

# InterPARES 3 Project

International Research on Permanent Authentic Records in Electronic Systems  
TEAM Canada

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## 1. SCOPE AND PURPOSE OF STUDY

**1.1** The scope of the study of Canadian public sector audits was established by three main areas of investigation. The first focused on audits of recordkeeping programs and services. The second looked for audits where reports addressed how the presence (or absence) of reliable records helped (or hindered) the audit. The third area examined audits of information systems, in particular their development and use.<sup>1</sup> The audit reports reviewed will address three questions drawn from the research questions outlined in the InterPARES 3 Project Proposal.<sup>2</sup>

Question 1: Which common or consistent messages emerge from a review of audit reports of publicly supported archives and recordkeeping programs? That is, in a time of technological change, what are auditors looking for and commenting on in their assessments? This question is especially relevant to the second part of InterPARES 3 research question #1:

1. Which are the regulatory, auditing and policy making bodies that need to be sensitized to the importance of digital preservation, and what are the best ways of influencing them?

Question 2: What messages, if any, about technology and the preservation of digital records emerge in audit reports about other programs? That is, what observations do auditors make about what helped or hindered their conduct of a program audit? Answers to this question should contribute to addressing InterPARES 3 research questions #6 and #7:

6. What are the nature and the characteristics of the relationship that each of these archives or programs should establish with the creators of the records for which it is responsible?
7. What kind of policy, strategy and procedures should any such archives or program have in place to be able to control the digital records for which it will be or already is responsible from creation to preservation, and on what factors are these administrative devices dependent (e.g. a specific accountability framework and governance structure)?<sup>3</sup>

Question 3: What messages relevant to recordkeeping, if any, emerge about information technology implementations in audit reports, including how many resources (including financial resources) are invested in new technologies and what observations are made on the returns on those investments? Answers to these questions will contribute to addressing InterPARES 3 research questions #7 (see above) and #13:

13. How can records professionals keep their knowledge of digital preservation up-to-date in the face of ongoing and increasingly fast technological change?

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<sup>1</sup> Complete details of the scope and purpose of the study are set out in Jim Suderman (2010), "General Study Research Proposal Public Sector Audit Reports on Digital Recordkeeping Version 1.4, July 2010" published on the restricted Researchers' part of the InterPARES website.

<sup>2</sup> See Luciana Duranti (2007), "Theoretical Elaborations into Archival Management in Canada (TEAM Canada): Implementing the theory of preservation of authentic records in digital systems in small and medium-sized archival organizations," SSHRC CURA InterPARES Project Proposal", pp. 15-16.

[[http://interpares.org/display\\_file.cfm?doc=ip3\\_detailed\\_project\\_proposal\\_v1-0.pdf](http://interpares.org/display_file.cfm?doc=ip3_detailed_project_proposal_v1-0.pdf), checked 20 November 2011.]

<sup>3</sup> Ibid.

Findings of the audit study as expressed in responses to the three questions explored will help address at least the following three research objectives of the InterPARES project:

1. to promote an environment supportive of the research goal by demonstrating to regulatory and auditing bodies and to policy makers that it is essential to integrate digital records preservation requirements in any activity that they regulate, audit or control;
9. to create evaluation models capable of measuring the success of the preservation solutions that have been proposed and implemented; and
13. to establish a strong network of research and education on digital preservation that is deeply rooted in the various communities served by each of its partners, and that integrates academic work with social and community action

In all, 113 reports, dating from 2001 to 2010 were identified and reviewed for this study, including 12 federal, 53 provincial, 28 municipal, and 20 from the broader public sector (mainly from the fields of health and education). See Appendix A for the inventory of reports, including URLs.

## **1.2 ELECTRONIC HEALTH RECORD IN CANADA – BACKGROUND**

The Electronic Health Record (EHR) initiative was clearly of interest to federal and provincial auditors both on the basis of its scale and its multi-jurisdictional aspects as the scope of this research included auditors' reports from the federal and 6 provincial governments. This initiative is clearly relevant to research into the creation, maintenance, and preservation of digital records because it involves the transmission of authentic, reliable, and accurate information across space, i.e., across systems and jurisdictions, and time, i.e., presumably at a minimum the lifespan of the individual to which the records pertain. For that reason, and because of the particular interest of public sector auditors in this initiative, the EHR audit reports are addressed in this separate section. The Electronic Health Record (EHR) is an initiative of Canada Health Infoway Inc.

Canada Health Infoway is an independent not-for-profit corporation created by Canada's First Ministers to foster and accelerate the deployment and use of interoperable electronic health information systems. Infoway and all levels of government in Canada have committed to provide the residents of Canada and their health care providers timely, appropriate and secure access to the right information when and where they enter into the health care system.<sup>4</sup>

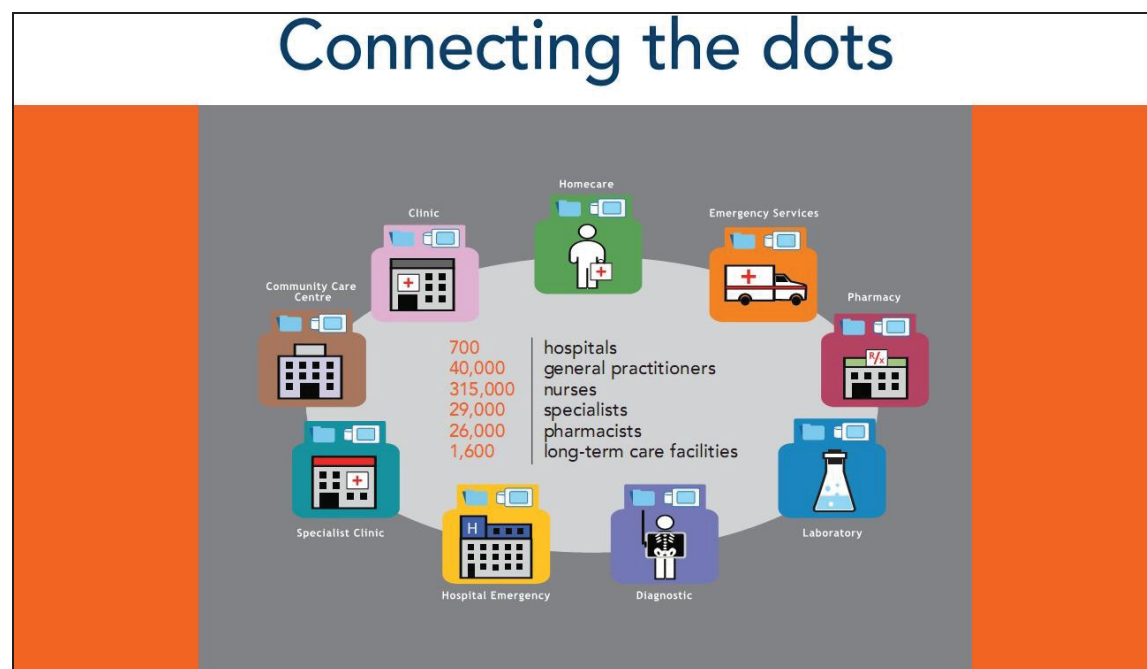
EHR is a federal initiative involving all provincial and territorial jurisdictions with a combined estimated expenditure of up to \$4 billion. The inclusive scope of the EHR initiative is shown in Illustration 1.

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<sup>4</sup> Canada Health Infoway. *2011-2012 Summary Corporate Plan*, p. 1. ([https://www2.infoway-inforoute.ca/Documents/Infoway\\_Sum.Corp.Plan.2011-2012\\_EN.pdf](https://www2.infoway-inforoute.ca/Documents/Infoway_Sum.Corp.Plan.2011-2012_EN.pdf), checked 9 April 2011.)

Infoway defines an electronic health record as “a secure, integrated and comprehensive view of a person’s health information generated through a person’s interactions with the health care system.”<sup>5</sup>

Illustration 1<sup>6</sup>



### 1.3 SUMMARY OF EHR AUDIT REPORTS

The federal Auditor General’s report identifies five challenges to meeting the EHR objectives that are directly relevant to this study.<sup>7</sup> These are

1. compatibility of systems and information across all Canadian systems;
2. implementing computerized systems in doctors’ offices;
3. availability of consumer health solutions;
4. sharing personal health information;
5. funding.

The Auditor noted that some completed EHR projects have not “implemented the standards required for national compatibility.” (p.11) One explanation is the absence or late development of provincial strategies that extend the EHR initiative to the broader public sector including regional health authorities and hospitals. For example, “Ontario only finalized its strategic plan in 2009, after nearly a

<sup>5</sup> 2011-2012 Summary Corporate Plan, p. 1.

<sup>6</sup> “Connecting the dots” special information supplement from the Globe and Mail, 30 November 2007. [\[https://www2.infoway-inforoute.ca/Documents/canadainfoway\\_report%5B1%5D.pdf\]](https://www2.infoway-inforoute.ca/Documents/canadainfoway_report%5B1%5D.pdf)

<sup>7</sup> Quotations in this section are taken from the 2010 April Report of the Auditor General of Canada, unless otherwise cited. Page references, indicated in parentheses, are taken from the PDF version of the report. ([http://www.oag-bvg.gc.ca/internet/docs/parl\\_oag\\_201004\\_07\\_e.pdf](http://www.oag-bvg.gc.ca/internet/docs/parl_oag_201004_07_e.pdf), checked 10 April 2011.)

decade of effort toward creating an EHR.” (p.7) The Auditor’s report also noted that “the focus for the provinces is to ensure compatibility within their jurisdictions,” (p.8) i.e., not necessarily with health information systems in other provinces or territories.

