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INFORMATION TECHNOLOGY MANAGEMENT - YEAR 2000 READINESS

BACKGROUND

What is the Year 2000 issue all about?

4.1 The approaching change of century brings with it a potential realization of significant risks for computers and computer systems world wide. These risks are characterized by the manner in which computers, both hardware and software, had traditionally been designed and programmed to capture, store and process dates. Dates had been captured allowing only 2 digits for the year (i.e., 1997 would typically have been recorded as 97). When the century changes to the year 2000, under the old format the year would be recorded as 00. Computers may then interpret this to be the year 1900. As a result, computations or processes dependent on dates may be performed incorrectly or not at all. This has the potential to cause an innumerable variety of problems for computer systems, their users and clients, ranging from very minor to extremely dangerous or costly depending on the nature of the system, its functional purpose(s) and the extent of dependency by users and clients.

4.2 In the 1960's and 1970's when the proliferation of computerized business applications truly began, computer memory was a scarce and very expensive commodity. Dates were a very common data element being captured and processed and the recording of the year as two digits provided a significant saving in storage space, data entry efforts and associated costs. At the time, it was a valid economical judgement to conserve storage space in this manner.

4.3 In the 1980's and early 1990's knowledge of the Year 2000 problem and its potential consequences became much more apparent. Although the availability and costs of computer memory dropped dramatically, there was still very little done to address the issue. Both public and private sector organizations have been very slow to react and, until very recently, many have failed to make the issue a priority.

How significant is the issue?

4.4 In 1997 the Gartner Group, an independent research firm, estimated the costs to resolve the issue globally in the range of US $300-US $600 billion and further that the problem affects 90% of the world's computers. The deadline for resolving this problem is a fixed target. It cannot be changed, altered or deferred. In fact, the real target for resolving the problem is not even December 31, 1999. Information Technology industry experts indicate that it should be resolved by December 31, 1998 since many problems will begin to surface in 1999, or earlier where future dates are recorded and processed. That only leaves one year to get the work done, since 1999 is also generally viewed as a year to complete testing and resolve new problems that may surface from the Year 2000 changes.

RESULTS IN BRIEF

4.5 The following are our principal observations.

- The Year 2000 issue represents a very real threat to government and its ability to provide complete and uninterrupted service upon the turn of the century. The issue

has a fixed target for resolution which cannot be altered or changed.

- The Nova Scotia government is to be commended for the steps which it has already taken or planned to address this issue. However, there is still much left to do and a rapidly diminishing window of opportunity to complete the necessary tasks. The government must fully consider the risks and ensure sufficient resources are allocated to enable the timely resolution of the issue.

- The scope of the central Year 2000 Project Office addresses only the eight corporate service units and their departments as well as a few small entities. Excluded from the project are many public sector organizations or entities such as crown corporations, school boards, museums, community colleges, hospitals and regional health boards as well as many other government-sponsored boards and commissions. There is no government-wide mechanism in place to monitor, support and coordinate the activities of these organizations in their efforts to achieve Year 2000 compliance.

- There were significant delays in establishing the Project Office which were a result of budget-related deliberations. These deliberations also resulted in departments being required to fund Year 2000 projects from existing budget resources.

SCOPE OF REVIEW

4.6 The objective of this assignment was to review the status of actions taken or planned to address the potential risks and impact that the change of century may have on the deployment and use of information technology resources in the Nova Scotia government.

4.7 Due to the significance of the Year 2000 issue and implications for the Province's information technology systems and controls, we will continue to monitor and review government progress in this regard.

PRINCIPAL FINDINGS

What has been done to date to address the issue?

4.8 The Nova Scotia government, like all other Canadian governments, has a wide variety of computing resources ranging from mainframe-based systems to desktop computers with a variety of networking linkages including a wide area network and many local area networks. The systems in use provide both operational support applications for government departments as well as applications specific to the delivery of government services and programs. Some of the applications in use were developed many years ago.

