

Chapter 11

The Year 2000 Program

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The Year 2000 Program

Background

11.1 Like many organizations, the Province of New Brunswick relies on the efficient and effective operation of its information technology for the management and delivery of its programs and services. Corporate Information Management Services (CIMS) and its consultant recently carried out an inventory of the Province's information technology platforms and applications. (CIMS is a branch of the Department of Supply and Services.) They found that there were over 670 automated applications currently being used by the provincial government. Departments reported that these applications were run on various platforms including a mainframe processor at the Data Centre, approximately 400 departmental servers and 19,000 workstations. Such figures demonstrate the extent of our reliance on information technology for the operation and management of government programs and services.

11.2 Computer programmers over the last few decades have typically used two digits in denoting a four-digit date. This programming convention was used in the past because it saved valuable computer memory. The true impact of this convention is only now becoming apparent. As the Province's computers pass from 31 December 1999 to 1 January 2000, they may cease functioning correctly. In fact, some computer systems may cease functioning altogether. Certain computer systems may *already* be performing inaccurate calculations. This could occur in systems that forecast financial information and which are already using calculations that include the year 2000.

11.3 When applications or computer software encounter the two-digit "00", various outcomes could result. The systems may abort, they may reset to the date the applications or systems went online, or, they may believe that this two-digit date actually means "1900". Consider identification cards like driver's licenses or Medicare cards. Assuming a program to produce such cards would function at all, consider the resulting confusion if the expiry dates, intended to be 2000, instead produced cards with a reset date of 1980 or an assumed date of 1900.

11.4 The potential impact of this problem is significant.

11.5 Our Office is but one voice in a chorus of reminders going out to both public and private-sector organizations. The federal Office of the Auditor General conducted considerable work in this area during the 1996-97 fiscal year. The media is becoming increasingly aware of these issues as the turn of the millenium draws near. The message is clear: the

Year 2000 programming problem is not a discretionary item. Delays in addressing this issue only serve to increase its importance.

11.6 The Province's response to the Year 2000 programming problem is known as The Year 2000 Program.

Scope

11.7 The general objective of our work was to determine the Province's state of readiness for the Year 2000. Specifically, we sought to determine:

- whether the Province of New Brunswick has demonstrated an appropriate awareness of the Year 2000 problem;
- whether measures have been taken to properly plan and coordinate the provincial initiative to become Year 2000 compliant.

11.8 Our review chiefly consisted of discussions with the staff of the Corporate Information Management Services branch of the Department of Supply and Services. We also reviewed their consultant's report and selected other documentation.

11.9 No verification has been carried out to validate the information supplied by the CIMS branch of the Department of Supply and Services or its consultants.

Results in brief

11.10 The Province has demonstrated its awareness of the Year 2000 problem since mid-1996.

11.11 In April 1997, financial resources were allocated to the definition and eventual resolution of the Year 2000 problem.

11.12 Resources allocated to the project may not be sufficient given the inflexible deadlines and given major changes in the scope of the project. Though funding, personnel, and computerized tools are of considerable importance, the most important resource is time.

11.13 Responsibility for ensuring departmental Year 2000 compliance resides largely in departments with coordination provided by the Project Management Office.

11.14 With the existing reporting mechanisms, the Project Management Office of CIMS may not be able to effectively report on the government's overall progress in meeting Year 2000 compliance.

Awareness of the Year 2000 problem

11.15 The implications of the Year 2000 problem reach far beyond the boundaries of information technology. Because indifference or lack of vision could result in loss of services to the public, it is important that senior management be fully informed so they may better understand the potential impact.

11.16 During 1996, presentations were made to the Board of Management and the Policy and Priorities Committee. These two committees represent the highest levels of government administration.

11.17 In addition, presentations were made to the departmental Year 2000 coordinators and to members of the Information Systems Advisory Committee as early as April 1996. These presentations raised awareness among information technology personnel across all departments. In May 1996, presentations were made to the Information Technology Strategic Steering Committee. This committee consists primarily of Deputy Ministers and is mandated to advise the Board of Management on information technology issues.

11.18 In July 1996, the Board of Management approved a general strategy to resolve the Year 2000 programming problem. In September 1996, Board of Management authorized the Department of Supply and Services to negotiate with a private-sector company to carry out the Define and Document phase of the Year 2000 Program. This company was asked to propose a solution, a plan of action, and provide cost projections for any additional phases of this project.

