486 colour portables, with large hard drives and fast modems.

**Our initial strategy was to "empower the individual" by providing flexible and easy to use "tools" which would both support the auditor in the current audit process and provide the necessary flexibility to adapt to a changing auditing environment: tools which helped auditors to do more efficiently and effectively whatever they, in their individual professional judgements, thought appropriate.**

In this initial phase, the most significant tools which the Office provided to its professional staff were personal productivity enhancers: those for word processing and for constructing spreadsheets. The tools provided were, for the most part, generic off-the-shelf tools.

In some cases, there can be advantages to be gained by providing in-house applications which will automate existing audit process. However, any custom development of this type will require annual maintenance, contingency

planning and extensive testing. This is a very expensive option for a small organisation. Our preferred approach is to use off-the-shelf software and customize only where absolute necessary.

A good word processor is equally appropriate for writing a great novel or for writing a great audit report. The impact of having a good word processing program is that it facilitates the creation and revision of large complex documents, and thus assists the writer to create better interview notes, memos, audit programs and audit reports. Senior auditors who were not initially expecting microcomputers to affect them have noted dramatic benefits. They have found that they can achieve savings by composing reports and memos on computers themselves. Documents can be "turned around" in hours rather than days or weeks. A grammar checker can assist the auditor with editing reports for more effective communication. The time saved can be re-invested in re-engineering the audit process, where the cost savings are even more dramatic.

Similarly, a good general purpose spreadsheet program facilitates better schedules, simplifies calculation and analysis and can produce graphs, thus replacing columnar paper documents. As a word of warning, because the user of such software rarely has knowledge of data processing control techniques, the spreadsheets that are created often do not contain adequate controls. Serious exposure to flawed or erroneous logic can result if the spreadsheets is used for management decision, input into other systems or used as the basis of financial statements.

The Office also provided a commercially available flowchart package for preparing flowcharts, diagrams, forms and organisation charts, and a graphics package for developing and presenting slides shows or processing graphics.

By the late 1980's the focus on empowering the individual was already being expanded

to include empowering the team by the inclusion of a generic communications program. Like other generic software, a good general purpose communications program facilitates communication but does not prejudice what should be communicated. It has a major impact on the communications across the various time zones to our regional offices, and the increase in communications enables ease of review and revisions in small quantities of text.

One notable accomplishment was providing all professional and support staff with personal microcomputers. The extensive use of electronic document preparation and review had enhanced our ability to perform audits. A focus on putting as much power into the hands of the auditor as possible has also been adopted by the Government Accounting Office in the USA and other audit institutions. This focus on supporting individuals has helped to both automate basic audit tasks and produce better paper documents. However, we began to recognise that important gains in productivity and effectiveness could also be gained at the team level by facilitating communications and information sharing.

### ***Current Directions: Focus On The Team and The Group***

**Facilitating individual creativity in a team environment requires us to look at communications and applications that bring teams and groups together to share information and approaches. Evolving towards such an office information system facilitates the creation, analysis, sharing and communication of information within a group environment.**

In the mid-eighties machine readable copies of methodology and reports existed but as there were not being referred to, word processing people tended to reuse the disks after a while. The Office realised that if we were to achieve more paperless and more productive use of tools those electronic copies of reports and manuals should be saved and collected together, to be made searchable electronically. To that end the Office acquired tools to permit the creation of a collection building tool and a collection searching interface. We also decided it was imperative that the auditor be able to easily store and retrieve this information in a shared information system. This ability to contribute electronic information in a shared information environment is critical to ensure the retention of our electronic "corporate memory".

Time and cost savings are possible if all members of the audit team have access to the most up-to-date team, group and client information. Review activities can occur in parallel and continuously, enabling better quality control to the audit itself. Supervision is thus enhanced and auditor training facilitated. In our interviews and surveys, teams who have shared electronic files throughout the audit, report improved quality and more effective audit management. Networking facilitates document exchange, management of the reporting and review edit cycle, and securing the team working paper files.

The Office began investing in an infrastructure for networking personal computers in the late eighties. Following pilot studies the Office was fully networked with 802.3 ethernet using existing unused telephone wires. A Unix based central computer was purchased and administrative functions were automated using Oracle tools and database management system. Corporate applications have been implemented on the central computers including a complete library automation package, a personnel system, extensive full text libraries, a system which facilitates the attest audit of the governments' financial statements, and a bulletin board system which facilitates exchange and dissemination of files and software.

Our electronic mail package is now in the process of being converted to an in-house network service using commercially available software. In-house mail will allow us to take further advantage of our network.

### ***Current Directions: Windows***

Personal Computer users have been constrained by the limitations of Microsoft DOS in recent years. A new world of packages based on a Graphical User Interface or GUI is now available to our users. These graphical packages are easier to use, easier to learn and more powerful than character oriented DOS packages that we first used.

**Migrating our PC software from DOS to Windows is probably the single most important direction we have taken towards our objective of making software more accessible to auditors.**

Auditors are used to having many file folders active on their desk at any one time and are used to seeing material that combines text and graphics. Our electronic briefcase only permitted one or two files to be active at a time and provided display of text only. Having our applications work in a more familiar and natural way helps

auditors to work more productively and learn more quickly.

