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YEAR 2000 -
READY OR NOT, HERE IT COMES !

BACKGROUND

What is the Year 2000 issue all about?

3.1 The approaching change of century brings with it a potential realization of significant risks for computers and equipment or devices containing microchips. Much has already been written about the Year 2000 and its possible worldwide impact. In summary, the risks are characterized by the manner in which dates had been captured allowing only 2 digits for the year (i.e., 1998 would typically have been recorded as 98). When the century changes to the year 2000, under the old format the year would be recorded as 00. Computers and/or microchips may then interpret this to be the year 1900 or some other system base year. 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, as well as a wide variety of electronic equipment containing microchips. Potential problems range 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.

3.2 Year 2000 is not just an information technology (IT) problem. It is a business problem which may have an impact on many facets of an organization's operations and the dependencies among and between business partners. Even where an organization can achieve its own Year 2000 compliance, it still needs assurance that its business partners will do so as well. Therefore, there will be risks that are external to an organization and beyond its control.

How significant is the issue and what is the world doing about it?

3.3 In 1997, GartnerGroup, an independent research firm, estimated the costs to resolve the issue globally in the range of US $300 billion to US $600 billion. In June 1998 GartnerGroup reported *"The overall Year 2000 picture has not become rosier in the past year. As many as one-half of organizations will experience the pain of a mission-critical business process impairment. Total software remediation costs are still likely to fall somewhere in the $300 billion to $600 billion range."* The deadline for resolving this problem is a fixed target. It cannot be changed or deferred in any way.

3.4 In July 1998, GartnerGroup released the results of a world-wide survey it had recently concluded. Fifteen thousand organizations, including governments, in 87 countries were surveyed. The following is a summary of significant statistics that it had gathered:

- 23% of all organizations still had not started any year 2000 effort and more than 80% of these were small companies;

- 93% of IT budgets remained flat or were reduced from 1997 to 1998;

- 5% of IT budgets were spent on year 2000 efforts in 1997, but 30% was planned to be spent in large companies in 1998 and 44% in 1999;

- only 23% of companies already working on Year 2000 problems had begun researching supply chain risks and 11% had begun to research embedded system risks; and

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– 50% of all companies were not planning to perform any year 2000 testing, as they intended to fix code and implement it.

3.5 These survey results indicated that on a global basis a great deal remained to be done.

RESULTS IN BRIEF

3.6 The following are our principal observations based upon information available to us up to mid November 1998.

■ In the past year, the government has made progress in dealing with the Year 2000, but at varying degrees and not to the overall extent expected based on plans in place last year. Some departments appeared to have made significant progress in their efforts to resolve the Year 2000 problem and its potential impact on their business functions. Other departments, however, had been slower to react and were not sufficiently along in their efforts.

The challenges within the Provincial public sector and the commitment required to try to address them over the next year need to be well defined and understood by decision makers if the government is to achieve a planned state of readiness. In this regard, we again recommended that government provide sufficient appropriate information and reporting to the House of Assembly on its plans and performance relating to the Year 2000 issue. The first of these reports was released on November 30, 1998. It is available on the Province's Internet site, which we understand will be updated monthly.

■ The Executive Council issued a formal Year 2000 policy statement in May 1998. However, in our on-going research of the Year 2000 issue and in particular our review of certain key government planning documents (*Government By Design 1998-99*, *Crown Corporation Business Plans 1998-99* and the *Estimates of the Government of Nova Scotia for 1998-99*) we noted that for most departments and crown corporations included in the documents, the Year 2000 issue was not specifically identified as a priority, even though these documents were tabled one month following the Executive Council policy statement.

While the Year 2000 is seen as a priority, it continues to compete for resources with a number of other government priorities and issues. This is particularly demonstrated by the fact that all costs associated with Year 2000 must come from within each department's existing budget.

■ It is not a question of whether the government will be ready, but rather, to what degree will Year 2000 compliance be achieved? Further, what systems and/or processes will be most at risk and what contingency plans will be in place to minimize those risks? The answers to these questions were still being formulated when this chapter was written.

