5 Government-wide: Governance of Information Technology Operations

Summary

Information Technology (IT) is now at a point in its continuing evolution where it has gained significant prominence as a strategic and critical business enabler; one having a major impact on almost all aspects of business. There are now virtually no significant business processes in any large organization that are not dependant on IT. Today, it is IT that enables organizations to function efficiently and effectively in a globally-connected economy. This level of influence of IT on business brings with it several risks; many of which evolve as rapidly as IT does.

It is absolutely critical that Boards of Directors and senior executives of organizations give close attention to IT, including the establishing of strategic direction, setting of policy and the monitoring of the results and performance of IT. It is equally critical that risks associated with IT be understood and managed at the highest levels in the organization. The failure of IT to do the right things, in the right ways, with the right and optimal resources, can significantly influence the ongoing viability of organizations and their ultimate success or failure in meeting their strategic objectives.

We have completed a government-wide audit of the governance of information technology operations. We concluded that IT oversight structures in place do not provide good IT governance based on our assessment against best practices derived from the IT Governance Institute's COBIT framework.

The audit also assessed whether or not an appropriate strategic planning process is in place to direct the IT activities of government. We concluded that the government's planning processes for IT are not adequate.

The observations from this audit can be summarized by saying that it is not clear who is in charge and who is accountable for corporate IT operations, and what practices should be followed. The risks arising from this lack of structure are that resources may be wasted in duplicated efforts, lower priority systems receive undue attention, or increased maintenance costs. There is also increased chance of system failures and significant cost overruns on new projects. All of our recommendations centered on the adoption of an IT governance framework such as the IT Governance Institute's COBIT 4.1, which is a widely-accepted international source of best practices for the governance, control, management and audit of IT operations.

5 Government-wide: Governance of Information Technology Operations

Background

5.1 Information technology (IT) has come a long way in its evolution over the past 20 years. Before the proliferation of desk-top computers, IT was generally perceived as a separate and distinct functional unit in larger organizations. IT had its own focused goals and processes which were technically challenging for business managers and senior executives to understand. Often they did not make a concerted effort to understand IT because it was of fairly low visibility, as long as everything ran smoothly. Accordingly, IT received significant attention from Boards of Directors and senior executives only when the infrastructure or significant applications suffered failures, or when some new and attractive business application came to their attention.

5.2 IT is now at a point in its continuing evolution where it has gained significant prominence as a strategic and critical business enabler; one having a major impact on almost all aspects of business. There are now virtually no significant business processes in any large organization that are not dependant on IT. Today, it is IT that enables organizations to function efficiently and effectively in a globally-connected economy. This level of influence of IT on business brings with it several risks; many of which evolve as rapidly as IT does.

5.3 It is absolutely critical that Boards of Directors and senior executives of organizations give close attention to IT, including the establishment of strategic direction and monitoring of the results and performance of IT. It is equally critical that risks associated with IT be understood and managed at the highest levels in the organization. The failure of IT to do the right things, in the right ways, with the right and optimal resources, can significantly influence the ongoing viability of organizations and their ultimate success or failure in meeting their strategic objectives.

5.4 There is now a heightened awareness of IT among Boards and senior executives of large organizations around the world, and a developing realization that an effective framework for IT governance is very important to the successful delivery and control of IT operations.

5.5 The IT Governance Institute, an internationally recognized authority in this area, defines IT governance as,

> "… *the responsibility of the board of directors and executive management. It is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure that the organization's IT sustains and extends the organization's strategies and objectives.*"

5.6 The overall objective of IT governance, according to the Institute, is

> "... *to understand the issues and the strategic importance of IT, so that the enterprise can sustain its operations and implement the strategies required to extend its activities into the future. IT Governance aims at ensuring that expectations for IT are met and IT risks are mitigated.*"

5.7 The Government of Nova Scotia currently employs approximately 480 full time equivalent staff in the management and delivery of IT services. They are dispersed throughout seven Corporate Service Units serving government departments, and four other divisions (see paragraph 5.20)having a distinct corporate role related to IT. For 2007-08, the combined operating budget for IT across core government (i.e., not including crown corporations and other government agencies) is in excess of $88.5 million. The combined IT capital budget for the same period is $11.2 million. Clearly, the Province's investment in IT is significant.