These applications using a GUI require a shift in the way a user interacts with the computer. The auditor needs to use cursor keys or a pointing device, such as a mouse or trackball, to indicate which file should be opened. At any time the auditor can set current work aside and view other files or documents and to move freely from one document to the next without losing his/her place in any of them. The auditor can have easy access to the team working files which may be on several machines in different locations. All applications have similar functions. Once the auditor has mastered one or two applications, learning a new package is much easier because they all have a common 'look and feel'.

We are converting all of our auditors and staff to Windows over the next two years or so. We will proceed team by team to install and train.

### ***Current Direction: Tools***

**Our long-term goal is to eliminate paper. Rather than briefcases full of paper files we see the computer as the briefcase. More and more of our working papers are now in electronic format. From the preparation of the audit plan through to the briefing material used by the Auditor General, all phases of the audit process use information technology.**

**Planning:** Audits are resourced in the context of the Office mission statement, the priorities memo and group plans. This budget planning process garners the people and resources needed to see the audit to completion. The planning module of our corporate administrative system is being enhanced to facilitate access to, and creation of key corporate, audit operations, group and team data. For example, planners need the ability to download and manipulate data entered online by audit groups in order to compare and summarize group budgets, plans and resources.

Auditors can now search through volumes of text for issues and concepts automatically using a search retrieval tool called OAG\*TEXT. Phrases or words need only be keyed in and the list of occurrences are displayed, ready for browsing. If a key phrase or sentence is required it is highlighted and automatically copied into the auditors report.

Text collection development will focus on team specific collections, audit files, audit programs and references. In the past, the use of OAG\*TEXT on individual microcomputers was practical for small

amounts of static data (eg the Annual Report, once written, never changes).

However, one of the advantages to providing textual data will be when we can provide access to large amounts of dynamic information (eg working papers of ongoing audits).

To assist auditors, the Office has created a tool called OAG\*CAT which helps organise working papers into searchable collections.

**Research:** Some audit issues are global in nature such as trade or the environment. Auditing these important value for money issues requires the auditor to see and review work done by legislative auditors in other countries and jurisdictions. The auditor needs access to international databanks published on CD-ROM, or available through other electronic means by means of the auditor's personal computer. This gives the auditor the best chance to be able to utilise databases and electronic files and documents that are increasingly part of the business environment.

An initiative was started internationally by the OAG to get other countries, institutes and public institutions to consider producing material electronically in some standard way. In order to demonstrate the power of the concept, the Office undertook a project to gather together all the electronic material relevant to public sector auditing that could be obtained reasonably. In return for sending the OAG their material, contributing institutions received a copy of the data base on CD-ROM. Participating countries include Australia, France, Great Britain, New Zealand, Sweden and United States. The European Community is going to contribute as well as states and provinces in Australia and Canada. Combined with our text retrieval software OAG\*TEXT, it allows us to access over 250,000 pages of text including our audit manuals, guides and the published reports from the contributing countries. Auditors use the database to explore what others have done; how they have approached and reported on various audit issues and subject areas relevant to public sector auditing work. Our results to date show that CD-ROM is very cost effective as a publishing medium for large collections of static documents. We have deployed CD-ROM players in our regional offices and to each audit group, so that our auditors can have access to data services coming out now and in the future.

**Authorities:** Audit teams can now establish a reference set of relevant authorities, reflecting continuity and consistency with work done in the past and incorporating OAG policies, guidelines and directives.

The auditor can now access a wide variety of textual databases from legislation to government policies and regulations, to OAG reference material. The text management, searching, downloading and manipulation facilities on the OAG central computers and on the audit team computers have been developed and enhanced to meet this need.

**Knowledge of Entity Databases:** Our auditors see auditees increasingly dependent on databases for key corporate and operations decision making. There are, in the Canadian Government today, some 500 major financial systems and over 100,000 microcomputers each capable of creating and maintaining important data. How do we give assurance that these databases and therefore the decisions made based on them are valid? The fact that these systems are to a large degree permitting decentralization further complicates the audit environment.

Auditors need access to these auditee and entity databases so that our data and text analysis tools can be employed effectively. The ability to download auditee and entity data needs to be provided.

As part of our audit briefcase, auditors are provided with IDEA to perform data analysis and extractions. This tool, designed for auditors, was first developed in the Office, then licensed to the Canadian Institute of Chartered Accounts to develop the software further for the commercial market. IDEA is a user-friendly microcomputer software package that allows users to extract, analyse, and sample data from a wide variety of computers. The Office is actively involved in developing a new Windows version of this product, due out shortly.

**Execution:** Once audit programs have been established and reviewed and are ready for execution, the team needs to assemble all of the material needed to perform the assigned tasks and begin gathering entity information for analysis, perform testing, document work, evaluate results and write conclusions. Appropriate audit forms have been provided electronically to assure complete audit files. Better audits and audit files are the outcome of automation. To properly secure the data, the auditor also needs facilities which will permit simple and quick back-up procedures.

