

INTERFACE

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ISC Information Management Newsletter

Integrating departmental systems presents major challenge

Informatics specialists from Industry and Science Canada's (ISC) four founding departments are working to outline options for integrating the very different electronic systems and approaches to information management that each department previously used.

Making the various systems work together will be one of the major challenges of integrating the departments, says Lyn Elliot Sherwood of the former Communications Canada. "This is the first time that technology and informatics will play such a major role in a re-organization exercise," she explains. "People will be surprised at the effort required."

Among the challenges facing the department are the following:

- overcoming the limits to information-sharing imposed by different local and wide area network technologies;

- reconciling radically different mainframe operating systems;
- determining how to move to a graphical user interface (GUI) operating environment, which includes upgrading computers; and
- creating information management policies that will build on the strengths the departments bring to ISC.

To give its readers a better understanding of the challenges involved, *Interface* has prepared a table comparing informatics services at the four founding departments as well as a brief article on each.



Members of the advisory group looking at the integration of systems and data bases of the four founding departments (from left) front row: David Clemis and David Peate; back row: Jack Drawbridge, Alex Bettinger and Jacques St. Denis.



NAME THAT 'TOON

Send us your ideas for a caption for this cartoon.
Last issue's winning caption is on page 8

Key issues for service integration

- reconcile systems to provide connectivity
- organize user support and staff training
- reconcile widely different corporate systems
- take advantage of the opportunity to review how external client needs are served
- decide how much internal and external access to information is desirable and determine what the security implications of increased connectivity are
- determine how to extend the optimum amount of flexibility for information management to the regions
- establish minimum standards in informatics, hardware, software and training

Worth Repeating

*“That’s an amazing invention,
but who would ever want to use one of them?”*

United States President Rutherford B. Hayes in 1876
after trying a telephone linking Washington and Philadelphia

Ex-Communications Canada — a culture of decentralized authority

Communications Canada was founded in the late 1960s just as communications technology began to have an unprecedented impact on culture. The department was asked to focus on two areas: 1) Canadian culture as a cornerstone of Canadian identity and 2) telecommunications systems.

This mandate involved the department in a wide variety of projects that were sometimes of a highly diverse nature. Communications Canada developed a corporate culture of decentralized authority to improve program delivery in the many areas for which it was responsible. The regional offices and their 45 field offices became the focus of service delivery and several areas became highly autonomous.

At the same time that authority was being delegated to the front lines, it was recognized that considerable importance had to be placed on improving internal communication. Information technology was recognized as key to providing broad access to corporate data in a decentralized structure as the former department’s recently achieved goal of providing one PC per employee shows.

Some examples of the highly decentralized responsibility for information management that developed at Communications Canada are listed below:

- each sector had responsibility for the information and technology it needed to deliver programs and services;
- informatics planning at the branch, sector and regional levels was coordinated through the Departmental Informatics Steering Committee;
- decisions about investments in and types of desktop and server hardware, software and configuration were made largely at the local/sectoral level;
- LAN/PC support at branch, sector and regional levels was provided by local employees;
- major systems and program applications were also operated and supported in a highly decentralized environment in the sector responsible, with the exception of central administrative functions such as finance, human resources and materiel management;

- local office technology and applications were developed and supported at the local level; and
- several groups within the department had their own informatics divisions.

Virtually all of the desktop computers at the former Communications Canada were linked to networks. Overall connectivity was an issue in some areas such as the research centres, however, as there were 10 different operating systems/platforms and five different communications protocols in use, and not all gateways between networks supported full communication. More than 80 percent of the department was using Banyan VINES LANs and a new nation-wide TCP/IP data network was recently brought into full service.

Communications Canada managers also recognized that information management was a strategic issue that could not be handled as a byproduct of other managerial issues. In response, departmental managers set two goals for information management. On the individual level, the department sought to make it possible for employees to increase their effectiveness by providing them with more powerful information tools. On the departmental level, it worked to maintain or enhance service levels with reduced resources by relying more heavily on information technology.

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Ex-CCAC — separate systems to serve autonomous groups

Consumer and Corporate Affairs Canada (CCAC) was organized into three relatively autonomous bureaux that worked to promote fair and efficient operation of the Canadian marketplace. These program-delivery bureaux — the Bureau of Competition Policy, the Bureau of Consumer Affairs and the Bureau of Corporate Affairs and Legislative Policy — were supported by the Bureau of Corporate Policy and Strategic Planning and by the Finance and Administration Directorate.