5.8 The Government of Nova Scotia has two groups of note with roles in the planning, directing and monitoring of IT operations. Treasury and Policy Board's Business Technology Advisory Committee (BTAC) has a stated mission of "*On a government-wide basis, to coordinate and facilitate strategic planning, information technology, business process improvement, and management of change initiatives.*" Nova Scotia Economic Development has a Corporate Information Strategies Division. The Department's 2007-08 business plan notes that it,

> "… *leads the implementation of the Government of Nova Scotia's corporate technology and information strategies. This involves the development and maintenance of strategies, policies and standards for the corporate (enterprise) architecture – including the applications, information and technical architectures.*"

Audit Objectives and Scope

5.9 In December 2007, we completed a government-wide audit of IT governance. The audit was conducted in accordance with Section 8 of the

Auditor General Act and auditing standards established by the Canadian Institute of Chartered Accountants.

5.10 The objectives of our audit were to assess:

- the adequacy of government's IT governance framework; and

- whether or not an appropriate strategic planning process is in place to direct the IT activities of government.

5.11 Our approach to this audit included using the IT Governance Institute's framework COBIT 4.1, which is a widely-accepted international source of best practices for the governance, control, management and audit of IT operations. This framework was used to formulate objectives and evaluation criteria for the audit. These objectives and criteria were discussed with, and accepted as appropriate by, senior management of Treasury and Policy Board and Nova Scotia Economic Development.

5.12 The scope of our audit focused on the governance framework and strategic planning for IT. Although we interviewed the Directors of IT at each of the Corporate Service Units across government, we did not audit any of the operational aspects of IT within those units.

Significant Audit Observations

5.13 *Conclusions and summary of observations* – Our audit sought to evaluate the adequacy of government's IT governance framework. We concluded that the government's IT governance framework is not adequate. IT oversight structures in place do not provide good IT governance based on our assessment against best practices derived from the IT Governance Institute's COBIT framework.

5.14 The audit also assessed whether an appropriate strategic planning process is in place to direct the IT activities of government. We concluded that government's planning processes for IT are not adequate. There is no corporate IT strategic plan, nor any departmental IT strategic plans. As well, there is no formal planning process to guide the development of IT strategic plans.
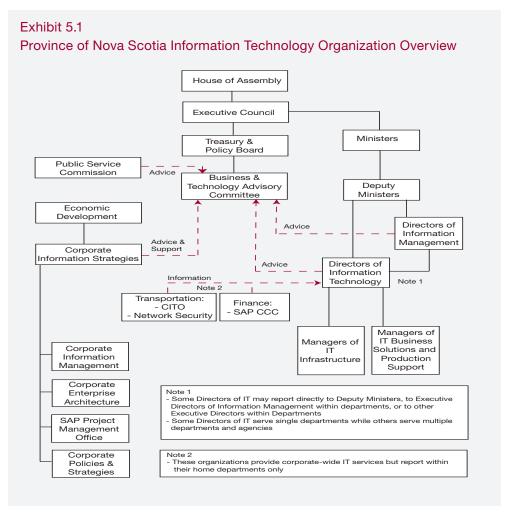
Governance Framework

5.15 An important aspect of IT governance is establishing an appropriate and authoritative governance framework. People involved in IT operations need to know who is in charge, what the rules are, and the nature of their respective responsibilities and accountabilities.

5.16 The risks of having an inadequate governance framework for IT include the following.

- IT goals and decisions may not align with corporate objectives. For example, certain IT projects may be initiated when other projects might better serve corporate objectives.

- There may be a lack of an authoritative body to create and enforce corporate policies and standards. As a result, a department or division might decide to use software that corporate infrastructure and human resources cannot support; or a failure to comply with security standards might expose the whole corporate network to hacking.

- There may be a lack of an authoritative oversight body to monitor IT performance. Poor performance in a department might not be noticed, resulting in wasted resources.

- Responses to critical corporate IT issues may be untimely and inadequate. Departments might respond to a similar issue in different ways. This could be inefficient, slow a response at a corporate level and may even make the situation worse.

- Economies of scale may not be achieved. Without a coordinated approach, the opportunity to achieve bulk discounts on purchases may be missed.