11.19 In October 1996, Board of Management received a preliminary budget estimate to complete the Year 2000 Program. In turn, the Board requested a list of systems (prioritized by fiscal year) that would be affected by the Year 2000 programming problem. The final report delivered by the consultant included this list.

11.20 The consultant's final report (dated 13 January 1997) stated that "awareness...is not necessarily consistent across all departments, nor among all senior management of these departments." Our Office has since been assured by CIMS that all departments are now appropriately aware of the importance of the Year 2000 problem.

Financial resources for the Year 2000 Program

11.21 In April 1997, Board of Management approved funding which would help the Province deal with the Year 2000 programming problem.

11.22 Specifically, an amount of \$200,000 was approved to implement a Project Management Office (PMO). The PMO would be made up of staff from CIMS (and consultants, as required). In addition, over \$340,000 was approved for solving technology infrastructure issues. These funds will be used to develop or acquire hardware and software. These tools will be used to test the systems developed or acquired by departments in addressing the Year 2000 programming problem.

11.23 Funding of over \$2.8 million was allocated to departments for application repair costs. These funds are to be paid out over three years and only if the departments cannot find funds in their operating budgets with which to perform the necessary work.

11.24 Exhibit 11.1 shows the estimated costs to repair government applications as reported by departments. Some of these costs are to be funded through normal operating budgets. Exhibit 11.1 also shows the amount of funding required which could not be found in existing operating budgets. This additional funding was requested through a submission to the Board of Management.

11.25 In consultation with the PMO, the Board of Management approved 70 to 100% of most departments' submitted requests. Any difference between the amounts requested and funded would need to be found in existing operating budgets.

11.26 The Board of Management has requested that revised forecasts for the Project Management Office and technology infrastructure be submitted for 1998-99 and for 1999-2000. Additional funding for the PMO, technology infrastructure and applications repair costs will be considered at that time.

11.27 The original estimates were updated in September 1997. Revisions noted in Exhibit 11.1 take into account the termination of two major public-private partnership initiatives prior to completion. Upgrades to systems in the departments of Health and Community Services, Justice and the Solicitor General did not occur as planned, leaving the remaining systems potentially susceptible to the Year 2000 programming problem.

11.28 The addition of these significant systems to the scope of the Province's Year 2000 Program increases estimated repair costs by approximately \$2.7 million. As before, some of these repairs can be funded from existing budgets. However, at least \$1.9 million will be required in excess of existing budgets for these three departments. A formal request for funding has yet to be made.

11.29 Even if all necessary funds are obtained for personnel and tools, the true issue has now become time. The process of evaluating and choosing alternatives, then planning, implementing and testing solutions is a time-consuming one. There simply may not be enough time left to complete work on the late-additions before the turn of the millenium.

11.30 The Year 2000 programming problem is unique. It is a pervasive problem whose impact does not stop with computers or information technology personnel. It can affect an organization at every level. This problem also has a very specific, and inflexible, deadline.

The Year 2000 Program's scope has changed considerably

Responsibility for ensuring Year 2000 compliance resides in departments

Exhibit 11.1
Applications repair costs by
department

	Revised Estimated to Repair	Additional Money Required	Amount Approved by BOM
Advanced Education and Labour	\$ 300,000	\$ 200,000	\$ 200,000
Education	951,600	951,600	666,120
Environment	27,000	27,000	18,900
Executive Council			
Finance	757,800	757,800	530,460
Fisheries and Aquaculture	175,000	175,000	122,500
NBGIC	670,000		
Health and Community Services	100,000	100,000	70,000
Justice	20,000	20,000	14,000
Auditor General	21,500	5,500	5,500
Legislative Assembly	6,000	6,000	4,200
Municipalities, Culture and Housing	1,019,000	992,000	713,300
Natural Resources and Energy	17,500	17,500	
Office of the Comptroller	102,000	2,000	2,000
Solicitor General			
Supply and Services	11,000		
Transportation	771,504	491,504	491,500
Agriculture and Rural Development			
Economic Development and Tourism			
Human Resources Development			
<i>Sub-total- prior to September</i>	4,949,904	3,745,904	2,838,480
Added in September 1997			
Health and Community Services	1,600,000	1,120,000	
Justice	732,800	532,960	
Solicitor General	364,500	255,150	
	\$ 7,647,204	\$ 5,654,014	\$ 2,838,480

Notes: 1) Updates to "Revised Estimate to Repair" in Exhibit 11.1 were made in September 1997 based on the initial estimates of departments. The estimates for the departments of Justice and the Solicitor General are based solely on the industry's cost per line of programming code. The departments have developed a strategy to address the Year 2000 issue as well as some operational issues that have arisen as a result of slowing down the integrated justice system. CIMS is working with these departments to review and validate their strategy.