As of November 1998, there were still incomplete estimates of the resources required to address the issue government-wide. Further, all departments had not yet fully identified and prioritized their Year 2000 project components, nor had the government yet established its overall priorities for areas of highest risk.

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SCOPE OF REVIEW

3.7 The objective of this assignment was to determine the status of actions taken or planned by the government to address the potential risks and impact that the change of century may have on the government's systems and processes that are date dependent.

3.8 In August 1998, we surveyed sixteen departments and one agency to obtain background information and representations on their Year 2000 plans and status. Responses were received from all and in addition one department (Health) provided two responses (one for the department and one for the Regional Health Boards and Non-Designated Hospitals). We received eighteen responses in total.

3.9 It is important to note that these survey results represented a self-assessment by the respondents near the end of August 1998. We have not performed specific procedures to verify the responses provided.

3.10 Further, in November 1998 we reviewed the October 30, 1998 monitoring reports that were prepared by the departments and submitted to the government's Year 2000 Project Office within Technology and Science Secretariat (TSS). We also held further discussions with representatives of the Year 2000 Project Office, and obtained and reviewed additional information on government's priorities and plans.

3.11 Due to the significance of the Year 2000 issue and implications for the business systems and processes within the Provincial public sector, we will continue to monitor and review government progress in this regard.

PRINCIPAL FINDINGS

Has the Nova Scotia government made sufficient progress in the past year?

3.12 Over the past year, since the writing of our last report, we acknowledge that there has been progress across government, but at varying degrees and not to the overall extent expected based on plans in place last year. Some departments appear to have made significant progress in their efforts to resolve the Year 2000 problem and its potential impact on their business functions. Other departments, however, have been slower to react and were not sufficiently along in their efforts.

3.13 It is not a question of whether the government will be ready. The pertinent question is which systems are likely to be completed and for those that are not, what are the risks of the failure to complete? Also, what strategies will be formulated to minimize business and service interruptions? As at November 1998, estimates of the resources required to address the issue still had not been fully assessed by the departments. Further, some departments still had not yet fully identified and prioritized their areas of risk. As well, the government had not yet established overall priorities for areas of highest risk, although criteria have been established to facilitate this process. We understand that these steps are to be completed by January 1999, which leaves very limited time to ensure they are properly dealt with.

3.14 The government still needs to establish the detailed budgetary and human resource requirements for the remainder of its Year 2000 efforts. These must be fully defined and provided so as to focus on the highest areas of risk. Further, these efforts and related resources will need to be planned for appropriate recognition and consideration of related requirements extending beyond the Year 2000.

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What were the government's primary Year 2000 related accomplishments in the past year?

3.15 The following is a summary of the primary accomplishments by the government in the past year related to the Year 2000 issue, based on the information and representations provided to us by the Year 2000 Project Office.

- ■ The Executive Council issued a Policy Statement dated May 8, 1998 (see Appendix 3A, page 50) which defined the primary roles and responsibilities for the government's Year 2000 project approach. In summary, it clearly established that "*Ministers are responsible for directing and evaluating the Year 2000 readiness of their departments, and any agencies, boards, and commissions for which they have ministerial responsibility.*"

- ■ The Premier wrote to all Cabinet Ministers on June 11, 1998 to emphasize a high priority for addressing the Year 2000 business problem.

- ■ The Year 2000 issue was established as a regular agenda item for meetings of both the Executive Council and the Deputy Ministers.

- ■ Establishment of the central Year 2000 Project Office was completed and funding for the administration of the Project Office was established in the budget of the Technology and Science Secretariat.

- ■ The Project Office in consultation with the departmental Year 2000 Coordinators established weekly Year 2000 workshops and technical sessions, where information can be shared and issues raised and discussed. Several focused workgroups were established to research and provide guidance on issues of common interest.

- ■ The Project Office established an information site on the government Intranet site as a means of supporting departments in their Year 2000 projects.