The means to implement a comprehensive EHR are compatible in institutional settings such as hospitals and laboratories but less so with doctors outside institutional settings, which accounts for “about 80 percent of patient encounters with the health care system” according to Infoway’s own estimate. Without a significant increase of computerized systems by doctors the benefits of EHR will not be fully achieved. This suggests that the EHR strategies and the systems and standards being considered are not accounting for the nature of the most fundamental and common activities and processes of providing health care.

The Report notes a variation on the potential for system or information incompatibility arising from the availability of “new health information systems that allow patients direct access to and control over their personal health information.” (p.11) No examples of such systems are provided, but these may include freely available systems such as Google Health which, like the EHR initiative, has a comprehensive and patient-centric approach to health information, including controls over sharing it.<sup>8</sup>

The “differences in provincial and territorial laws regarding the collection, use, protection, and disclosure of personal health information” (p.11) until resolved will hamper the information-sharing envisioned as part of the EHR. This observation highlights the challenges and risks in leading a record creation and record keeping initiative with technology. The development of standards for the exchange of information and the involvement of provincial and territorial ministers and deputy ministers may gradually bring about a more normalized statutory environment across Canada.

The EHR initiative is expected to “generate approximately \$6 billion in annual benefits” at a total implementation cost of \$10 billion to implement and \$1.5 billion to operate annually.<sup>9</sup> These figures represent investments in a record keeping infrastructure on a scale and scope not usually adopted by records keepers. Also, as already noted above, the initiative requires complex planning and coordination beyond the capability or mandate of any participating institution, so it is not surprising that an autonomous corporation was established solely to oversee it.

A number of themes emerged from the review of audit reports of the EHR initiative, including

- a lack of monitoring or inconsistent monitoring of user access to the systems in terms of the currency of users authorized to access the system (Alberta, Nova Scotia);<sup>10</sup>

<sup>8</sup> Google. “About Google health” (<http://www.google.com/intl/en-US/health/about/>, checked 10 April 2011). Note that currently Google Health is only available to residents of the United States. (Google Health Terms of Services, [http://www.google.com/intl/en\\_us/health/terms.html](http://www.google.com/intl/en_us/health/terms.html), checked 10 April 2011).

<sup>9</sup> 2011-2012 Summary Corporate Plan, p.1.

<sup>10</sup> The Auditor General of Nova Scotia felt that the poor control over access rights was sufficiently serious as to recommend to the Department of Health that “it be addressed before the SHARE [Secure Health Access Record] system is operational. Due to the nature of this issue, our finding is not detailed in this Chapter.” Nova Scotia. “Report of the Auditor General (February 2010),” para. 2.57, p.24. [<http://www.oag-nb.ca/feb2010/full0210.pdf>, checked 20 November 2011.]

- an absence of an integrated delivery plan linking the segments of the project's implementation with the project priorities (Alberta, Nova Scotia, Prince Edward Island, Saskatchewan);
- cost monitoring (Alberta, Nova Scotia, Prince Edward Island, Saskatchewan);

The relationship of these findings to the InterPARES research questions is found in section 3.2, below.

## 2. FINDINGS

This study's findings are organized by the three study questions showing references in reverse chronological order, i.e., most recent references are shown first. The consistent "messages" sought are represented by quoted recommendations and statements from the audit reports examined.

**2.1** Which common or consistent messages emerge from a review of audit reports of publicly supported archives and recordkeeping programs? That is, in a time of technological change, what are auditors looking for and commenting on in their assessments?

The study did not define archives and recordkeeping programs in a narrow sense because there were only five reports identified in the past ten years in the 19 jurisdictions examined.<sup>11</sup> With one exception, no reason was identified for such a relatively few audits among the reports reviewed. It was speculated that the small number of reports for archival and records management programs may be because:

- the accountability role played by such programs and, by extension, the services they provide may be significantly less, at least in the perception of Canada's audit community, than the leaders of such programs have sometimes claimed;
- the primary interest of the auditors focuses on the capacity of the programs to fulfil their mandates, e.g., ensure that records are disposed of in accordance with retention schedules or ensure that records are securely stored rather than to ensure effective record keeping practices across a parent organization;
- the small size of the programs: "The Provincial Archives of New Brunswick (PANB) has never been the subject of an audit by our Office. Based solely upon its expenditures, we would probably not choose to conduct an audit of this organization."<sup>12</sup>

Five reports were too few on which to base meaningful responses to the study's question. An extension of the timeline for additional audits was rejected on the basis that earlier audits would be even less likely to address digital record keeping issues. Instead, the study adopted a broader range of reports that focused on maintaining information, records and the infrastructure that supports the integrity of information and records, such as "The Management of the Social Insurance Number" by the Auditor

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<sup>11</sup> Controls over records management" Alberta Investment (2008); Archives of Ontario (Ontario, 2007); Document management practices (Ville de Québec, 2006); Records management program (Calgary, 2005); Provincial Archives (New Brunswick, 2001).

<sup>12</sup> Auditor General of New Brunswick, "Department of Supply and Services - Provincial Archives of New Brunswick," *Report of the Auditor General* (2001), section 8.1, p.173 [<http://www.gnb.ca/oag-bvg/2001/agrep01e.pdf>, checked 23 December 2011].

General of Canada (AGC) or the "Governance of Information Technology Operations" by the Auditor General of Nova Scotia (AGNS). The basis for broadening the scope of the reports reviewed in relation to this section is that record keeping is not an end in itself, i.e., record keeping programs are not established and maintained by public sector organizations for the sake of creating and maintaining records but rather for the aspects of accountability that records enable. Therefore, reviewing how records are created and maintained by organizations other than archives programs, for example, reflect on the overall understanding and application of record keeping concepts.

In all, twenty-one reports (6 federal, 8 provincial, and 7 municipal) were reviewed in connection with the first study question. Four consistent themes emerged from reports, summarized by the researchers as follows:

- a. Security and access – issues where the governing agency was unaware of who had access to what information usually through an absence of procedures or oversight;
- b. Performance measures (also referred to in some reports as "management information") – refers to an absence of measures to indicate achievement of or progress toward identified goals;
- c. Gap between policy and practice – reports often noted the presence of appropriate policies, e.g., around security and access, but the policies were not implemented or there was no oversight of their implementation;
- d. Inadequate governance – referring to investments in information technology that were unsustainable or appeared to be uncoordinated.

These themes overlap. For example, the reports frequently showed that access procedures and policies were not followed by the audited entity. The frequency with which security and access issues were identified seemed to warrant separation of this theme from the more inclusive theme of a gap between policy and practice. Similarly, reports noting an absence of performance measures may also note poor governance or oversight of the subject of the audit.

The detail provided by audit reports generally took the form of stating a number of facts and did not provide any analysis that spoke to considerations such as the authenticity, integrity, and accuracy of digital records or their management and preservation. In effect, there was usually just enough detail to provide the basis for the auditor's recommendations. That is, the focus of the audits were not on the records themselves but rather on the delivery of a service, e.g., oversight of food services, or handling of a type of information, e.g., social insurance number. While auditors rely on records to help them judge the effectiveness and efficiency of a program, they do not assess or authenticate records as records. Rather, auditors assess the weight of information found in records by whether it appears to be supported in practice as determined through interviews and a review of procedure manuals, for example.

The following sub-sections simply quote relevant recommendations or other observations from the reports to enable the reader to assess consistency from one jurisdiction to another and to provide a flavour of the reports.

### **2.1.a. Security and access**



We recommended management schedule and implement a formal periodic user review, performed at least annually, as a means to validate the on-going appropriateness of all users' access within the database and the application.

*New Brunswick , Auditor General (2009), 2009 Auditor General's Report, Vol. 2, p. 114*  
[<http://www.qnb.ca/oag-bvg/2009v2/chap5e.pdf>, checked 28 December 2011]

Security access controls to the POSSE system did not comply with the City's guidelines for securing access to information systems. These guidelines require that user passwords have minimum lengths and expiry dates. Instances were also noted where valid passwords existed for employees who were no longer employed with the City.

*Calgary, City Auditor (2008), Audit Report 08-01 Public One Stop Service (POSSE) System, p. 6*  
[[http://www.calgary.ca/Auditor/Documents/City-Auditor-reports/AC2008-30\\_Att.pdf](http://www.calgary.ca/Auditor/Documents/City-Auditor-reports/AC2008-30_Att.pdf), checked 28 December 2011]

We also recommend that the Direction des technologies de l'information of the Service des affaires corporatives implement the following security policies for all e-mail servers and look into the possibility of applying them to all the organization's servers:

- a) Password strategy;
- b) Requirements for complex passwords;
- c) Strategy for locking accounts;
- d) Audit strategy.

*Montreal, City Auditor (2006), Report of the City General Auditor to the Conseil Municipal and to the Conseil D'Agglomeration, p. 38*  
[[http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur\\_fr/media/documents/RapportAnnuel2006\\_en.pdf](http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_fr/media/documents/RapportAnnuel2006_en.pdf), checked 28 December 2011]

We recommend that the Department of Agriculture, Food and Rural Development improve its food safety information systems. This includes:

- Improving security and access controls;
- Ensuring complete, timely, and consistent data collection; and
- Ensuring data gets onto the computerized data base.

*Alberta, Annual Report of the Auditor General of Alberta (2005-2006), Vol. 1, p. 94*  
[<http://www.oag.ab.ca/files/oag/ar2005-06volume1.pdf>, checked 28 December 2011]

We observed that there is currently no overall strategy for identifying, disseminating or properly resolving security breaches or cases of non-compliance with the laws governing commercial transactions.