2) Updates to the "Additional Money Required" are based on the assumed funding from departments' operating budgets of 30%. Submissions to determine the precise amount and nature of funding for additional systems in Health and Community Services, Justice and the Solicitor General have not yet been made to the Board of Management for approval.

11.31 Added complexity exists because every organization must deal with this issue at the same time. The demand for experienced personnel and adequate tools to combat this problem is increasing. These resources are becoming more valuable, and therefore, more costly. This creates the need to use existing resources efficiently and effectively. The Province's

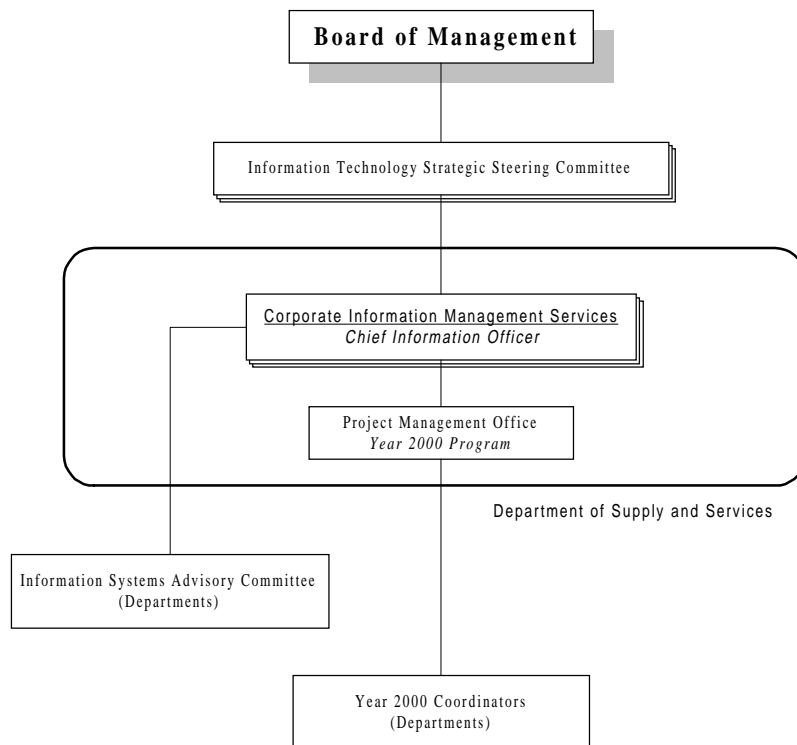
consultant emphasizes that the successful completion of such a large project requires “world-class” project management skills.

11.32 In general, information technology in the Province of New Brunswick is the responsibility of individual departments. The Province has taken steps to provide assistance and to co-ordinate the work of departments where possible, including the creation of the Project Management Office.

11.33 The consultant envisioned the PMO’s role to include the monitoring of “the overall status of departmental progress toward the Year 2000 issue.” This responsibility included “reporting progress to senior government officials.”

11.34 This is accomplished by PMO reporting to the Chief Information Officer in CIMS. The Chief Information Officer, in turn, attends meetings of the Information Technology Strategic Steering Committee (ITSSC). The Board of Management relies on ITSSC for advice on information technology matters. The Board of Management submission approved in April 1997 stated that “regular status reports {on the Year 2000 Program} be provided to the Information Technology Strategy Steering Committee” by the Department of Supply and Services (CIMS or PMO).

*Exhibit 11.2
Reporting structure for The Year
2000 Program*



PMO may not be able to effectively report departmental progress

11.35 This type of communication is vital. Progress of all departments should be reported to the Board through ITSSC to ensure that adequate planning (including target deadlines and budget benchmarks) is in place. Implementation and testing of each department's solution should also be monitored to ensure sufficient progress is being made to meet the deadlines. Such communication will allow the government to better distribute "best practices" to other departments. It will also allow the Board of Management to issue directives to departments who are not achieving adequate progress toward the goal of Year 2000 compliance.

11.36 The consultant's report, which recommended that the PMO take responsibility for monitoring "departmental progress", recognizes that the PMO's role in provincial government is "more of a support role versus in a control mode." This leaves the responsibility for planning, implementation and testing of Year 2000 compliant systems solely within departments.