5.17 We concluded there is no formal, comprehensive framework for IT governance in the Government of Nova Scotia. This has resulted in inadequate planning and direction-setting for corporate IT. Nova Scotia Economic Development, through its Corporate Information Strategies Division, in conjunction with the Business Technology Advisory Committee (BTAC), has made concerted efforts, both in the past and with current initiatives, to set a corporate direction for IT. A *Business Technology Strategy* was drafted by Economic Development and approved in principle by BTAC in July 2000. Several of the strategy's recommendations focused on establishing a government-wide enabling structure for IT. However, only a few of the recommendations were approved by Executive Council. This left the government's IT organization with an unclear structure and lacking formal strategic corporate leadership and direction. Since that time, Economic Development has been working to provide focus on specific corporate IT projects that form a basic foundation for IT operations. They have been doing this without the guidance of a formal IT governance structure.

5.18 Additionally, there is no formally established and appropriately empowered oversight body responsible for monitoring corporate IT performance and control. Although BTAC – a subcommittee of Treasury and Policy Board comprised of Deputy Ministers – seems to be the logical body in the current

government structure to fulfill the oversight role, it does not currently have this mandate. BTAC's terms of reference address IT strategic matters in both its mission and mandate statements. However, the section dealing with specific responsibilities does not mention matters of strategy, or the monitoring and control of existing IT operations. It focuses primarily on operational matters such as the approval of IT projects. We have been informed that BTAC has plans to review its terms of reference in the near future.

Exhibit 5.1

Province of Nova Scotia Information Technology Organization Overview

5.19 The existing organizational structure for IT across government is somewhat confusing, combining elements of centralized and decentralized management. The decentralized elements, represented by Corporate Service Units individually focused on fulfilling the requirements of their respective client departments, are not always doing things in a consistent manner using standard tools and practices. There is open and active sharing of information and ideas through a series of committees, such as the IT Directors Forum. On occasion, these groups make recommendations to BTAC for cooperative solutions. However, each Corporate Service Unit is autonomous in terms of setting priorities and delivering service to its client

departments. In addition, none of the Corporate Service Units reports its performance results to BTAC, except when specifically requested to do so for individual projects. We were informed that some report on their performance within their home departments, while others are not required to report anywhere.

5.20 As described above, there are groups in government with a corporate focus relating to IT. These centralized IT management elements include:

- Economic Development's Corporate Information Strategies Division;

- Transportation's Corporate IT Operations;

- Transportation's Network Security function; and

- Finance's SAP Competency Centre.

Some of these groups develop and recommend government-wide standards to BTAC and Executive Council. However, except for those relating to network security, there is no authority for enforcing such standards.

5.21 There is currently a significant reorganization proposal before Executive Council, submitted by the Corporate Information Strategies Division and Service Nova Scotia and Municipal Relations through BTAC. It focuses on extracting IT infrastructure service delivery (i.e., groups supporting IT hardware and software) from the Corporate Service Units and combining the groups with Corporate IT Operations to provide a single, centralized organization for service delivery. This initiative has been under development for several years and, if approved, should go far in standardizing aspects of the IT service delivery role in government.

5.22 We believe there is a need for formal IT governance in the Nova Scotia Government. We are not advising either a fully-centralized or a fully-decentralized model of governance. A combination may be appropriate. However, this is one of a number of governance issues that need to be considered.

Recommendation 5.1
Treasury and Policy Board should create an IT governance framework, based on a generally recognized framework such as COBIT, to plan, direct and control IT in government.

Elements of a Governance Framework

5.23 The IT Governance Institute organizes IT governance issues into five key focus areas: strategic alignment, value delivery, risk management, resource management, and performance management. We examined practices in

each of these areas to determine whether government – despite not having a formal IT governance framework – may have certain elements of governance to support the formation of such a framework.

5.24 *Strategic alignment* – It is vital that the strategic objectives of IT be clearly defined and aligned with enterprise objectives. The IT Governance Institute recognizes strategic alignment as being "*… synonymous with IT strategy, i.e., does the IT strategy support the enterprise strategy?*" This alignment is critical to ensure that IT is doing things that support the organization in the achievement of its goals.

5.25 The risks of having inadequate strategic alignment include the following.

- IT strategic planning may not be adequately aligned with corporate strategy. Without such alignment, an IT group might initiate a project that utilizes corporate infrastructure and human resources that could be better used on another project.

- IT may fail to support corporate objectives. For example, in preparing a disaster recovery plan, IT might plan for restoring systems in a sequence that does not support government's need to maintain services which it believes are of the highest priority.