- ■ The Project Office established a reporting mechanism for the departments to regularly report progress and status. The first set of monitoring reports were submitted by the departments for September 1998. October reports have also been received by the Project Office.

- ■ The Project Office and the departmental Year 2000 Coordinators jointly developed a definition of Year 2000 Compliance, which was approved by the government's Business and Technology Advisory Committee (BTAC) for use throughout government. It was subsequently incorporated in all procurement activities by the Procurement Division of the Department of Finance.

- ■ The Deputy Minister of the Technology and Science Secretariat has recently (October 1998) completed individual meetings with each of the Deputy Ministers and their Year 2000 Coordinators concerning each department's progress and status.

- ■ The Minister responsible for the Technology and Science Secretariat (TSS) is to meet individually with each member of Cabinet to discuss the Year 2000 issue and each department's progress and status.

- ■ The Department of Economic Development and Tourism has included on its Internet site Year 2000 awareness and other related information resources for private businesses.

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■ The Department of Housing and Municipal Affairs has provided links on its Internet site to assist Municipalities in their Year 2000 remediation efforts.

■ The Department of Health established a central Year 2000 Project Office in support of the Province's health care organizations.

■ A Local Area Network (LAN) based testing facility using Year 2000 compliant software and running in the year 2000, was established at TSS and made available to all departments for testing their LAN based applications.

■ Testing tools for both mainframe and workstation based hardware and software were evaluated, acquired and widely deployed to assist departments.

■ A strategy was developed for identifying and planning for assessment of embedded systems. This strategy had been implemented in nine departments.

■ A Year 2000 legal strategy was formulated and communicated to all departmental legal counsel.

■ A risk management strategy was researched and recently approved by the Priorities and Planning Committee. Training sessions will be provided to departmental project staff by early December 1998. A full risk management assessment is then to be completed in January 1999.

■ A vendor management strategy was developed and a generic letter created which will be sent to all suppliers. To assist in this, detailed vendor lists were derived from the Department of Finance records and provided to the departments.

■ It was indicated that certain significant contracts such as the SHL Systemhouse Agreement and the contract with MT&T are currently being renegotiated and that these new contracts will address Year 2000 issues.

Has the government effectively recognized Year 2000 as a high priority?

3.16   As previously indicated, the government has, in the past year, taken two very important steps in establishing Year 2000 as a high priority for government departments and agencies. These are the release of the Year 2000 policy statement in May 1998 and the letter from the Premier to all Cabinet Ministers in June 1998.

3.17   However, in our on-going research of the Year 2000 issue and in particular our review of certain key government planning documents (*Government By Design 1998-99*, *Crown Corporation Business Plans 1998-99* and the *Estimates of the Government of Nova Scotia for 1998-99*) we noted that for most departments and crown corporations included in the documents, the Year 2000 issue was not specifically identified as a priority, even though these documents were tabled one month following the Executive Council policy statement. One of the primary purposes of these planning documents is to communicate the budgets, priorities and plans (including goals) of the government departments and crown corporations for the upcoming year.

3.18   Our point in raising these matters is to demonstrate that the May 1998 release of the Executive Council policy statement was too late to affect the planning processes of the departments for 1998-99 as reflected in *Government By Design, Crown Corporation Business Plans* and the *Estimates* which were released in June 1998.

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Has the Province provided disclosures regarding Year 2000?

3.19   On July 31, 1998 the Province released a publication entitled "*Financial Report 1997-98, Hitting the Targets.*" This publication included the Province's audited financial statements for the fiscal year ended March 31, 1998. The Notes to the financial statements included a note on Year 2000 as follows:

> *"The effects of the Year 2000 issue may be experienced before, on, or after January 1, 2000. If not addressed, the impact on operations and financial reporting may range from minor errors to significant systems failure which could affect the Province's ability to conduct normal business operations. It is not possible to be certain that all aspects of the Year 2000 issue affecting the entity, including those related to efforts of suppliers and other third parties, will be fully resolved.*
>
> *The Province continues to prepare for and manage this risk. Each government department is responsible for identifying, creating, and executing remediation plans for date-sensitive systems that may impact their ability to continue normal operations. The costs associated with all Year 2000 efforts are to be financed from existing departmental operating budgets. A project team has been established to monitor and support the Province's year 2000 efforts as a whole. This team reports to a senior deputy minister of government."*

What comments were provided by the auditors appointed under Section 65 of the Provincial Finance Act for the year ended March 31, 1998 to management?