A major step was taken towards the production of electronic working paper files with the development by the Office of a software package called AUDITPRO. In addition to keying in steps and objectives, an inventory of audit programs can be searched electronically. After the audit programs are ready for execution they may

be used directly in preparing the audit file. References to schedules in the spreadsheet package or to notes in our word processor may be attached to the steps. AUDITPRO then keeps track of this reference and provides access to it with a key stroke. User interviews have focused on requests to improve the review function such that multiple documents can be viewed and compared and linked to other applications in the electronic briefcase. These important user requests for improvements can only be done by providing AUDITPRO functionality in the Windows environment. Once Windows has been fully implemented in the Office we will be reviewing the possibility of developing or acquiring a similar product.

The Office is currently evaluating a product of one of the major accounting firms that facilitates a top down risk based audit, by helping to identify and document risks and to determine the amount of work required to obtain sufficient audit assurance for each audit assertion. It then assists the auditor in selecting the appropriate audit procedures that will provide the required audit assurance, thus reducing the risk of doing insufficient work in some areas, while reducing over auditing in other areas.

The auditor will continue to be provided with greater accessibility to the actual financial information of our clients. The migration of mainframe audit tools to increasingly more powerful microcomputers will continue. This migration will include the use of IDEA as an alternative to Mainframe tools. Where IDEA cannot meet the needs of a specific analysis project, emphasis will be placed on the acquisition or development of microcomputer based applications as opposed to mainframe applications, whenever this is possible.

It is recognised that there will continue to be situations where due to the volume or sensitivity of the data, it will be necessary to access information on client mainframes; therefore the Computer Audit Group will maintain expertise in the use of mainframe technology.

**Reporting:** Upon completion of the execution phase, review and reporting of results becomes the key activity. To facilitate team, group and other OAG review and reporting, the supervisor, manager, reviewer and editor need access to a much bigger screen so that two or more full document page images can be viewed simultaneously on the screen in their entirety. Techniques which facilitate attaching notes and audit marks are now being piloted. Interchange of review notes, status reports and chapter drafts demand that OAG communication facilities

continue to be improved. Increasingly the Word Processing and Document Publishing software applications are converging; however, there are publishing requirements that go beyond what WordPerfect offers so we are working with our Graphics group to utilise a publishing package that is compatible with our Office standard software.

The auditors now have very high speed modern communications for work outside the Office and network connectivity when inside. Effective presentations are a vital part of getting the OAG message across. The auditor needs the most effective tools that the commercial world can offer to make an impact with the client.

By focusing on the team and group we have helped eliminate paper and move towards an electronic world that drives the audit in an efficient top-down risk based manner.

### ***Future***

**Our future lies in realising the personal computer's full potential as part of re-engineering the audit process to align it with the Office's corporate mission and vision.**

The ultimate goal of the OAG is to de-emphasise paper as business in general does the same. We want to move in the direction of the online audit, but in the near term we must be practical and provide interim steps that permit traditional review methodologies. In other words a step by step plan to go paperless will be more effective than an outright jump into an all electronic world. At the same time our internal office guidance needs to be changed to reflect an acceptance of electronic audit working papers.

Artificial intelligence techniques need to be explored to help the auditor sift through massive amounts of reference material to find the most relevant items. Research into smarter and better tools for client information analysis will continue. Developments in artificial intelligence will continue to be monitored. We want to focus on new approaches to substantive testing and issues analysis.

To assist with recording of evidence, the auditor needs access to improved scanners or digital cameras, and central servers which can store large amounts of auditee files and image data for analysis or documentation.

Work has already begun with our parliamentary liaison group to find new and better ways to get our message to the legislators in Parliament and to the taxpayer. Audio-visual and multimedia tools are being explored and developed in order to facilitate getting the OAG message across to the public, the client and the media.

Our auditors face an enormous challenge. New analytical tools may be needed. Access to client networks, data repositories and utility programs will be needed for comprehensive auditing. Processing complexities will need to be understood when networks are interconnected between government departments as well as with suppliers. Auditors will need to have first hand knowledge of security, communications and data processing issues since departmental and program decision-making will increasingly be made on the basis of data pulled from electronic files. Increasing use of Electronic Data Interchange and other 'paperless' methodologies for doing commercial business represent a challenge to traditional audit trails.

Auditors must consider the re-engineering of evidence. The Office is now working on the first completely electronic audits, that is, audits where there is effectively no paper audit trail. They must contemplate the possibility, now in place on a national basis in Sweden, of direct access to all transactions in electronic form. The issue of sample design, which has challenged the profession for years, becomes an issue of test design when all transactions are electronically accessible. Methodologies must be re-examined to ascertain the extent to which they limit procedures in the future because of the limitation of technology in the past.

The need to re-engineer the audit process is key to harvesting the investment in the new wave of computing, and re-engineering the audit process will be required by the OAG in the future to fully take advantage of the new emerging technologies, especially in the fields of telecommunications and networking.

By carefully aligning our information technology strategy with our corporate mandate we will facilitate the achievement of the OAG's corporate mission through the use of technology. We continue to see PC's as being central to that strategy.