- Ineffective and uneconomical allocation and management of IT resources could occur. Resources might be expended on making a less critical system function at a high level, while a more significant system functions at a less than acceptable level or an important new system gets delayed.

- Undefined or confusing accountabilities and responsibilities can result. System users and IT staff might each assume that the other is responsible for a function, and this function does not occur. Conversely, they might each assume that they are responsible for a function, and duplication of effort results.

- There may be unclear and conflicting priorities. If corporate IT priorities are unclear, less important projects may be undertaken, while critical new systems get delayed.

- Opportunities for the enhancement of business operations through IT solutions may be missed. If strategic business needs are unclear, IT may not be able to provide creative technology solutions that enable government to meet the needs of important social and other programs.

5.26 We determined that there is no corporate strategic plan for IT. Certain basic elements of a government IT strategic plan were approved in 2001; namely a corporate vision and guiding principles. Economic Development uses these to help guide the projects they undertake. However, these are the only strategic elements in place. By themselves, they do not represent an IT strategic plan.

5.27 As well, there are no departmental strategic plans for IT. In our interviews of Corporate Service Unit staff, some IT Directors indicated it would be very difficult for them to develop an IT strategic plan for their Corporate Service Unit when there is no corporate IT strategic plan to provide direction.

5.28 Further, there is no requirement or process in place to guide the development of an IT strategic plan. There are certain corporate initiatives underway that are of a strategic nature, but their development does not constitute a strategic planning process.   As noted earlier, the Corporate Information Strategies Division in partnership with Service Nova Scotia and Municipal Relations have taken the lead on centralization of IT infrastructure service delivery, currently awaiting Executive Council approval. As well, this Division is leading a corporate project aimed at developing an appropriate enterprise architecture for the Province. These two initiatives represent important foundation pieces which would likely support the future development of a corporate IT strategic plan.

5.29 Given the lack of a corporate or departmental IT strategic plans, we sought to determine how government IT operations ensure they have strategies and priorities that fully support government's corporate priorities. Large IT projects having a cost of more than $250,000 are subject to detailed analysis and evaluation by the Tangible Capital Assets Committee. This includes an assessment of how these projects support government's corporate priorities.

5.30 In addition, we found that strategic alignment is sometimes attempted by making annual departmental business plans consistent with the government's annual corporate business plan. We reviewed the 2007-08 business plan of each department. We found that some departments did a reasonable job of addressing their IT priorities, while others provided little mention of them. However, business plans only provide a one-year focus and, therefore, do not provide a long-term, strategic alignment of IT and departmental priorities with corporate priorities. Also, for the most part, mention of IT in departmental business plans focuses primarily on specific new projects planned for the coming year and gives no attention to the longer-term direction and priorities of IT, or to the actual performance of IT operations.

5.31 Although there is no government-wide IT strategic plan, we found that Economic Development has already developed a corporate *Information Management Strategy and Framework* and there is currently a corporate *Information Management Policy* awaiting approval by BTAC and Executive Council. The *Information Management Strategy and Framework* states:

> *"Improved information management benefits government as it seeks to increase transparency, meet increasingly stringent demands for accountability,*

ensure quality information for business decisions, deliver more services electronically, control and track the proliferation of information sources, and retain corporate knowledge."

5.32   The *Information Management Strategy and Framework* puts in place important strategies and structures, along with key accountabilities and responsibilities related to information management. It also recognizes the importance of IT as a key enabler for information management. However, it does not provide, and is not intended to provide, the required strategic direction for IT. We were informed that, given the strategic plan for information management is now in place, it might be an appropriate time to consider an IT strategic plan. We concurred with this statement and advised that an IT strategic planning process be undertaken.

> **Recommendation 5.2**
> In preparing an IT governance framework, Treasury and Policy Board should establish a strategic planning process to guide the development of a corporate IT strategic plan. Additionally, Corporate Service Units should be required to prepare their own IT strategic plans with direct linkage to the corporate IT strategic plan. This should be based on the principles expressed in COBIT or a similar authoritative framework.

5.33   *Value delivery* – It is very important that the benefits promised by IT projects are achieved, at the expected operating and capital costs. The IT Governance Institute describes value delivery as *"concentrating on optimizing expenses and proving the value of IT"*. In this context, the measurement of value goes well beyond the initial results of IT projects. It extends to the ongoing operational success of IT and its ability to add value to the business applications and processes it serves.