3.20   The auditors appointed under section 65 of the Provincial Finance Act for the year ended March 31, 1998 were Deloitte & Touche. Their management letter dated August 28, 1998, which was subsequently received by this Office on November 6, 1998, provided the following commentary on the Province's approach and general status relating to Year 2000 remediation efforts:

> *"Year 2000*
>
> *As you are aware, under the terms of our engagement, we will not provide any assurances, nor will we express any opinion, that the Province's systems or any other systems, such as those of the Province's agencies, service providers, subsidiaries, or other entities, are Year 2000 compliant. However, during our visits to your offices, we made inquiries about the Province's activities to address the Year 2000 issue. We have not performed any procedures to test the accuracy or completeness of the responses to our inquiries, but we have included our observations resulting from these inquiries, in the following paragraphs.*
>
> *We understand the Province has decided to take a two-tiered approach to address the Year 2000 compliance issue. The first line of responsibility for Year 2000 compliance has been charged to each of the Departments and/or government related agencies. Each must identify all potential exposures, create remediation plans, effect solutions where appropriate, and do it within their specific budgets. In addition to this, the Province has created a separate project office for the Year 2000 that reports to the Deputy Minister of the Technology and Science Secretariat. This office is to provide administrative and technical support and assess the Province's exposure as a whole. While this is a different approach than most Private entities where one Senior official has full authority for the project, we understand that the Province's approach is similar to that of the federal government.*
>
> *We have been informed by various personnel that the departments are at varying levels of preparedness. We are advised that some have completed detailed inventory lists of potential exposures, others are in the process of doing this. Some have detailed plans, including*

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timelines for completion as well as contingency plans in the event things do not happen as anticipated; others are not that far along. We remind management that the Year 2000 is not that far away. As the date approaches, access to remedial resources will clearly decrease so it is very important to maintain constant monitoring and produce frequent progress reports so that management can take appropriate action to meet the deadline.

*Obviously, the Year 2000 issue is of critical importance to the Province. It is not just the individual Departments that must be assessed, but through association, the Province will be involved with problems that arise in agencies, crown corporations, hospitals, school boards, etc., any one of which may have significant impact on the Province. **We strongly encourage the Province to stay closely informed on the status of the Year 2000 efforts in all of its departments, affiliates, and suppliers.** "*

What were the results of our August 1998 survey?

3.21   In late July 1998, we prepared a survey and circulated it across 16 departments and one agency in order to gather basic background information and representations on the status of actions taken or planned since our 1997 report. The results of this survey represented a self-assessment by the departmental Year 2000 Coordinators at a point in time. We did not perform detailed verification procedures to substantiate the responses. Based on the responses provided, we were very concerned with the overall status indicated by these survey results as at the end of August 1998. Our concerns were not so much that there was a wide disparity across the departments in terms of status and progress, but that most of the significant actions taken, or still planned, had come too late or still had not yet been addressed.

What were the results of the October 30, 1998 monitoring reports submitted by the departments to the Year 2000 Project Office?

3.22   Subsequent to our August 1998 survey , the Year 2000 Project Office began receiving monthly status reports from the departments commencing at the end of September 1998. It also requested copies of the August survey the departments had submitted to us. Upon review of the information at these two dates, management of the Project Office became very concerned and arranged individual meetings with each Deputy Minister and their respective Year 2000 Coordinator to discuss the departmental plans and status. We were informed that based on the discussions at these meetings management of the Project Office concluded that neither our survey results nor its September monitoring reports accurately reflected the status and progress of the departments.