4.9 In 1991, the government approved standards in the area of information technology. One of these standards addressed the use of dates in mainframe-based systems and applications. It recognized the requirement for an eight digit date with four digits for the year. All mainframe-based systems and applications developed by the government since 1991 were therefore required to use this new date structure. This standard provided a significant head-start to addressing the Year 2000 issue, however it did not resolve the issue for older or non-mainframe based systems.

4.10 In October 1996, a need was recognized to formulate a strategy to address the Year 2000 issue within the Nova Scotia government. Initially, the following three primary thrusts were identified:

- to inventory all government systems and applications and determine the extent of the problem;

- to provide project leadership and coordinate the efforts of departments and agencies; and

- to communicate the urgency of the Year 2000 issues.

4.11 The Technology and Science Secretariat (TSS) took the lead role in this project. In November 1996 a tender was issued for an initial assessment of the problem across the Nova Scotia government. This resulted in a contract to a consulting firm to do the initial assessment. The work was performed over the next several months through the use of survey questionnaires combined with follow-up interviews. In March 1997 a report titled *Year 2000 Project Initial Assessment* was released. The consultants tabulated a total of 280 applications government-wide and concluded that *"Overall, Year 2000 compliance within the computer applications looks good*." This assessment was based on the following results:

- 43% of applications were already considered compliant;

- 33% of applications required no action as they were in the process of being rewritten, phased out or replaced; and

- 24% of applications required remedial action.

4.12 The remedial action to major applications was estimated by the consultants at between $2.2-$5.3 million of direct expense. The *Initial Assessment* also offered several recommendations in terms of organization and strategy for the project. Government has reviewed these recommendations and most have been accepted. One of the report's primary recommendations centred around the establishment of a central Year 2000 Project Office to coordinate and monitor the efforts of the departments. The departments, through the corporate service units (CSUs), will be responsible for the actual performance of the work.

4.13 The Project Office will also establish a central testing and certification facility where departments will be able to have their applications tested and certified. The Project Office, in consultation with the CSUs, will prioritize the 280 applications and provide certification services for all critical applications as a minimum. To the extent that time and resources permit, they will provide certification for as many more applications as possible.

4.14 However, as noted in paragraph 4.20, a separate budget for this project was not approved. It has been indicated that if alternate sources of funding cannot be identified for the testing and certification process, which is currently estimated to cost $1 million, it may become necessary to allocate and recover these costs directly from government departments and participating agencies.

4.15 In October 1997, the Deputy Minister of the Technology and Science Secretariat wrote to all Deputy Ministers concerning the Year 2000 and its budget implications. He stated in part "*The Technology and Science Secretariat has identified Year 2000 as a serious issue for government and that all departments should make this potentially disastrous problem a priority as well*".

What is the scope of the government's Year 2000 project?

4.16 Although the Year 2000 project is described as a government-wide project, this is not really the case. It addresses only the departments and agencies covered by the eight CSUs, as well as a few other small entities. Excluded from the project are many public sector organizations or entities such

as crown corporations, school boards, museums, community colleges, universities, hospitals and regional health boards, municipalities, as well as many other government-sponsored boards and commissions.

4.17 There is currently no government-wide mechanism in place to monitor, support and coordinate the activities of these organizations in their efforts to achieve Year 2000 compliance. Since government has or shares responsibility for these organizations, there should be a means for determining their level of preparedness and the adequacy of their plans for action. One suggestion is to have the government Project Office expand its scope to determine where these organizations stand and include them in the overall project.

4.18 With regards to the hospitals and regional health boards, we were informed that the Department of Health has already taken a leadership role. In a manner similar to the Project Office established in the TSS for the government project, the Department of Health has established a separate project office to monitor and support the efforts of the hospitals and regional health boards. It has been indicated to us that these organizations are well along in the process.

Are there sufficient resources available to do what needs to be done?