5.34   The risks of inadequate value delivery for IT include the following.

- Expected benefits may not be realized from IT systems and processes. This could mean that a critically important system might not perform key functions, which could impact government's ability to deliver important programs as intended.

- There could be a failure to deliver cost-effective solutions and services, resulting in public funds being wasted.

- There could be a failure to accurately forecast costs and benefits of IT systems. Major IT projects may have to be scaled back due to cost overruns. There may be no funds available to remediate the situation.

- Satisfaction of clients served by IT may be eroded. Dissatisfied clients are less likely to cooperate with IT in the future, so opportunities to use technology to improve government operations may be missed.

- Maintenance and remediation costs may be higher than expected. If a system does not deliver what was promised, there will be constant requests to *"fix"* it.

5.35   We determined there are no corporate standards for assessing value delivery in IT in the Government of Nova Scotia.

5.36   We noted that plans for specific IT projects generally provide a description of expected benefits and a budget for resources required to complete the project. Management indicated that a comparison of actual expenditures to the budget is often performed at the conclusion of a project. This comparison only addresses issues relating to the management of the project. The benefits and costs of the implemented system can only be determined over a period of time and an evaluation of the achievement of these benefits is rarely undertaken. There seems to be a general consensus in the IT industry that such an assessment is the responsibility of the owners of the new system, and not the IT service providers involved in its implementation. We agree, and believe that policies and practices need to be developed to address the assessment of value delivery in IT.

> Recommendation 5.3
> In preparing an IT governance framework, Treasury and Policy Board should develop and implement a policy and process ensuring value delivery for major IT projects. This should be based on the principles expressed in COBIT or a similar authoritative framework and should include determining value measurement standards, developing systems and procedures for obtaining value measures, assigning responsibility for assessing value delivery and taking remedial measures to resolve value deficiencies.

5.37   *Risk management* – It is hard to overstate the importance of the timely identification, understanding and management of risks an enterprise is exposed to by virtue of its use of and dependence on IT. The IT Governance Institute notes that *"effective risk management begins with a clear understanding of the enterprise's appetite for risk"*. It is vital that significant IT-related risks receive the full attention of an organization's Board of Directors and executive management.

5.38   Possible consequences of inadequate risk management for IT include the following.

- IT risks may not be identified and mitigated before a significant malfunction, disruption or security breach occurs.

- Responsibilities and accountabilities for managing IT risks may not be adequately identified and communicated. If it is not clear who is

responsible for managing a risk, there is an increased chance that no one will act to mitigate the risk.

- Critical IT applications and services, and the business operations they support, could fail. Further, if risks are not appropriately prioritized, critical systems might not get the attention they deserve. Resources may be devoted to protecting a low priority system because it is easy to do, while a higher priority system receives fewer resources because associated risks are harder to manage.

- The organization may experience increased costs to manage unanticipated difficulties and fix preventable problems. An unanticipated problem is sometimes hard to address quickly and economically because there is no plan to indicate what should be done.

5.39 We determined that there are no government policies or standards for identifying, assessing and managing IT risks. We are aware of two related projects in progress: government-wide business continuity planning under the leadership of the Emergency Management Office, and government-wide disaster recovery planning under the leadership of the Corporate Information Strategies Division. The government-wide business continuity planning initiative requires all departments to prepare comprehensive plans of how they will attempt to remain operational in the event of a major disruption, such as a natural disaster. This initiative includes disruptions to IT services, but also involves all other major operations of a department. The government-wide disaster recovery planning initiative requires all departments prepare comprehensive plans on how they will reestablish critical IT infrastructure and services on a timely basis in the event of a significant disruption. Both initiatives will result in a consideration of certain IT risks affecting departments. However, risk assessment and management for IT needs to be much more comprehensive, and include such other topics as:

- security threats;

- obsolescence of systems and infrastructure;

- dependence on key staff to understand and operate systems;

- protection of privacy of personal information; and

- accuracy and completeness of information collected and reported by systems.

5.40 We were informed some Corporate Service Units undertake a level of risk management for their own IT operations. In addition, there is a government requirement for an assessment of risks related to the disclosure of personal information for all new IT projects. There are also indications that IT

project proposals submitted to BTAC address risks of conducting or not conducting those projects. However, except for risks related to personal information, there are no standards to ensure that risk analysis is performed on a thorough and consistent basis. In addition, such risk analysis only addresses new projects; not existing operations.