3.23   The departments were then requested by October 30, 1998 to provide an itemized listing of their Year 2000 sub-projects with an assessment of the priority for each item. We have now had the opportunity to review the October 30, 1998 reports and provide the following comments.

■   The October reports indicated to us that significant effort and emphasis had been directed by several departments to their Year 2000 projects and that some appeared to be making progress in their remediation efforts. However, based upon the information provided, we still have significant concerns relating to the status and progress of certain departments. We do not imply that they have been doing nothing, in fact we know that all departments are now highly focused. Our concern, which is demonstrated by the following statistics, is that there is now only slightly more than one year remaining and both the departments' and the government's corporate efforts are still, to a large degree, focusing on identification and prioritization of projects for some of which estimates of costs and resource requirements still had not been fully defined. These estimates will not likely be finalized until January 1999.

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■ All of the departments provided a submission to the Project Office as requested. There were 227 projects identified in total of which 7 were assessed as critical and 127 assessed as high priority. There were 38 projects for which no prioritization had yet been defined.

■ There were 83 identified projects where no cost estimates were provided and a further 91 where no resource-day estimates were provided. These particular projects will require a range of effort which has not yet been determined, but in total is likely significant.

■ Based upon data at October 30, 1998, the total estimated costs identified to date by departments approximated $22 million. Since the date of these reports, the government announced that Health organizations (external to the department) will require approximately $65 million.

■ The government did not have in place a "Skills Set Inventory" which would identify government employees who possess Year 2000 specialized skills. Such an inventory would enable a focused deployment of appropriate skills to each of the government's prioritized projects once they are established. It would also facilitate an identification of required skill sets not available internally.

What additional strategies and plans has the government identified?

3.24 The Priorities and Planning Committee, on the recommendation of the Year 2000 Project Office, has recently approved the acquisition and deployment of a risk management methodology for the Province. This methodology will be initially deployed to assist departments and the government in identifying the projects of highest risk. Training was scheduled to begin in late November 1998 and the departments are required to apply the methodology for a consistent assessment, or reaffirmation of their areas of highest risk. This process is to be completed by January 20, 1999.

3.25 Further, the government has recently communicated the following key milestones, including tentative completion dates, to the departments:

January 20, 1999	Risk Planning Complete
February 10, 1999	Essential Service Projects Confirmed for Government
March 3, 1999	1999/2000 Prioritized Budgets Finalized
June 15, 1999	Remediation of Essential Services Completed Business Continuity/Contingency Plans Completed
August 30, 1999	Implementations for Essential Services Business Continuity/Contingency Plans Tested
January 1, 2000	Contingencies Triggered
January/February 2000	Business Resumption

3.26 The government's Business Technology Advisory Committee (BTAC), which is comprised of selected Deputy Ministers, has recently been re-established and it will provide a Year 2000 steering committee function.

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What are the Auditor General's plans and priorities for further coverage of Year 2000?

3.27   Our plans and priorities for monitoring the government's Year 2000 remediation efforts are as follows:

–   consider the need for specific review of Year 2000 information provided to the House of Assembly;

–   continue to review and monitor information available to us and raise issues and questions with the Year 2000 Project Office and others as required;

–   continue to support internal audit initiatives focusing on the Year 2000; and

–   consider the need for plans and procedures to address Year 2000 issues that extend beyond January 1, 2000.

What other audit-related initiatives are being considered?

3.28   Several government departments have internal auditors with a variety of audit responsibilities for departmental programs and operations. Internal auditors from across government have formed a committee called the Provincial Internal Audit Committee (PIAC). The general purpose of this committee is to provide a forum for sharing information and formulating plans on areas or issues of common interest. One such issue is the Year 2000. In June 1998, PIAC approved the establishment of a Year 2000 sub-committee to gather information and formulate a common audit strategy for reviewing and assessing departmental Year 2000 projects. The first meeting of this sub-committee was held in June 1998. The Auditor General agreed to have two staff members sit on this sub-committee in an advisory capacity, as a means of cooperation and coordination, and to minimize duplication of efforts.