*Montreal , City Auditor (2005), Report of the City General Auditor to the Conseil Municipal, p. 60*  
[[http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur\\_en/media/documents/RapportAnnuel2005\\_en.pdf](http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_en/media/documents/RapportAnnuel2005_en.pdf), checked 28 December 2011]

#### **2.1.b. Performance measures**

Human Resources and Skills Development Canada, Public Works and Government Services Canada, Citizenship and Immigration Canada, and the Royal Canadian Mounted Police should develop an action plan for each significant aging IT risk. The plans should include specific

strategies, key activities, deliverables, and timelines to manage these risks. These entities should report progress regularly to senior management. [governance?]

*Canada, Report of the Auditor General of Canada to the House of Commons (Spring 2010), "Aging Information Technology Systems," chapter 1, p.20-21 [[http://www.oag-bvg.gc.ca/internet/docs/parl\\_oag\\_201004\\_01\\_e.pdf](http://www.oag-bvg.gc.ca/internet/docs/parl_oag_201004_01_e.pdf)], checked 28 December 2011]*

For future editions of Healthy Canadians, Health Canada should include interpretive information to help Canadians understand what the health indicator data mean as well as how health care renewal is progressing.

*Canada, Report of the Auditor General of Canada to the House of Commons (Dec 2008), "Reporting on Health Indicators – Health Canada," chapter 8, p.14 [[http://www.oag-bvg.gc.ca/internet/docs/parl\\_oag\\_200812\\_08\\_e.pdf](http://www.oag-bvg.gc.ca/internet/docs/parl_oag_200812_08_e.pdf)], checked 28 December 2011]*

[Recommendations 12 – 14] The Director of Internal Services should develop a security awareness and training strategy to improve staff's understanding of the security directives.

The Director of Internal Services should develop a formal security awareness and training calendar, facilitating continued enforcement of security throughout the organization.

The Director of Internal Services should obtain regular feedback (for example, through use of periodic information security staff surveys) to assess the level of understanding by City employees of the directives, and thus measure the state of security awareness and training needs.

*Winnipeg, Audit Department (June 2008), "Assessment of Information Security Awareness" pp. 19-20 [<http://winnipeg.ca/audit/pdfs/reports/ITSecurityAwareness.pdf>], checked 28 December 2011]*

In order to favour the uniform interpretation of the concepts underlying the classification of client enquiries, promote consistency in the way enquiries are handled and ensure the production of reliable, comparable management information, we recommend that the management of the Service des communications et des relations avec les citoyens take the necessary measures to incorporate a precise definition of each type of enquiry covered by the CEM system into the corporate frameworks and user guide.

*Montreal, City Auditor (2007-2008), Report of the City General Auditor to the Conseil Municipal and to the Conseil D'Agglomération, p. 60 [[http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur\\_en/media/documents/RapportAnnuel2007\\_en.pdf](http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_en/media/documents/RapportAnnuel2007_en.pdf)], checked 28 December 2011]*

### 2.1.c. Policy and practice gap

We recommend that the project team assigned to the implementation of the e-Cité/311 network continue their work to present a series of corporate frameworks for approval by the Director General as soon as possible, in order to help achieve the established objectives and translate policy into day-to-day activities. These frameworks will need to designate the business unit responsible for its implementation, monitoring and assessment.

*Montreal, City Auditor (2007-2008), Report of the City General Auditor to the Conseil Municipal and to the Conseil D'Agglomération, p. 46*

[\[http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur\\_en/media/documents/RapportAnnuel2007\\_en.pdf\]](http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_en/media/documents/RapportAnnuel2007_en.pdf), checked 28 December 2011]

We recommend that the regional health authorities, supported by the Department of Health and Wellness, improve their automated food safety information systems. This includes:

- Enhancing system management, security, and access control;
- Ensuring data consistency;
- Ensuring that service level agreements are in place;
- Developing reporting capacity for management and accountability purposes.

*Alberta, Annual Report of the Auditor General of Alberta (2005-2006), Vol. 1, p. 84*  
[\[http://www.oag.ab.ca/files/oag/ar2005-06volume1.pdf\]](http://www.oag.ab.ca/files/oag/ar2005-06volume1.pdf), checked 28 December 2011]

According to ITS, at the time of the audit, there were 7 million electronic records on various shared drives which may need to be classified... 889,000 records did not have information in a required data field, the majority of which resulted when departments downloaded information from their operating systems to iRIMS. This has been addressed for future downloads, but existing errors have yet to have an action plan developed.

*Calgary, City Auditor (Mar 2005), Audit Report 04-16 Corporate Records Management Program, p. 8*  
[\[http://www.calgary.ca/Auditor/Documents/City-Auditor-reports/AR04-16.pdf\]](http://www.calgary.ca/Auditor/Documents/City-Auditor-reports/AR04-16.pdf), checked 28 December 2011]

The Treasury Board Secretariat should monitor departments to determine whether they are carrying out timely audits and other IT security monitoring activities.

*Canada, Report of the Auditor General of Canada (Feb 2005), "Information Technology Security," chapter 1, p.19*  
[\[http://www.oag-bvq.gc.ca/internet/docs/20050201ce.pdf\]](http://www.oag-bvq.gc.ca/internet/docs/20050201ce.pdf), checked 28 December 2011]

#### **2.1.d. Governance**

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.

*Nova Scotia, Auditor General (Feb 2008), Report of the Auditor General, p. 82*  
[\[http://www.oag-nb.ca/feb2008/2008febaq.pdf\]](http://www.oag-nb.ca/feb2008/2008febaq.pdf), checked 28 December 2011]

The Bylaw assigns responsibilities to City Clerks, ITS and Business Units for a number of common tasks, which require close working association between the Units. However, business unit record coordinators often lack the authority and mandate to fulfill the described responsibilities. As well, mutual responsibility for tasks has resulted in tasks not being completed.

*Calgary, City Auditor (Mar 2005), Audit Report 04-16 Corporate Records Management Program, p. 8*  
[\[http://www.calgary.ca/Auditor/Documents/City-Auditor-reports/AR04-16.pdf\]](http://www.calgary.ca/Auditor/Documents/City-Auditor-reports/AR04-16.pdf), checked 28 December 2011]

**2.2** What messages, if any, about technology and the preservation of digital records emerge in audit reports about other programs? That is, what observations do auditors make about what helped or hindered their conduct of a program audit?

Potentially every audit report might say something relevant to this question. Two general criteria were set for selecting reports:

- Report titles suggesting more of a lifecycle consideration of information, e.g., "IT Business Continuity Plans" (Calgary);
- Report titles suggesting data or other record content problems, e.g., "Audit of the IT Processes of the Computerized Financial System" (Ottawa)

Using these criteria, eighteen reports (1 federal, 10 provincial, and 7 municipal) were found to be relevant in some way to the second study question. Only in one of the reports examined explicitly stated that

In the absence of reliable performance measures and costs relating to IT services for periods before and after consolidation, we are not able to determine whether at March 31, 2008, the Information Technology Office had improved information technology (IT) services through consolidation and provided those services at a lower cost.<sup>13</sup>

For the most part these reports contained statements that continue three of the four (excluding 'Performance measures') themes identified in connection with Study Question 1. Two additional themes emerged, Accountability and Accuracy and are included in the summary of themes for Study Question 2, below:

- a. Security and access – issues where the governing agency was unaware of who had access to what information usually through an absence of procedures or oversight;
- b. Gap between policy and practice – reports often noted the presence of appropriate policies, e.g., around security and access, but the policies were not implemented or there was no oversight of their implementation;
- c. Inadequate governance – referring to investments in information technology that were unsustainable or appeared to be uncoordinated;
- d. Accountability – addresses implementation matters including failure to address existing recommendations. Issues raised in this context are often closely linked to expenditures.
- e. Accuracy – addresses records that lack essential data, i.e., are incomplete, or contain inaccurate data, compromising the reliability of the records.

### **2.2.a. Security and access**

We recommend that the Service des finances periodically review, validate and document the access granted to the application for all stakeholders, particularly those not belonging to this division [i.e., Service des finances].

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<sup>13</sup> Saskatchewan, Provincial Auditor, 2009 Report, "Information Technology Office." Volume 1, chapter 7, p. 97 [[http://www.auditor.sk.ca/saskrepnew.nsf/html/2009vol1index.html/\\$FILE/2009vol1fr.pdf](http://www.auditor.sk.ca/saskrepnew.nsf/html/2009vol1index.html/$FILE/2009vol1fr.pdf), checked 30 December 2011]

*Montreal, City Auditor (2005-2006), Report of the City General Auditor to the Conseil Municipal,*  
p. 15

[[http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur\\_en/media/documents/RapportAnnuel2005\\_en.pdf](http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_en/media/documents/RapportAnnuel2005_en.pdf), checked 29 December 2011]

## 2.2.b. Policy and practice gap

### Backup and Recovery

There could be instances where either not all critical information is being backed up or storage media and devices may not be useable in the event of a fire or other disaster. This situation results because of the following issues:

- There were no Disaster Recovery Plans in place for 538 (96%) of the 559 Government supported applications. Disaster Recovery Plans were in place for only 21 (4%) of the 559 applications. These 559 applications relate to non-mainframe services which include about 98% of all Government services. As a result, Government systems, data, and services may not be available in the event of a disruption, emergency or disaster.
- Data backups for OCIO managed servers are not kept in a fireproof environment as required by OCIO policy.
- Backups were not tested in six month intervals from the date of first use as required by OCIO policy.
- There are no documented procedures to direct the daily backup of computer systems and storage of backup media. OCIO officials indicated that several documents are in draft form.
- There is no well defined process in place to ensure that clients identify and store on OCIO managed servers, all information considered critical for their continued operation. OCIO clients are responsible for ensuring that they place information in need of backup services on OCIO managed servers.
- The listing of OCIO supported applications provided at 31 March 2008 was not accurate. As a result, there may be computer applications in use in various locations that have not been identified and are not supported by the OCIO. Therefore, the confidentiality, integrity of systems and data related to these applications may not be adequately protected.