> Recommendation 5.4
> In preparing an IT governance framework, Treasury and Policy Board should develop and implement risk management policies and processes specific to IT. This should include a standard planning template for new projects, as well as an overall methodology for managing risks for all aspects of IT, such as provided in COBIT or a similar authoritative framework.

5.41   *Resource management* – According to the IT Governance Institute *"A key to successful IT performance is the optimal investment, use and allocation of IT resources (people, applications, technology, facilities, data) in servicing the needs of the enterprise."*

5.42   The risks of inadequate resource management for IT include the following.

- An organization may have fragmented, inefficient IT infrastructures. Several IT groups might address a similar need differently, resulting in a duplication of effort. Inconsistencies in systems and equipment could hinder government-wide solutions to critical program needs.

- Infrastructure capacity may not be sufficient. If an IT system does not have all of the equipment and software it requires, unpredictable things can happen. It might not function as intended, slow down, or stop functioning entirely.

- A shortage of needed skills and capabilities could occur. If an IT group has insufficient staff with a needed skill set, it may not be able to provide an adequate level of attention to the systems or new projects that require that skill set. Important systems could be disrupted and projects could fail.

- Important organizational objectives may not be achieved. Inadequate management of IT resources could lead to slow-downs or failures of key systems, which could severely hinder important government programs.

- IT costs may not be optimized. Hardware or software might be procured that is difficult to harmonize with existing systems, resulting in wasted time resolving compatibility issues.

5.43   There are no formal government policies or standards for IT resource management. We noted some government-wide IT resource management

concerns relating to IT equipment, staffing, consistency of IT tools and standards, and project management approaches.

5.44 We observed evidence of deficiencies in the management of IT infrastructure in the case of an inadequate response to increased data storage requirements at the provincial data centre. This has created a significant risk of system malfunctions and inability to recover from a disastrous loss of data. Reasons given for this problem include the decommissioning of the IBM mainframe, new applications with high storage demands and the addition of new features to existing systems that increased storage requirements. These factors have resulted in storage requirements growing at 80% per year. Although government has been aware of the need for additional storage for a long time, it only began to address this issue once the risk it presented became very high.

5.45 The Province's human resource polices apply to all government personnel, including IT staff. However, within the IT community there are some issues that need to be addressed. Position classifications differ across Corporate Service Units so that in some cases a staff member is regularly advising or directing staff members at other Corporate Service Units who are classified at a higher rating than they are. We also noted that IT directors are not always in the same position in departmental organizations. Some IT directors report directly to deputy ministers, while others report to executive directors who in turn report to a deputy minister.

5.46 It is now a reality in most businesses and governments that the demand for skilled and experienced IT workers is highly competitive. This has caused difficulty in obtaining and retaining qualified staff. Management at some Corporate Service Units noted that recent job postings resulted in no, or very few, qualified applicants. An initiative entitled IT/IM HR Strategy was launched earlier this year at the request of the IT Directors Forum. This is a joint initiative between Economic Development and the Public Service Commission, with the chair of BTAC as the corporate sponsor. The purpose of this initiative is to examine, at a corporate level, human resource issues specific to the IT community.

5.47 As mentioned above, there is a lack of consistency across the Corporate Service Units in terms of tools and practices used. This makes it very difficult to develop accurate benchmarks necessary for an assessment of service delivery. We noted that some Corporate Service Units have already adopted an internationally recognized service delivery methodology called the Information Technology Infrastructure Library. This methodology is highly regarded throughout the worldwide IT community. We also understand that if the centralization of the service delivery component of IT is approved, this methodology will be used.

5.48 We found there are a variety of project management methodologies used by Corporate Service Units in the planning and implementation of IT projects. Some are using the Project Management Institute's methodology; others use another recognized project management methodology; while some have developed their own methodologies. We believe there should be a government-wide standard established for managing significant IT projects.

> Recommendation 5.5
> In preparing an IT governance framework, Treasury and Policy Board should establish an appropriate governance structure to manage IT resources. This should be based on the principles expressed in COBIT or a similar authoritative framework.

5.49 *Performance management* – Performance management focuses on maintaining the effectiveness of IT by tracking the delivery of IT projects, as well as measuring and monitoring the continued provision and results of IT services. The IT Governance Institute states *"In IT, if you are playing the game and not keeping score, you are only practicing."* This quote serves to emphasize that effective performance measurement is at the heart of performance management.