Because of the autonomous nature of the three program bureaux, each bureau had a highly focused mandate that made it possible for systems development to take place independently in each area. As a result, CCAC had relatively few common systems or department-wide standards and no corporate data base or corporate data management system.

CCAC succeeded in phasing out mainframes and mini-mainframe computers in favour of personal computers on LANs. Eighty-five percent of PCs were connected to LANs and a backbone structure for a corporate network was put in place last year.

The data collections that the former CCAC brings to ISC include six million active files, of which more than five million are patent records maintained by a special operating agency called the Canadian Intellectual Property Office. The next largest collection is the 400 000 trademarks and corporations files maintained by the Bureau of Corporate Affairs and Legislative Policy.

CCAC had a decentralized approach to information management where each bureau had a local management committee that took management decisions in all areas, including informatics. In addition, each bureau had a co-ordinator responsible for informatics matters.

The departmental focal point for information management issues was the Information Management Advisory Committee (IMAC), which was made up of directors from program-delivery bureaux. It had three working groups — the Informatics Resourcing Strategy Working Group, the Network Strategy Working Group and the Technical Advisory Committee.

IMAC advised an executive committee chaired by the Deputy Minister that was made up of assistant deputy ministers. This group approved a structure for information resource management and planning and for setting priorities and assigning resources for information management.

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Ex-Investment Canada — integration straightforward for smaller group

The smaller system and number of users at Investment Canada is expected to make integration relatively straightforward for the agency.

Investment Canada was established in 1985 to provide information and advice to investors and to the Minister of Industry, Science and Technology Canada as well as to carry out research into matters related to investment, and to review major foreign investments in Canada.

This mandate was information- and data-intensive and required the agency to keep tabs on such diverse matters as the availability of commercially zoned land, current markets and forecasted markets for particular products and the investment policies and regulations of other countries.

All employees at the former Investment Canada were connected on a single LAN. As the former Investment Canada was an independent agency, the LAN supported program systems and corporate systems such as finance records. That LAN has been a model of dependability with only three hours down time during the past fiscal year.

The agency's staff focused on improving their efficiency in using the software tools available to them; considerable effort went into providing training and support for users.

All Investment Canada staff were located in Ottawa. Electronic systems were the responsibility of Management Information Services (MIS). An MIS Advisory Committee made up of directors and other high-level officers and chaired by the Director of Corporate Services was established in 1990. The committee made recommendations concerning a long-term information management vision for Investment Canada and approved policy and annual information management plans, objectives and budgets. It reported to the President's committee, which was made up of the agency's most senior managers.

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Ex-ISTC — moving from program delivery to information delivery

Just before the government reorganization was announced, the former ISTC had begun a review of how it handled electronically based information.

Deputy Minister Harry Swain had asked the Information Management Committee (IMC), a group of senior managers that made recommendations concerning information management, to lead several initiatives to determine how the department could make better use of its information resources to serve Canadian business. Mr. Swain asked that particular emphasis be placed on two key areas. “We have to move from program delivery to information delivery, and we have to build upon our abilities to do advanced analysis of business information,” he explained.

IMC was supported by the work of an information advisory committee and a technology advisory committee. Local information advisory committees at the regional, sectoral and, in some cases, branch level advised these two groups.

Other initiatives undertaken included the following:

- the selection of corporate data bases to form a core of business intelligence and statistical information for use in support of sector clients;
- a review of the organization and role of the former ISTC’s Information Management Branch; and

- a study of the costs of moving to Windows, including the new applications and user support required.

Even before the review, considerable and growing emphasis had been placed on putting more sophisticated information handling tools in the hands of front-line employees. Here are some examples of these systems:

- ACCESS ISTC — a text retrieval system that enables users to search large texts and incorporate found sections into other documents;
- the Establishment System — a data source on department clients that links seven corporate data base applications; and
- the Business Opportunities Sourcing System — a data base of information about Canadian companies and their products and services.

These information sources were made available at the desktop level wherever possible. Access was given through a central LAN managed by the Information Management Branch.

Strong emphasis on connectivity and information-sharing were also typical of information management at the former ISTC. For example, a single, integrated E-mail system was set up giving staff ready access to all other employees as well as to a large number of users in other departments and in government offices in other countries. A number of projects were also underway to improve department-wide software and hardware standards to facilitate information sharing.