3.29   The sub-committee has recently formulated a detailed Year 2000 audit strategy for internal auditors which was to be presented to the full PIAC committee for consideration in November 1998. However, the nature of the internal audit function across government is such that audit priorities must be approved by senior departmental management. As well, some departments with no internal auditors rely on the Department of Finance and some other departments have very small (one or two person) internal audit groups. Although there is now a detailed audit strategy, there is no guarantee that all internal audit groups or departments will have the necessary senior level support or the audit resources to focus on the Year 2000 issue in a timely and effective manner.

CONCLUDING REMARKS

3.30   While progress over the past year is acknowledged, it has occurred slower than intended by last year's plans. The risks from this issue should not be underestimated. Year 2000 still represents a very real threat to government and its ability to provide complete and uninterrupted service upon the turn of the century. During 1998-99, the issue started to receive increased levels of senior departmental support. The window of opportunity since last year has diminished by almost 50% and there is still a great deal of effort required.

3.31   The Year 2000 issue represents a fixed deadline that cannot be changed or deferred. There is not sufficient time or resources to ensure full compliance across the government. The government needs to complete its assessment and focus on this issue at a corporate level and establish priorities so that resources can be directed to the most significant areas of risk. In order to do this, the departments will first have to finalize the prioritization of their projects which will then have to be

assessed in the government's corporate context. Use of the new risk management methodology will be key to facilitating this process.

3.32 The unique nature of this problem and in particular the risks to the government, should be of significant and on-going interest to Members of the House of Assembly. Accordingly, we repeat our recommendation from last year that it would be appropriate for the Year 2000 Project Office to issue periodic status reports so government and the Members of the House of Assembly may be kept current on progress for this very important issue. These reports should provide sufficient and appropriate information for the Members of the House to assess the government's progress and plans. In this regard, the government released its first status report on November 30, 1998. This report is available through the Province's Internet site (www.gov.ns.ca) and it is our understanding that it will be updated on a monthly basis.

3.33 In our view, it is imperative that the accountability focus on Year 2000 be prospective rather than retrospective. At this point in time, from an accountability perspective, we suggest an appropriate focus needs to be placed on the government's plans, priorities and activities for the remainder of its Year 2000 remediation efforts, as opposed to having management resources focus extensively on what was or was not done in the past.

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Appendix 3A

POLICY STATEMENT OF THE
EXECUTIVE COUNCIL

Year 2000 Project
May 8, 1998

Because of the serious concerns raised by the Year 2000 problem in relation to Government of Nova Scotia operations, the Executive Council has determined:

- Ministers are responsible for directing and evaluating the Year 2000 readiness of their departments, and any agencies, boards, and commissions for which they have ministerial responsibility.

- Departments, agencies, boards and commissions are each responsible for assessing the risks and impacts of their own Year 2000 problems and for mitigating them. These same entities are also responsible for identifying and discharging their duties and obligations to naturally affiliated external groups with which they have a community of interest.

- Departments will put together project plans, staffing, and reporting structures to address their Year 2000 problems.

- At a minimum, anticipated costs associated with carrying out risk assessments and with making known priority items either compliant or Year 2000 ready will be included in 1998-99 budgeting. Remaining Year 2000 expenses will be incorporated in departmental budgets for the fiscal year 1999-2000.

- Departmental Year 2000 coordinators will cooperate with the Year 2000 Project Office: keep it informed of the status and progress of their remedial efforts and provide it with regular updates on these activities.

- Approval is given to the Department of Finance decision to fund remedial Year 2000 work through the existing processes of departmental budgeting. This approval may be subject to change or revision, pending the outcome of completed risk assessments and financial impact statements.

- The Deputy Minister of the Technology and Science Secretariat will report and advise the government on the progress of its Year 2000 remedial efforts.

- The Year 2000 Project Office, established within the Technology and Science Secretariat, will support, coordinate and monitor departmental efforts to achieve Year 2000 readiness.

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