...OCIO should ensure:

- the Information Management Policy Framework is developed,
- approved and communicated; and
- compliance with records management standards.

*Newfoundland and Labrador, Office of the Auditor General, "Report of the Auditor General to the House of Assembly" (2008), chapter 2, pp. 38-39, 54.*

[<http://www.aq.gov.nl.ca/aq/annualReports/2008AnnualReport/AR2008.pdf>, checked 29 December 2011]

The City currently has no corporate-wide business continuity plans in place for information technology... Although four of seven applications reviewed had some form of a disaster recovery plan, they were inadequate to ensure efficient recovery of critical IT information and resumption of normal operations from major system failures or disasters.

...Where disaster plans were established, most had not been tested periodically and comprehensively for reliability and had become outdated and irrelevant.

*Calgary, City Auditor (May 2005), Audit Report 05-05 IT Business Continuity Plans, p. 5, 13*  
[\[http://www.calgary.ca/Auditor/Documents/City-Auditor-reports/AR05-05.pdf\]](http://www.calgary.ca/Auditor/Documents/City-Auditor-reports/AR05-05.pdf), checked 29 December 2011]

## 2.2.c. Governance

We identified the following:

- Officials at OCIO informed us that they are only beginning to plan for retention schedules because to-date the emphasis has been on developing and implementing information classification plans;
- The OCIO has not begun to transfer records to the Provincial Archives. Officials indicated that once it begins work on retention schedules it will work closely with the Provincial Archives to develop archival appraisal of its records; and
- OCIO officials indicated that, although not incorporated now, these standards are expected to be incorporated into OCIO's information management policy framework.

*Newfoundland and Labrador, Office of the Auditor General, "Report of the Auditor General to the House of Assembly" (2008), chapter 2, pp. 53-54.*  
[\[http://www.aq.gov.nl.ca/aq/annualReports/2008AnnualReport/AR2008.pdf\]](http://www.aq.gov.nl.ca/aq/annualReports/2008AnnualReport/AR2008.pdf), checked 29 December 2011]

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.

... Additionally, there is no formally established and appropriately empowered oversight body responsible for monitoring corporate IT performance and control.

*Nova Scotia, Auditor General (Feb 2008), Report of the Auditor General, p. 71* [\[http://www.oag-nb.ca/feb2008/2008febag.pdf\]](http://www.oag-nb.ca/feb2008/2008febag.pdf), checked 29 December 2011]

We recommend that the Direction des technologies de l'information of the Service des affaires corporatives take part in identifying a trustee (owner) for each of the applications so that an intervenier can legitimately make decisions about changes made to these assets.

*Montreal, City Auditor (2007-2008), Report of the City General Auditor to the Conseil Municipal and to the Conseil d'Agglomération, p. 33*  
[\[http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur\\_en/media/documents/RapportAnnuel2007\\_en.pdf\]](http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_en/media/documents/RapportAnnuel2007_en.pdf), checked 29 December 2011]

Implement the recommendations related to governance applying to all the computer centres:

- Appoint a person in charge for each of the computer centres, with full responsibility for the physical security of all facilities and all changes to the centre's infrastructure;
- Define the frameworks, policies and guidelines for the design, layout and management of the computer centres;



- Conduct a review of the computer centres for the entire City and audit each centre to determine: the state of the centre, the importance of its information and processing, the inventory of equipment, infrastructures, and the like;
- Document crisis response procedures and ensure the ongoing training of computer centre staff to cope with potential threats;
- Audit the computer centres on a regular basis (at least yearly) with feedback on results.

*Montreal, City Auditor (2006-2007), Report of the City General Auditor to the Conseil Municipal and to the Conseil d'Agglomération, p. 47-48*  
[\[http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur\\_fr/media/documents/RapportAnnuel2006\\_en.pdf\]](http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_fr/media/documents/RapportAnnuel2006_en.pdf), checked 29 December 2011]

## 2.2.d. Accountability

Nous avons recommandé au ministère :

- de s'assurer que tous les coûts du Dossier de santé du Québec ont été estimés et qu'ils prennent en compte les changements apportés à l'échéancier et à la portée des différents projets, notamment des sommes prévues pour les contingences;
- de vérifier que le financement est disponible en temps opportun pour l'ensemble des coûts essentiels au bon fonctionnement du Dossier de santé du Québec.

*Québec, Vérificateur général du Québec, Rapport à l'Assemblée nationale pour l'année 2009-2010, Tome I, chapitre 6, Vigie relative au projet Dossier de santé du Québec, p.6-6*  
[\[http://www.vgq.gouv.qc.ca/fr/fr\\_publications/fr\\_rapport-annuel/fr\\_2009-2010-T1/fr\\_Rapport2009-2010-T1-Chap06.pdf\]](http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2009-2010-T1/fr_Rapport2009-2010-T1-Chap06.pdf), checked 29 December 2011]

From our work in departments, we believe that departmental payroll officers are not adequately trained on how to use the HRIS. Inadequate training of departmental users increases the risk of departmental payroll officers incorrectly using HRIS [government's payroll system] and its reports which may result in payroll errors.

... We recommended OHR [Office of Human Resources] provide effective support and training to HRIS users. The types of support and training should be communicated to all departments. These services should be available to departments when needed.

*New Brunswick, Auditor General (2009), 2009 Auditor General's Report, Chapter 5, pp. 120-121*  
[\[http://www.qnb.ca/oag-bvq/2009v2/aqrepe.pdf\]](http://www.qnb.ca/oag-bvq/2009v2/aqrepe.pdf), checked 29 December 2011]

We recommend that Bow Valley College improve internal controls for processing contract payments by ensuring proper segregation of incompatible duties, and proper authorization of vendor invoices.

... An effective control system would ensure that there is proper segregation between the generation and approval of an invoice.

*Alberta, Auditor General, "Report" (Apr 2009), p.20*  
[\[http://www.oag.ab.ca/files/oag/April\\_2009\\_Annual\\_Report.pdf\]](http://www.oag.ab.ca/files/oag/April_2009_Annual_Report.pdf), checked 29 December 2011]

## Financement des services

- de chiffrer les sommes allouées à la prestation de services du gouvernement en ligne pour l'ensemble des ministères et organismes;
- de préciser sa stratégie relative au soutien financier du gouvernement en ligne;
- de procéder à l'évaluation périodique des mesures de soutien qu'il applique.

Québec, Vérificateur général du Québec, *Rapport à l'Assemblée nationale pour l'année 2004-2005, Tome II, chapitre 3, Prestation de services du gouvernement en ligne, p. 50*  
[\[http://www.vgq.gouv.qc.ca/fr/fr\\_publications/fr\\_rapport-annuel/fr\\_2004-2005-T2/fr\\_Rapport2004-2005-T2-Chap03.pdf\]](http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2004-2005-T2/fr_Rapport2004-2005-T2-Chap03.pdf), checked 29 December 2011]

**2.2.e. Accuracy**

After receiving the first submission of annual data for the 2005–06 fiscal year in June 2006 and comparing them with the quarterly data already received, the Department found several problems, including the fact that

- data did not match,
- mandatory data fields were missing,
- codes for projects were unidentifiable, and
- data provided by the same delivery agent could not be reconciled.

...Agriculture and Agri-Food Canada should develop and implement a standardized process for collecting national data to ensure that it can report accurate, consistent, and timely information on program results.

Canada, Office of the Auditor General, "Report of the Commissioner of the Environment and Sustainable Development" (Dec 2008) chapter 3, "Managing Environmental Programming – Agriculture and Agri-Food Canada," pp. 15-16 [[http://www.oag-bvg.gc.ca/internet/docs/parl\\_cesd\\_200812\\_03\\_e.pdf](http://www.oag-bvg.gc.ca/internet/docs/parl_cesd_200812_03_e.pdf)], checked 29 December 2011]

We noted numerous instances of documentation which appears to be outdated or in draft format. As a result, there is a risk of inappropriate decision-making based on no longer, fully or partially, applicable documentation. In addition, if used for troubleshooting, maintenance or training purposes, there is an increased likelihood of lost time and effort due to the possible inaccuracy of some of the document contents.

*... Recommendation 14*

That Information Technology Services Branch require that all relevant SAP-based documentation be:

- Immediately updated;
- Routinely updated;
- Formally approved and communicated, to represent the current state of each process; and
- Incorporated within the scope of their existing document management strategy, which has refresh and update requirements.

Ottawa, Office of the Auditor General, *"Audit of the IT Processes of the Computerized Financial System," (2006), chapter 6, pp. vi-vii*



[\[http://www.ottawa.ca/city\\_hall/mayor\\_council/auditor\\_general/audit\\_reports/2006/6\\_it\\_processes.pdf\]](http://www.ottawa.ca/city_hall/mayor_council/auditor_general/audit_reports/2006/6_it_processes.pdf), checked 29 December 2011]

**2.3** What messages relevant to recordkeeping, if any, emerge about information technology implementations in audit reports, including how many resources (including financial resources) are invested in new technologies and what observations are made on the returns on those investments?