5.50 The risks of inadequate performance management for IT include the following.

- IT systems and processes may fail to meet business requirements. Government may not be able to provide all the programs and services planned.

- It may be difficult to determine if IT objectives are being achieved. For example, if a new system was justified on the basis of increased reliability, it would be impossible to determine if reliability has improved if down-time is not measured.

- Performance deficiencies may not be identified on a timely basis, resulting in a delay in recognizing the problem and developing a solution.

- The effectiveness of key IT decisions cannot be assessed. For example, without accurate performance management, government cannot determine if the acquisition of a particular new system was a good or bad decision. Bad decisions may be repeated.

- Wrong decisions could be made based on inaccurate performance information. If a new system has problems, inaccurate performance information may result in ineffective or uneconomical solutions.

5.51 We determined that there are no government standards established for IT performance management. Without such standards there is no way to

ensure that appropriate issues are identified and brought to the attention of management. We found two particular examples of concern arising from the absence of performance management standards.

5.52   The first matter relates to reporting. One of the key components of performance management is the definition of performance reporting standards. We noted that there is some ad hoc reporting, both within departments and Corporate Service Units, as well as to BTAC. However, such reporting does not address the ongoing operation of existing IT systems and services.

5.53   The second matter relates to a lack of consistency in performance measurement. For example, we found that all Corporate Service Units have implemented problem tracking systems. However, the systems used are not consistent across government and, accordingly, the information obtained and used for management purposes is not consistent. This lack of consistency is due, in part, to the lack of a governance structure with authority to define and enforce system standards. This means that it is impossible to determine, on a government-wide basis, the quality of IT service provided in problem resolution. We do note, however, that the centralization of service delivery, if implemented, should address the consistency issue in performance measurement for problem solving. However, appropriate standards will still need to be established for all other aspects of IT.

Recommendation 5.6
In preparing an IT governance framework, Treasury and Policy Board should establish an appropriate governance structure to manage IT performance. This should be based on the principles expressed in COBIT or a similar authoritative framework.

Response: Treasury and Policy Board

The Treasury and Policy Board would like to thank the staff of the Auditor General for their courtesy and professionalism while conducting the government-wide audit of the Governance of Information Technology Operations.

Our current IT Governance has enabled us to achieve results for which we are perceived as public sector leaders by other jurisdictions. However, Treasury and Policy Board recognizes that as government's use of and dependence on IT has increased, it is important to continually align our IT Operations with an effective framework for IT governance to ensure successful delivery and control. This becomes more important with an increase in the level of shared services, systems and processes, as well as increased integration.

The basic elements of an IT strategic plan are in place, as a vision and guiding principles for Technology and Information were developed through the Business and Technology Strategy in 2000. This foundation has helped us to progress our use of shared services, systems, and processes across government.

Nova Scotia is considered a world leader in the delivery of back office shared services. There are a number of examples of shared services models within the Government of Nova Scotia, such as the SAP Customer Competency Center, that provides support to not only the Province, but to the School Boards, municipal sector, and other clients. We have received world wide recognition for our shared services models through Gartner Research, who published an article on the Nova Scotia shared services model.

Nova Scotia is highly respected by our peers for the work being done to share systems and business processes, and to integrate across business areas. The Department of Justice is recognized as a leader in the area of integrated justice, through their JEIN system, and Community Services for their Integrated Case Management system. The efforts in shared systems and business processes extends across levels of government with such systems as the Nova Scotia Business Registry developed by Service Nova Scotia and Municipal Relations.

Nova Scotia is also recognized as a public sector leader in implementing common business practices and systems across sectors, utilizing a standardized back office system across the Province, the School Boards and in the Health sector.

Health has been able to implement standardization across the province in their clinical systems through Meditech and have successfully implemented Picture Archiving and Communications from one end of the province to the other allowing health care professionals to share high-quality, digital, diagnostic images. There are many more such initiatives planned or underway. An effective framework for IT governance will ensure that we will continue to be successful.

The Auditor General's six recommendations are accepted in principle. The results of the audit will be forwarded to the Business Technology Advisory Committee (BTAC), a Deputy Minister sub-committee of Treasury and Policy Board, for their review and follow-up. The Corporate Information Strategies Division of Economic Development, as secretariat support to BTAC, will investigate the COBIT governance framework in order to provide advice to BTAC as they determine next steps.