11.37 The PMO has neither the mandate nor the authority to require that departments cooperate by providing detailed information about their progress and status. In addition, there is no enforceable policy that would require departments to submit this type of information to the PMO.

11.38 Despite this, the PMO has obtained significant cooperation and has kept up to date on some of the major Year 2000 projects being conducted. The PMO has made special efforts to obtain updates for applications whose estimated costs to repair are equal to or exceed \$100,000.

11.39 Exhibit 11.3 shows applications whose repair or testing costs are equal to or greater than \$100,000. Many of the departments listed have shared information with the PMO. However, not all departments have done so and complete cooperation has not occurred. When requested, the Project Management Office was unable to provide our Office with a report citing the current status of each department in achieving Year 2000 compliance.

11.40 Since it is the PMO that prepares the briefings that are ultimately submitted to the Board of Management, our Office is concerned that the senior management of the Province may be unable to obtain frequent and regular information about provincial progress on the Year 2000 Program.

11.41 Though departments may indirectly deal with this issue through annual budget submissions to the Board of Management, any update will be very likely financial in nature. The business focus of the Year 2000 programming problem may be lost to the financial focus. In addition, the review of the Year 2000 Program on a department-by-department basis may not afford the Board a truly "provincial" perspective.

Exhibit 11.3

Applications whose repair or testing costs are equal to or greater than \$100,000

	Application	Revised Estimate to Correct
Advanced Education and Labour	Employment Development 92	\$ 100,000
Advanced Education and Labour	Civil Survey Package	200,000
Education	Other Systems	200,000
Education	Education Payroll and Related	700,000
NBGIC	Property Tax System	605,000
Finance	Property Tax System	605,000
Finance	Human Resource Information	100,000
Fisheries and Aquaculture	Fisheries and Account Management	175,000
Health and Community Services	Medicare Suite	1,600,000
Health and Community Services	Applications in Regional Offices	100,000
Justice	JOML Online Mailing Labels	165,000
Justice	LCIS Justice Information System	330,000
Justice	Young Offender Information System	237,800
Solicitor General	Young Offender Information System	356,700
Municipalities, Culture and Housing	Cross Application	150,000
Municipalities, Culture and Housing	Public Housing	150,000
Municipalities, Culture and Housing	Loans	440,000
Municipalities, Culture and Housing	Emergency Repair	100,000
Transportation	Vehicle Registration	500,000
Transportation	Inventory	104,809
		\$6,919,309

Recommendation

11.42 A mandatory reporting mechanism should be implemented to ensure the Board of Management receives regular, frequent information on the progress of all departments in achieving Year 2000 compliance. Such reporting would provide the Board of Management with the information necessary to ensure the Year 2000 programming problem is addressed in an appropriate manner.

11.43 This mechanism would most likely include mandatory reporting, by each department, to the Project Management Office. Departments should report for each major technology or application contained in the inventory taken during the earlier phase of the Year 2000 Program. Target deadlines and budget benchmarks should be submitted and progress regularly up-dated. This information could be summarized and passed through the existing channels for submission to the Board of Management on a monthly or bi-monthly basis.

11.44 Our recommendation will give the Board of Management an opportunity to address areas of concern in a timely and proactive manner. This will help emphasize the importance of this project to individual

departments, as well as to the Province as a whole. In addition, this opportunity will allow the Board of Management to assess any additional funding requirements that may arise as the scope of the project changes. Finally, the Board of Management can focus its resources and attention on those departments who may not be making satisfactory progress in meeting Year 2000 compliance.

**Response from Corporate
Information Management
Services**

11.45 *A proposed process by which Departments will be required to report to the Project Management Office (PMO) on a regular and more formal basis has been presented to the Information Systems Advisory Committee. The objective of the process will be to have departments provide timely and appropriate information to the PMO for regular reporting to the Information Technology Strategic Steering Committee (ITSSC) and the Board of Management (BOM). Progress reports will be submitted to both the ITSSC and the BOM as information items on a more regular basis. If required, corrective action will be defined and recommended to ISAC, ITSSC and/or BOM as appropriate.*

11.46 *The proposed standard status format and methodology is the Gartner Group COMPARE methodology (COMpliance Progress And REadiness.) This process is used by thousands of companies worldwide and is seen as the preferred choice by the industry.*

11.47 *The proposed process will be discussed at the November meeting of ISAC and presented to ITSSC in December.*