As with the previous question, every audit report involving a computer system might have something to say in response to this question. Two general criteria were set for selecting reports:

- Report titles suggesting a focus on one or more systems, e.g., "Justice and Attorney General: Systems" (Alberta);
- Report titles suggesting organizational aspects of system administration, e.g., "Assessment of General Computer Controls over the Technological Infrastructure" (Manitoba)

Using these criteria, twenty-three reports (4 federal, 12 provincial, and 7 municipal) were found to be relevant in some way to this third study question. Once again, it was found that many of the reports continued themes identified in connection with responses to the first two questions. However, a new theme or thread relating to resources is introduced in this section. The recommendations (and other comments) of auditors in this section are grouped under the following themes:

- a. Security and access – issues where the governing agency was unaware of who had access to what information usually through an absence of procedures or oversight;
- b. Gap between policy and practice – reports often noted the presence of appropriate policies, e.g., around security and access, but the policies were not implemented or there was no oversight of their implementation;
- c. Inadequate governance – referring to investments in information technology that were unsustainable or appeared to be uncoordinated;
- d. Accountability – addresses implementation matters including failure to address existing recommendations. Issues raised in this context are often closely linked to expenditures.
- e. Resources – addresses resource aspects of technology deployments including existing resources already being invested, new resources required, e.g., to meet audit recommendations, or inappropriate allocation of resources, which involves some overlap with 'Accountability.'

#### **2.3.a. Security and access**

We concluded that, for the twelve-month period ended February 28, 2010, Saskatchewan Crop Insurance Corporation's processes for security awareness were adequate except Saskatchewan Crop Insurance Corporation needs to:

- document in its policies its requirement for a formal security awareness program and specify who is responsible for the program
- document its plan for delivery of its security awareness program and carry out the plan
- monitor the effectiveness of its security awareness program

*Saskatchewan, Provincial Auditor, Report of the Provincial Auditor to the Legislative Assembly of Saskatchewan, (2006) "Saskatchewan Crop Insurance Corporation – security awareness processes," chapter 3, p. 17*

*[[http://www.auditor.sk.ca/saskrepnew.nsf/html/2010vol1index.html/\\$FILE/2010vol1fr.pdf](http://www.auditor.sk.ca/saskrepnew.nsf/html/2010vol1index.html/$FILE/2010vol1fr.pdf), checked 30 December 2011]*

Security access controls to the POSSE system did not comply with the City's guidelines for securing access to information systems. These guidelines require that user passwords have minimum lengths and expiry dates. Instances were also noted where valid passwords existed for employees who were no longer employed with the City.

*Calgary, City Auditor, "Audit Report 08-01 Public One Stop Service (POSSE) System" (Mar 2008), p. 6*  
*[[http://www.calgary.ca/Auditor/Documents/City-Auditor-reports/AC2008-30\\_Att.pdf](http://www.calgary.ca/Auditor/Documents/City-Auditor-reports/AC2008-30_Att.pdf), checked 30 December 2011]*

We also recommend that the Direction des technologies de l'information of the Service des affaires corporatives:

- a) Take all the necessary precautions, including recourse to a higher authority, to obtain without delay the adoption of an information security policy for all the concerned parties;
- b) Distribute the guideline on e-mail use as soon as all concerned parties adopt the information security policy.

*Montreal, Report of the City General Auditor to the Conseil Municipal and to the Conseil D'Agglomération (2006-2007), p.28*

*[[http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur\\_fr/media/documents/RapportAnnuel2006\\_en.pdf](http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_fr/media/documents/RapportAnnuel2006_en.pdf), checked 30 December 2011]*

We recommended management schedule and implement a formal periodic user review, performed at least annually, as a means to validate the on-going appropriateness of all users' access within the database and the application.

*New Brunswick, Auditor General, Report of the Auditor General (2009), "Matters Arising from our Tests of Controls, Chapter 5, p. 114* [<http://www.gnb.ca/oag-bvg/2009v2/agrepe.pdf>, checked 30 December 2011]

We recommend that the Ministry of Justice develop and document Information Technology security policies.

*Alberta, Auditor General, Annual Report of the Auditor General of Alberta (2006-2007), p. 128*  
*[[http://www.oag.ab.ca/files/oag/2006-2007\\_Annual\\_Report\\_Vol\\_2.pdf](http://www.oag.ab.ca/files/oag/2006-2007_Annual_Report_Vol_2.pdf), checked 30 December 2011]*

We found that the ITO had adequate controls to protect client IT systems and data for the period October 1, 2005 to March 31, 2006 except the ITO needs to:

- perform quality assurance tests to ensure its security policies and procedures are followed
- follow its security policies and procedures
- protect its systems and data from security threats
- implement a disaster recovery plan for its data centre and client systems

*Saskatchewan, Provincial Auditor, Report of the Provincial Auditor to the Legislative Assembly of Saskatchewan, (2006) "Information Technology Office," chapter 6, p. 208*  
[[http://www.auditor.sk.ca/saskrepnew.nsf/html/2006vol3.html/\\$file/full.pdf](http://www.auditor.sk.ca/saskrepnew.nsf/html/2006vol3.html/$file/full.pdf), checked 30 December 2011]

We identified various internal control risks and recommendations for improvement that are technical and sensitive in nature. Consequently, they are included in a separate detailed audit report to be issued to the Comptroller's Office. [At least 20 of the 37 recommendations were referred to as security-related and pertained to the operating system software underlying SAP and GenTax, the database management software used by SAP and GenTax.]

*Manitoba, Office of the Auditor General, "Assessment of General Computer Controls over the Technological Infrastructure," (2005-2006), p. 111* [[http://www.oag.mb.ca/wp-content/uploads/2011/06/public\\_accounts\\_2006\\_part1.pdf](http://www.oag.mb.ca/wp-content/uploads/2011/06/public_accounts_2006_part1.pdf), checked 30 December 2011]

### 2.3.b. Policy and practice

We recommend that the project team assigned to the implementation of the e-Cité/311 network continue their work to present a series of corporate frameworks for approval by the Director General as soon as possible, in order to help achieve the established objectives and translate policy into day-to-day activities. These frameworks will need to designate the business unit responsible for its implementation, monitoring and assessment.

*Montreal, Report of the City General Auditor to the Conseil Municipal and to the Conseil D'Agglomération (2007-2008), p.46*  
[[http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur\\_en/media/documents/RapportAnnuel2007\\_en.pdf](http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_en/media/documents/RapportAnnuel2007_en.pdf), checked 30 December 2011]

The RNC [Royal Newfoundland Constabulary] is not complying with its own rules regarding information systems management. While there are clearly established policies and procedures in place to ensure the security of automated systems, these policies and procedures are not being followed.

*Newfoundland and Labrador, Office of the Auditor General, "Report of the Auditor General to the House of Assembly" (2005), "Royal Newfoundland Constabulary," chapter 2, p. 381.*  
[<http://www.aq.gov.nl.ca/ag/annualReports/2005AnnualReport/CH2.18.pdf>, checked 30 December 2011]

We found that the PSG [Pension Services Group] has problems with its filing system. For example, we noted:

- termination and pension files for 2003 and 2004 had not been scanned into the document imaging system;
- 3 of 9 termination files tested were missing screen shots of Penfax calculations that are required to be filed; and
- in many cases staff had difficulty locating files for our examination.

This problem is compounded by the fact that the PSG has not established policies under the Provincial STAR/STOR records management policies.

*Nova Scotia, Report of the Auditor General to the Nova Scotia House of Assembly (June 2005), "Pension Administration System (PenFax)," chapter 5, p. 73 [<http://www.oag-nb.ca/June2005/June2005%20FullReport.pdf>], checked 30 December 2011]*

### 2.3.c. Governance

IITB [Innovation, Information and Technology Branch] currently does not have key performance indicators to help it monitor progress against the mitigation strategies for the aging IT risks. IITB has a senior committee to oversee the monitoring of risks; however, there are no minutes or records of decision, and so it was not possible to assess how well this review was working.

*Canada, Report of the Auditor General of Canada to the House of Commons (Spring 2010), "Aging Information Technology Systems," chapter 1, p.20 [[http://www.oag-bvg.gc.ca/internet/docs/parl\\_oag\\_201004\\_01\\_e.pdf](http://www.oag-bvg.gc.ca/internet/docs/parl_oag_201004_01_e.pdf)], checked 30 December 2011]*

ITO does not ensure that clients follow its security policies and procedures. This could lead to security weaknesses at a client that would allow an inappropriate user to gain access to the ITO network. While ITO has designed processes to limit inappropriate access, it needs to follow its network monitoring processes. ITO also needs to protect itself from security threats by periodically testing the effectiveness of its security processes and by monitoring the processes followed by clients.

*Saskatchewan, Provincial Auditor, Report of the Provincial Auditor to the Legislative Assembly of Saskatchewan, (2007) "Information Technology Office," chapter 14, p. 277 [[http://www.auditor.sk.ca/saskrepnew.nsf/html/2010vol1index.html/\\$FILE/2010vol1fr.pdf](http://www.auditor.sk.ca/saskrepnew.nsf/html/2010vol1index.html/$FILE/2010vol1fr.pdf)], checked 30 December 2011]*

### 2.3.d. Accountability

Based on a thorough review of its role and approach to health indicator reporting, Health Canada should set out an approach to improve the Healthy Canadians reports, meet the health indicator reporting requirements in the health agreements, and ensure their relevance and usefulness to Canadians.