Facts at a Glance

Communications Canada

Personal Computers

- 2 900 IBM-compatible
- 250 Macintosh and 250 UNIX workstations
- WordPerfect standard
- Lotus 1-2-3 and Excel spreadsheets
- Harvard Graphics presentation software

Windows

- 75% of PCs have Windows installed

Local area networks (LANs)

- 70% using Banyan VINES
- remainder use Novell, Appletalk, DECNet phase IV and TCP/IP

Wide area networks (WANs)

- several Ethernet backbones
- dedicated digital communications links connect offices in Moncton, Montreal, Toronto, Winnipeg and Vancouver

Major computer facilities

- centrally managed mainframe is a Honeywell CP-6
- Encore Infinity mainframe to off-load applications
- mini-computers include Honeywell DPS-6 and DPS-6/420 machines, Gould 6040, Multimax 520, various Sun and Compaq computers being used as servers for data base applications

Consumer and Corporate Affairs Canada

Personal Computers

- 1 900 IBM-compatible
- 250 Macintosh
- WordPerfect standard and MS Word for Macintosh
- Harvard Graphics presentation software

Windows

- 50% installed; installation is incremental due to funding

Local area networks (LANs)

- 95% are hooked to LANs
- majority are Novell, others include one IBM Token Ring, one Macintosh LAN and two small Lantastic LANs

Wide area networks (WANs)

- LANs connected through a fibre-optic backbone
- locally managed WAN

Major computer facilities

- IBM mainframe using the MVS operating system
- INTREPID runs on a CDC Cyber 930-2
- 12 Honeywell DPS6 mini-computers

Investment Canada

Personal Computers

- 157 IBM-compatible
- 3 Macintosh
- WordPerfect standard

Windows

- implementation for entire agency approved
- installed on 10 PCs

Local area networks (LANs)

- LAN Manager 2.2
- Novell LAN for Sydney Library System servers

Wide area networks (WANs)

- due to its small size, Investment Canada had no need for a WAN prior to the re-organization

Major computer facilities

- Investment Canada uses microcomputers exclusively. It has no mainframe and no mini-computers

Industry, Science and Technology Canada

Personal Computers

- 2 447 IBM-compatible
- 25 Macintosh
- WordPerfect standard
- Lotus 1-2-3, Excel and Quattro spreadsheets
- Harvard Graphics presentation software

Windows

- implementation for Windows is awaiting approval

Local area networks (LANs)

- all microcomputers are hooked to one of 42 Novell LANs

Wide area networks (WANs)

- headquarters LANs connected through a fibre-optic backbone
- dedicated digital communications links to offices across the country
- no locally managed WANs

Major computer facilities

- mainframe is an Armdahl MVS/ESA
- HP 947 MPE/V mini-computer
- no locally managed mainframe or mini-computer systems

Potpourri

ISC staff from the former CCAC are working on two projects in artificial intelligence.

The Expert Patent Search Assistant (EPSA) is an attempt to develop a user-friendly "search engine" to assist anyone doing research among the more than five million patent records maintained by the government. When complete, the system will use a microcomputer to search patent files and identify those relevant to the searcher's quest.

In the second project, staff are studying the technical and economic feasibility of using artificial-intelligence-based technology to identify and correct errors made during optical character recognition. Now being completed, the Intelligent Optical Character Recognition Editor (IOCRED) project has already attracted interest from the private sector.

Staff from the former Communications Canada and the former ISTC who were working together on the SchoolNet project are able to work even more closely as a result of the re-organization.

SchoolNet is a project (described in the March/April 1993 issue of *Interface*) to create a network connecting elementary and high schools that was set up with the aid of the Communications Research Centre and Telecommunications Policy branch of the former Communications Canada and the Information Technologies Industry and the University and College Affairs and Science Promotion branches of the former ISTC. Further support is being provided by Canadian universities.

The program has now begun, with the establishment of the actual network in September. In addition to advice and support, ISC is now leading an initiative to donate surplus computers to high schools participating in the project.

"Government Services Canada has given us permission to make the surplus computers available and we are now setting up an arms-length group of education professionals that will decide which schools receive the hardware," says Doug Hull, A/Director General, University and College Affairs and Science Promotion.

Although ISC has only recently been established, work has already begun to examine new information management policies and technology to help the department use information as efficiently as possible

Two advisory bodies to the Information Management Committee — the Information Advisory Committee (IAC) and the Technology Advisory Committee (TAC) — began holding meetings in August. Both committees are made up of directors and directors general representing all areas within the department and will meet monthly.