4.19 Since the release of the *Initial Assessment* in March 1997, there were delays in proceeding to implement the report's recommendations. An initial schedule was provided that identified the budget and establishment of the Project Office as tasks to be completed by July and August 1997, respectively.

4.20 A great deal of time was spent in attempting to establish a budget for the overall project. It was indicated that a request was made to the Department of Finance for a three-year budget for the project, but approval was not provided due to the budgetary restrictions imposed by the Expenditure Control Act. The Department of Finance position was that the departments would have to fund their Year 2000 projects entirely from their existing budgets. No further funding could be provided.

4.21 The administrative costs associated with the Project Office will now be funded from the budget of the Technology and Science Secretariat. As a result of these delays, the Project Office is only now being established in December 1997, some four months later than planned. In regards to the overall time line, this delay consumed approximately 14% of the remaining time and has placed the project behind schedule.

4.22 It is important to note that at the time of the initial assessment, the Nova Scotia government overall appeared to be fairly well prepared for the new century. However, there is still a significant amount of effort remaining to be completed and it is very possible that departments will have to allocate additional resources (both in dollars and especially people to do the work). Management awareness and commitment to the Year 2000 project is therefore vital. The government must be prepared to allocate necessary resources if significant problems or delays occur.

What is the availability of people with the necessary skills to do the work?

4.23 There is a further related factor that has arisen as a direct consequence of the Year 2000 issue which may directly impact the success or failure of the government's efforts. There is already a growing worldwide shortage of qualified people to manage and perform Year 2000 projects. Lucrative contracts are already being offered (and they will likely become even more attractive as the clock ticks down), particularly in the United States, which has already been actively recruiting qualified people from around the world. These people are virtually leaving their prior organizations stranded because of the high demand and attractive compensation for their skills. The Gartner Group

has stated "*Canadian programmers making $25,000 are now being offered 100%-200% raises to come to the US and Great Britain.*"

4.24 The Gartner Group, in testimony to the US House of Representatives in November 1997 stated:

> "*Gartner Group believes that less than 15% of enterprises have progressed past the initial assessment and planning stages of their Y2K projects. We expect the remainder to begin the remediation and testing phases in the next six months. Think of it - 85% of the world's enterprises will begin executing the largest IT project they have ever undertaken at virtually the same time! Clearly, there are not enough skilled resources - programmers, data base administrators, project managers, to complete the task in time to avoid damage due to the Year 2000.*"

4.25 Government could find itself in a significant bind since they may be unable to compete with the private sector in a bidding war for scarce resources.

4.26 To further illustrate and bring home the seriousness of these global resourcing issues for the Year 2000, and in particular the Nova Scotia government, it is interesting to note that a Request for Proposals (RFP) was recently released and awarded for an experienced Year 2000 Consultant to work with the Technology and Science Secretariat to establish a Nova Scotia government Year 2000 Project Office. Although a qualified consultant was ultimately obtained through this process, there were only four responses to the tender. Two major IT consulting firms of international stature who normally would respond to such tenders were unable to respond to this RFP due to a shortage of resources. As the date draws nearer, this situation can only worsen and the costs could escalate dramatically.

CONCLUDING REMARKS

4.27 The Year 2000 issue represents a very real threat to government and its ability to provide complete and uninterrupted service upon the turn of the century. The Nova Scotia government is to be commended for the many steps which have already been taken or planned. However, there is still much left to do and a rapidly diminishing window of opportunity to complete the necessary tasks.

4.28 As previously stated, the Year 2000 issue has a fixed target which cannot be changed or altered. Time is of the essence and there is no time to ponder or debate the issue further. It is therefore necessary for the government to fully consider the risks and ensure that the resources allocated are sufficient to ensure the timely and adequate resolution of the issue.

4.29 Furthermore, the unique nature of this problem should be of significant and on-going interest to Members of the House of Assembly. Accordingly it would be appropriate that periodic status reports be issued by the Year 2000 Project Office so government and the House may be kept current on progress for this very important issue.