*Canada, Report of the Auditor General of Canada to the House of Commons (Dec 2008), "Reporting on Health Indicators – Health Canada," chapter 8, p.23 [[http://www.oag-bvg.gc.ca/internet/docs/parl\\_oag\\_200812\\_08\\_e.pdf](http://www.oag-bvg.gc.ca/internet/docs/parl_oag_200812_08_e.pdf)], checked 30 December 2011]*

It is estimated that approximately one half of the 6,000 person workforce at DHAs 1 to 8 are not fully literate in basic computer skills. Training plans include requirements for basic computer skills training, advanced training at site on the modules, train the trainer, user acceptance testing and training of end users.

*Nova Scotia, Report of the Auditor General to the Nova Scotia House of Assembly (June 2005), "Nova Scotia hospital information System (NSHIS) Project," chapter 6, p. 87 [<http://www.oag-nb.ca/June2005/June2005%20FullReport.pdf>], checked 30 December 2011]*

The migration procedures were documented and provided detailed steps including expected results for each test procedure. Of the 50 test cases reviewed, the expected results for 24 test cases were not checked and signed by the test team member. There is no clear indication that the test plan

steps were followed and there were no signatures confirming the test results achieved or the steps followed.

Service Alberta did conduct post implementation reviews on the APPRES application and formally tracked all application and conversion issues to resolution.

*Alberta, Auditor General, "Report of the Auditor General of Alberta" (Oct 2008), p.349*  
[[http://www.oag.ab.ca/files/oag/Oct\\_2008\\_Report.pdf](http://www.oag.ab.ca/files/oag/Oct_2008_Report.pdf), checked 30 December 2011]

In our original report, we mentioned that Health had identified 289 enteric outbreaks in 2004; 23 of these were associated with food establishments such as restaurants. In 2008, the equivalent figures were 397 and 17, so a significant risk continues to exist. For some individuals who have fallen ill from food-borne illness, the effects may last a lifetime.

Society pays an ongoing economic price for food-borne illnesses. In our 2005–2006 Annual Report, we reported its costs to the health care system which one study estimated at \$2.4 million annually per 100,000 population. On top of health care costs, lost productivity costs an estimated \$8 million annually per 100,000 population in Canada.

*Alberta, Auditor General, "Report of the Auditor General of Alberta" (Oct 2009), p. 88*  
[<http://www.oag.ab.ca/files/oag/OAGOct2009report.pdf>, checked 30 December 2011]

### 2.3.e. Resources

Citizenship and Immigration Canada, Public Works and Government Services Canada, and Human Resources and Skills Development Canada have taken some steps to manage the risks related to their aging IT systems, but much work remains to be done. The Canada Revenue Agency and the Royal Canadian Mounted Police are farther along. They have both identified the significant risks associated with their aging systems and completed a multi-year investment plan that defines and prioritizes ongoing and future work. Based on their preliminary estimates, they have determined that the costs involved are significant and that presently they lack sufficient resources to complete critical investments.

*Canada, Report of the Auditor General of Canada to the House of Commons (Spring 2010), "Aging Information Technology Systems," chapter 1, p.3* [[http://www.oag-bvg.gc.ca/internet/docs/parl\\_oag\\_201004\\_01\\_e.pdf](http://www.oag-bvg.gc.ca/internet/docs/parl_oag_201004_01_e.pdf), checked 30 December 2011]

According to its records, in the 2007–08 fiscal year, CRA spent about \$509 million on IT activities and employed about 4,000 IT professionals. CRA used about \$175 million to develop new systems and to maintain or upgrade existing systems. The remaining \$334 million was used to operate existing systems and to provide IT services needed to support CRA business.

*Canada, Auditor General, Report of the Auditor General of Canada (Dec 2008), "Managing Information Technology Investments – Canada Revenue Agency" chapter 5, p.3* [[http://www.oag-bvg.gc.ca/internet/docs/parl\\_oag\\_200812\\_05\\_e.pdf](http://www.oag-bvg.gc.ca/internet/docs/parl_oag_200812_05_e.pdf), checked 30 December 2011]

The SAP Support Centre has an operating budget of \$5.3 million to cover compensation costs of \$3.1 million, and service purchase costs of \$2.2 million of which \$1.5 million is for SAP annual maintenance, which consists primarily of license costs. There are 32 [8.7%] full-time equivalent (FTE) staff positions in the SAP Support Centre Unit and approximately 365 FTE staff positions, in Information Technology Services Branch.

- The recent large-scale SAP initiative is the SAP Platform Sustainment Program; with a work plan that included management reporting, bar coding, and other enhancements at a cost of \$17.7 million (as of May 2006).
- The total up-to-date implementation cost is \$73.2 million, not including the latest deployment of the SAP Human Resources module.

*Ottawa, Office of the Auditor General, "Audit of the IT Processes of the Computerized Financial System," (2006), chapter 6, pp. i-ii*  
[\[http://www.ottawa.ca/city\\_hall/mayor\\_council/auditor\\_general/audit\\_reports/2006/6\\_it\\_processes.pdf\]](http://www.ottawa.ca/city_hall/mayor_council/auditor_general/audit_reports/2006/6_it_processes.pdf), checked 30 December 2011]

Globalement, la gestion du changement est un processus bien maîtrisé par les organisations, mais la planification stratégique, la planification des services et la gestion des bénéfices sont négligées. Les échéanciers n'ont pas été respectés et les investissements ont presque doublé par rapport aux prévisions, passant de 22,2 à 36,8 millions de dollars.

*Québec, Vérificateur général du Québec, Rapport à l'Assemblée nationale pour l'année 2004-2005, Tome II, chapitre 3, Prestation de services du gouvernement en ligne, p. 48*  
[\[http://www.vqq.gouv.qc.ca/fr/fr\\_publications/fr\\_rapport-annuel/fr\\_2004-2005-T2/fr\\_Rapport2004-2005-T2-Chap03.pdf\]](http://www.vqq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2004-2005-T2/fr_Rapport2004-2005-T2-Chap03.pdf), checked 30 December 2011]

### 3. CONCLUSIONS

**3.1.a.** InterPARES 3 research question #1: Which are the regulatory, auditing and policy making bodies that need to be sensitized to the importance of digital preservation, and what are the best ways of influencing them?

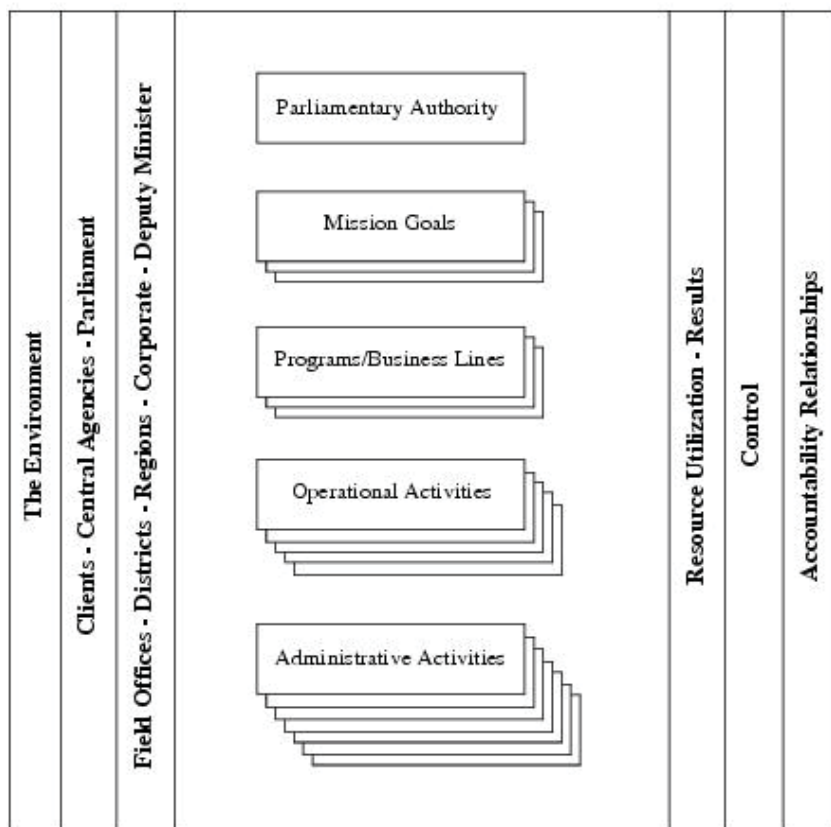
Auditors place a high reliance on documentary evidence as the basis on which to make observations relevant to their audits.<sup>14</sup> Their observations form the basis for conclusions and any accompanying recommendations arising from the audit. Because auditors rely on records, increasingly digital records, to conduct their audits, there is the potential that communicating the concepts and practices of digital record keeping developed by the archival community might be of value to them. However, from the reports reviewed it seems unlikely that auditors will generally interest themselves specifically in audits of the implementation of those concepts. The interest of the audit community, like the legal one, is not in records generally, but rather in their authority as evidence in relation to the specific matter of their investigation. Likewise, there is potential value in the archival community assessing the application of digital record keeping concepts of authenticity, reliability, and accuracy against broader concepts of evidence, such as that on which auditors rely.

<sup>14</sup> "[D]ocumentary evidence is usually better than testimonial evidence" is the first of the "rules of thumb" detailed in the Office of the Auditor General of Canada's *Performance Audit Manual* (chapter 4, "The Performance Audit Planning Process and Audit Examination Policies"), 4.75.1 [[http://www.oag-bvg.gc.ca/internet/English/meth\\_gde\\_e\\_29358.html#wp638893](http://www.oag-bvg.gc.ca/internet/English/meth_gde_e_29358.html#wp638893)], checked 1 January 2012]



Figure 4

## Planning the Audit - Understanding the Entity



Application of audit evidence standards begins with a contextual understanding of the organization or program to be audited. The figure on the right, taken from the Canadian Auditor General's *Performance Audit Manual*, will be readily comprehensible by archivists and record keepers.<sup>15</sup> The audit community's standards for relevance, reliability, and validity of evidence, including but not limited to documentary evidence, must be applied within the context that emerges from an auditor's understanding of the organization to be audited.