IAC will concern itself with issues related to the "content" of information management. This includes matters such as information collection and information dissemination. The committee will also work to encourage horizontal sharing of information in the department, explains chairperson Michael Binder, Assistant Deputy Minister, Spectrum and Information Technologies and Telecommunications Industries.

TAC will serve as the focal point for consideration of technology issues at the department in two key ways, says chairperson Claire Monette, Assistant Deputy Minister, Corporate Services. It will serve as the interface between the department's centres of expertise in technology and senior decision-makers on the Information Management Committee, and it will be an information-sharing forum to determine the best ways to manage the diverse technology within the department.

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All staff connected through E-mail

All staff who are connected to a LAN in Industry and Science Canada's four founding departments can now communicate through E-mail.

Connecting the various E-mail systems was identified as essential for the smooth integration of ISC early on in the process, explains Patricia Mercer, head of the E-mail working group. "Like the telephone, E-mail is an essential tool for modern offices."

"The system is fairly basic because its capabilities are limited by the various incompatible technologies found across our new department," adds Patricia. The connections have been established by setting up "gateways" — a combination of hardware and software that translates and directs messages between systems. These gateways can cause slowdowns in transmission and can also produce some obstacles.

One obstacle that the E-mail working group is now attempting to overcome is limitations on the use of accented characters for some users. For example, the connection between former Communications Canada users and former Consumer and Corporate Affairs users does not support accented characters in the E-mail message. Until a complete solution is arrived at, users can overcome this by placing the accented text in an attachment.



Electronic Mail Working Group (from left) front row: Dan MacDonald, Howard Chatterton and Patricia Mercer; back row: Tony Germano, Mehrdad Kasiri, James Fong and Robert Gagnon. Not present: Karen Rivard, André Charette and Claude Duguay.

Another problem with the system is that users in the Bankruptcy Office of the former Consumer and Corporate Affairs are unable to send or receive attachments. The working group has also been unable to set up regular E-mail communications between the regional office of the Bureau of Competition Policy and other areas in the new department.

A project has been launched to look at a long-term solution for departmental E-mail. A single mail package is one of the options the group is looking at, says Patricia. "Not only would a single system eliminate the problems we currently have, it would also prepare us for the future by allowing us to use software such as electronic calendars," she explains.

In the short term, the working group is asking for help from E-mail users to streamline the current system. "We have set up an account called 'E-MAIL HELP' on each system and we would like people to report any problems they have and any error messages the system gives them. This information is very important to us; we can't fix problems unless we find out what they are first," says Patricia.

Awards Recognize Leadership

Two ISC employees, David Blaxell and Tony Kwok, received Government Technology Week silver medals on September 13. A group of employees from Winnipeg also won a silver medal for work done by an inter-departmental team.

The awards recognize leadership and innovation in the use of information technology in the public service.

David, a Senior Research Analyst of the former Consumer and Corporate Affairs Canada (CCAC), received his award for the creative application of information technology. He has worked extensively on the Newly Upgraded Automated Name Search (NUANS) system that searches legal names based on patterns in sound, appearance and meaning.

Tony, of the Winnipeg Regional Office of the former ISTC, received his award for his creative use of off-the-shelf software. Tony's work helped establish the systems being used in Canada Business Service Centres.

The team from Winnipeg won its award for work on the pilot project for the Canada Business Service Centre there.

Other nominees from ISC were David Clemis, a Strategic Technology Planner from the former Communications Canada, who was nominated for his work on open systems, and Robert Noël of the former ISTC Montreal Regional Office, who was nominated for his work on an ongoing project to define and promote better use of information technology in the department's day-to-day work.

Contest Winner!



Congratulations to Tom Rath, Service Industries and Small Business for his winning caption:

"For high performance machines, we use DOS-Shell".



Awards were presented to David Blaxell (left) and Tony Kwok (right) by Andy Macdonald, Canada's Chief Informatics Officer, during a ceremony at the Canadian Museum of Civilization.

Some of the opinions expressed in this newsletter do not represent the official views of the Branch. Thanks to all who contributed to this issue. Published by Information Management Branch of Corporate Services.

Please e-mail your comments, suggestions or story ideas to (INTERFACE) or mail them to: *Interface* Editor, ISC, Room 340F, West Tower, 235 Queen Street, OTTAWA, Ont., K1A 0H5.

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