The *Performance Audit Manual* defines these standards as follows:

*Relevance* refers to the extent to which the information bears a clear and logical relationship to the audit criteria and objectives. For example, when determining whether small and medium-sized enterprises have easy access to a specific government program, gathering data from large enterprises would likely yield irrelevant information. If information is not relevant, it cannot be evidence.

*Reliability* concerns whether there is a likelihood of coming up with the same answers when either the audit test is repeated or information is obtained from different sources. This means that a measurement or evidence gathering process is more reliable when repeated measures or performances of the process produce the same result or a consistent result that is minimally affected by measurement errors (random distribution of measurement errors).

*Validity* has to do with whether the information actually is what it purports to be in relation to content, origin and timing. An audit rarely involves the authentication of documentation/information, nor is the auditor trained as or expected to be an expert in such authentication. However, the auditor has to consider the validity of the information to be used as audit evidence, for example, photocopies, facsimiles, filmed, digitized (scanned) or other electronic documents, including consideration of controls over their preparation where relevant.<sup>16</sup>

<sup>15</sup> Auditor General of Canada, *Performance Audit Manual*, 4.10 [link as above].

<sup>16</sup> Auditor General of Canada, *Performance Audit Manual*, 4.75 [link as above]. The substance of these definitions appear to be broad-based. See, for example, the "Relevance and Reliability" section of "Auditing Standard No. 15:

There are important similarities and differences in the definition of these terms between those of the audit community and those of the archival community, as represented by the InterPARES project. For example, InterPARES' definition of reliability is focussed on a record,<sup>17</sup> whereas that of the audit community is based on a review of measurement information or other aggregation of evidence. References to 'origin' and 'timing' in the audit community's definition of "validity" have important similarities to the InterPARES' definitions of identity [origin, timing] and integrity [content]. Because the scope of the InterPARES study is record keeping in general, i.e., not the uses records may be put to, it does not define "relevance" or a related term such as "material."<sup>18</sup>

The lack of explicit statements regarding record keeping was a source of some frustration among participants of this study because it was clear that auditors were aware of record keeping.<sup>19</sup> As noted in Section 3, only one report contained anything like an explicit statement that a lack of information prevented the auditor from reaching any conclusion.<sup>20</sup> Even in this one instance, the absence had more to do with changing governance and the associated lack of clarity regarding accountability in such circumstances than with record keeping. Another explanation for the lack of explicit statements regarding record keeping may be that auditors are assessing the management or administration of programs, and record keeping may be considered only one aspect of program management. Even the five audits of archives or records programs focus on the administration of those programs more than the corporate impact of the programs.

Because of the focus on program management, audit criteria used to determine the scope of the audit may not explicitly address record keeping and preservation for several reasons, including the absence of recognized, widely accepted, auditable standards for digital record keeping. Generally, auditors look for criteria against which to measure programs that exist in law or have been "developed by recognized professional organizations that follow due process" – defined as "developed through consultation, appropriate challenge and vetting and that they reflect consensus among professionals."<sup>21</sup>

Where there are no criteria with authoritative support, an auditor may choose to use criteria that are not generally accepted but to do so the auditor must establish the suitability of the criteria for the audit being considered. Criteria falling into this category include standards that have been developed without due process, as defined above, even if they are advanced by recognized professional organizations, and standards that are established by the audited organization or by other, similar organizations.

Auditors may not view record keeping or digital preservation considerations as a primary audit focus because it may be difficult to contain the scope of such an audit. That is, issues with record keeping in a particular line of business of an organization may be difficult to effectively address without understanding the policies, resources, and priorities of the organization as a whole. In such situations,

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Audit Evidence" published by the (U.S.) Public Company Accounting Oversight Board [[http://pcaobus.org/Standards/Auditing/Pages/Auditing\\_Standard\\_15.aspx#auditevidence](http://pcaobus.org/Standards/Auditing/Pages/Auditing_Standard_15.aspx#auditevidence), checked 1 January 2012].

<sup>17</sup> "Reliability: "The trustworthiness of a record as a statement of fact. It exists when a record can stand for the fact it is about, and is established by examining the completeness of the record's form and the amount of control exercised on the process of its creation."

<sup>18</sup> See the InterPARES Terminology Database [[http://interpares.org/ip2/ip2\\_terminology\\_db.cfm](http://interpares.org/ip2/ip2_terminology_db.cfm), checked 1 January 2012] for definitions of terms. Check Electronic Evidence in Canada for definition of these terms.

<sup>19</sup> Audit Guide of Calgary's Auditor includes a "commitment to reviewing the extent to which Business Units comply with the Records Management Bylaw." Ontario Auditor suggests engaging internal auditors to assess records inventories and security controls.

<sup>20</sup> See section 3.2, p. 10, above.

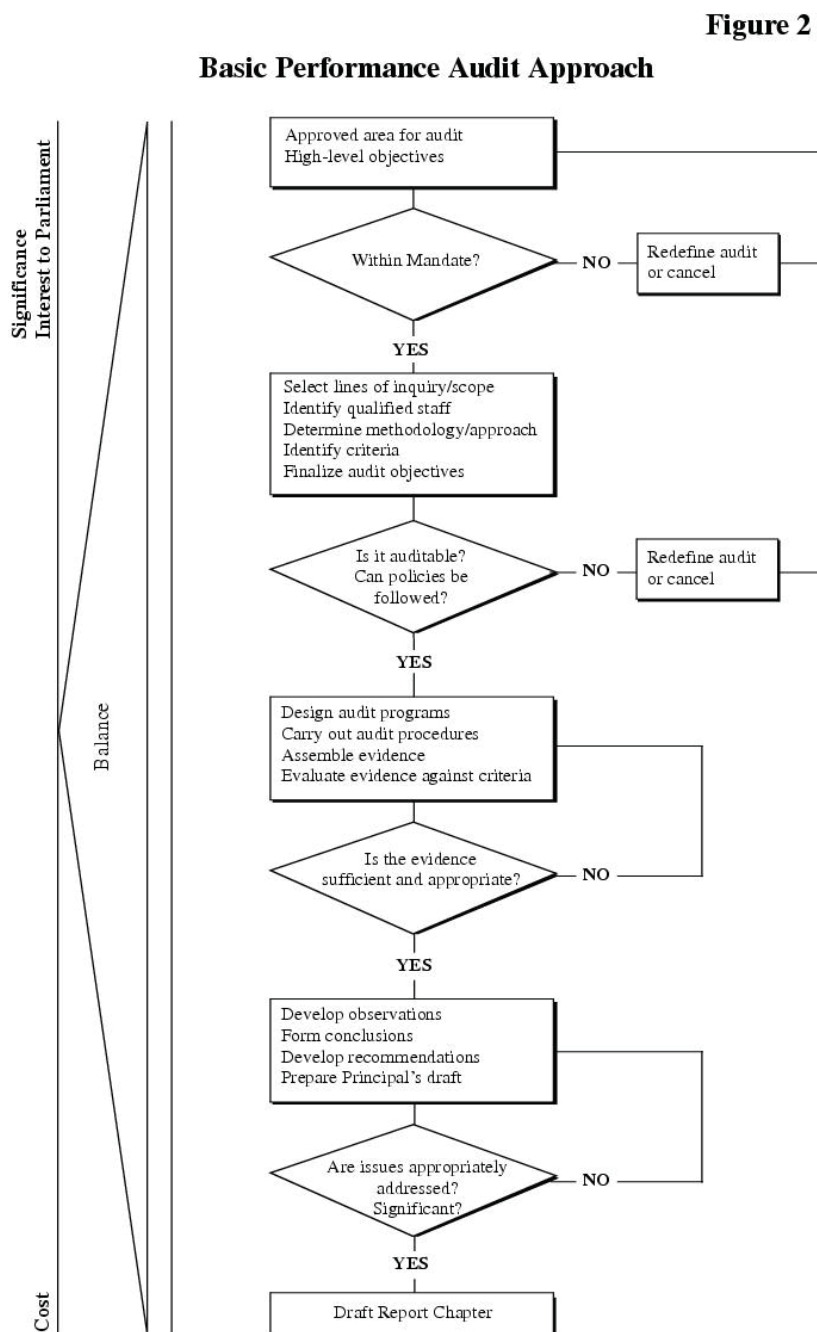
<sup>21</sup> Auditor General of Canada, *Performance Audit Manual*, 4.45 [link as above].



recommendations would need to be made to the organization as a whole, not just a specific program area or line of business. It may also be that many auditors would not consider record keeping as an end in itself, i.e., as a program to be audited. Nevertheless, it is clear that some auditors have attempted to grapple with this by auditing governance of an organization's information technology services, e.g., "Governance of Information Technology Operations" by the Auditor General of Nova Scotia, or by giving their audit a specifically technological viewpoint, e.g., the investigation of "Aging Information Technology Systems" by the Auditor General of Canada.

In selecting areas to be audited, auditors balance the cost of the program or line of business against its significance to the body to which they report. This is explicitly set out along the left hand side of the "Basic Performance Audit Approach" figure below.<sup>22</sup> In this context it is useful to set the New Brunswick Auditor's statement regarding the small size of the Provincial Archives program, with a budget of "only \$1.475 million" in 2001, against the same Office's definition (in 2009) of a "major system as any system that processes transactions in excess of \$100 million."<sup>23</sup> Auditors may be more open to specifically addressing aspects of record keeping in audits if these are seen to contribute significantly either to actual costs, e.g., deploying technologies that can demonstrate why the authenticity, reliability and accuracy of records created and maintained can be presumed, or avoided costs, e.g., demonstrating the amount by which authentic and reliable digital records reduce legal costs.

These observations suggest that the professional audit and archival communities might effectively collaborate by communicating not just emerging archival



<sup>22</sup> Auditor General of Canada, *Performance Audit Manual*, 4.6 [link as above]

<sup>23</sup> New Brunswick, Auditor General, Report (2009), "Matters Arising from Our Tests of Controls" p. 111 [<http://www.gnb.ca/oag-bvg/2009v2/agrepe.pdf>, checked 1 January 2012].

considerations relating to digital record keeping, but also the research basis for those considerations, i.e., a rationale which can be defended by auditors making use of them. Given the frequency with which security concerns and gaps between policy and practice arose, any such validation would need to satisfy auditors that archival standards addressed such concerns. Auditors would also have to be satisfied that archival and other record keeping programs were competent to support the organizations to which they belonged in the sense that the record keepers disposed of adequate resources in terms of skills, mandate, and tools to implement and sustain digital record keeping standards. Auditors are well aware that their investigations and assessments take place at a given point in time. This is evident because of the frequency of follow-up audits. For example, the 2006 report of the Information Technology Office by Saskatchewan's Auditor General was followed up in 2007, 2008, and 2009. Should record keeping concepts and practices be usefully integrated into the conduct of audits, the record lifecycle might be a useful concept to communicate to auditors in terms of how it might affect the accumulation of audit evidence and what conclusions could be made from an understanding of the lifecycle in a digital system.

**3.1.b.** InterPARES 3 research question #6: What are the nature and the characteristics of the relationship that each of these archives or programs should establish with the creators of the records for which it is responsible?

Based on the themes that emerged in the findings of this study, the relationship that archival programs must establish with the creators of digital records are at the early and middle stages of the record lifecycle, i.e., at the creation and maintenance stages. The frequency with which auditors see gaps between policy and practice makes it abundantly clear that setting record keeping policies, while essential, is not in itself sufficient to confidently assert the presumption of the authenticity and reliability of digital records.

In addition to closing the gap between policy and practice within organizations, archival programs need to provide organizational management with the means to demonstrate that performance objectives are being met. An obvious focus where this type of work is required is in the area of security, as it relates to maintaining and monitoring access privileges. With the organization-wide expertise archivists require in order to preserve records in context, archival programs should consider forming or participating in the oversight of the assignment of access privileges, ensuring that performance measures are in place to illustrate that assignment of access privileges is accurate and up-to-date. In addition, record classifications might be developed so that they can be used for a range of purposes, e.g., the classification of client enquiries, not just the application of retention and disposition rules.

Similarly, the accountability theme speaks to the frequency of uncertain or, perhaps more accurately, incomplete determinations of accountability for delivery of services and organizational administration. The need for large technically specialized organizations, such as an Information Technology Division or Office, to construct and maintain a digital technology infrastructure, has complicated lines of accountability, reduces certainty of what needs to be done, e.g., managing access privileges, and whose responsibility it is to complete such tasks. While most public sector audits did not address organizational culture, the importance of this consideration could be discerned in those reports that addressed the broader public sector organizations related to education or health, e.g., the report on the Nova Scotia Hospital Information System, which commented upon the widespread lack of basic computer skills.<sup>24</sup>

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<sup>24</sup> See section 3.2, p. 19, above.

**3.1.c.** InterPARES 3 research question #7: What kind of policy, strategy and procedures should any such archives or program have in place to be able to control the digital records for which it will be or already is responsible from creation to preservation, and on what factors are these administrative devices dependent (e.g. a specific accountability framework and governance structure)?

Archives programs, regardless of size, will not have the resources, in terms of skills, expertise, or authority, to “control” digital records at every stage of the lifecycle. Judging from the findings of this study, accountability for records, behaviour, and expenditure of resources will remain the primarily the responsibility of the program or business areas. Even where the auditors examined the operations and governance of the information technology programs within organizations, the repeated emphasis on appropriate access and security seem to counter any suggestion that somehow the technologists are or should be in “control” of all aspects of digital records. Referring again to the audit of the Information Technology Office in Saskatchewan, the observation by the auditors about the absence of service agreements suggest that managing information is a partnership. Perhaps archival programs should also be part of such service agreements, i.e., as they relate to record keeping, but such a recognition on the part of auditors was not found in the reports studied.

Even more so for executive management of the organization itself than for auditors, the effective preparation of organizational records is not an end in itself and, as such, record keeping must be an integral aspect in the allocation of organizational resources, whether an element in the approval of proposals for capital expenditures or as part of an accountability framework for organizational management. For record keeping to become integral to meeting the mandate of the organization, archival programs may consider a procedure whereby archives and records staff are ‘seconded’ to business units or the delivery of information technology services. Gaining such immediate knowledge of how information technology is deployed, used, and administered may also help communicate the benefits of archival expertise in a very practical way. Other approaches might focus on the establishment of organizational metadata standards that support the administration of records over their lifecycle, or participation in business continuity planning.

Control of an organization’s digital records will necessarily be a shared responsibility between the archives program, the information technology services, and the organization as a whole. Strategies and policies must, as a result, be collaborative in nature. However, to effectively develop collaborative strategies and policies, the responsibilities and accountabilities of the partners must be clearly articulated. For archives programs, especially where the records management function is separate from the archives function, this may be new territory, i.e., the archival preservation of physical records may have enabled archives programs to operate relatively independently of the larger organization to which they belong. For example, the report of the Newfoundland and Labrador’s Auditor General audit of the Office of the Chief Information Officer (OCIO) suggests that as recently as 2008, the OCIO was itself going to prepare retention schedules and information classification plans, involving the Provincial Archives only for the archival appraisal of digital records – a finding that may have dismayed the staff at the Provincial Archives as their expertise appears to be limited only to the disposition phase of the record lifecycle.

**3.1.d.** InterPARES 3 research question #13: How can records professionals keep their knowledge of digital preservation up-to-date in the face of ongoing and increasingly fast technological change?

This study found nothing directly related to the technological aspects of digital preservation. It did, however, clearly outline the scope of resources available to organizations relying on digital technologies to handle their information. For example, the Canada Revenue Agency employed “about 4,000 IT professionals” and spent over \$500 million “on IT activities” in 2008.<sup>25</sup>

Just as information technology expertise is increasingly compartmentalized, e.g., programming expertise is considerably different from that of network administration, so will the knowledge of records professionals likely become compartmentalized. If the archival position that preservation of authentic digital records begins with their creation and continues through their active life, then the audit reports reviewed in this study make it clear that digital preservation is as much about organizational expertise, addressing matters of governance and accountability, as it is about specific technologies, such as backup and recovery technologies which form the basis for disaster recovery and business continuity planning, or conceptualising records, i.e., very early in the lifecycle, for programs that are not wholly in place such as the EHR initiative. While it is true that technological change is rapid and ongoing, not all organizations adopt the newest technologies or, even where they do, the new technologies are not necessarily deployed across the organization, as reported in the Auditor General of Canada’s 2010 report on “Aging Information Technology Systems.”

The relationship of technological change and digital preservation knowledge is also a fiscal one. Even small and medium-sized organizations are expending sums of money many times the budget of the integrated archives and records programs. As noted in the “Audit of the IT Processes of the Computerized Financial System” report of Ottawa’s Auditor General, the SAP Support Centre had an operating budget of \$5.3 million in 2006. Records professionals and administrators of archives and records programs must be able to demonstrate how the integration of record keeping expertise adds measurable value at this level of financing.

### **3.2 ELECTRONIC HEALTH RECORD**


The audit reports relating to the Canadian Electronic Health Record initiative reflect the findings summarized in Section 3 but add new considerations (see section 2.2, above) which, given the scope of the project and amounts involved, are worth adding here. Concerns regarding the compatibility of systems and information across Canada highlight both technological and legal challenges to the creation of the envisioned EHR, never mind the preservation of such records. Such challenges can only be addressed within the governance structure in place for the EHR.

There is no question that records in the sense that archivists use the term are involved. The auditors participating in the consolidated audit of the EHR initiative adapted the following illustration, presumably to reduce the abstract aspect of the audit of the as yet unimplemented EHR.

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<sup>25</sup> See section 3.3.e, p. 20, above.

**Exhibit 1: An example of what an EHR might look like**

<ul style="list-style-type: none"> <li>• Help</li> <li>• Logout</li> </ul>	<b>Patient Details</b>  <b>GME0000 Smith, Caroline</b> Sex: Female DOB: 1940/01/01 Next of kin: John Smith Phone: 365-565-9090 Address: 19 Provincial Rd. Edmonton AB T6M 1R7		<b>GP Details</b> Name: Jones, Evans    Phone: 333-465-5545    Address: 11 Terrence Ave., Edmonton, AB T4Y 8U9																																																													
	<b>Other Healthcare Providers</b> <table border="1"> <thead> <tr> <th>Name</th> <th>Disp.</th> <th>Last Encounter</th> <th>Next encounter</th> <th>Right of Access</th> </tr> </thead> <tbody> <tr> <td>Diaz, Ellen</td> <td>Cardiology</td> <td>01/2006</td> <td>07/2006</td> <td>Y</td> </tr> <tr> <td>Fournier, Janice</td> <td>RN</td> <td>08/2005</td> <td></td> <td>N</td> </tr> <tr> <td>Cohen, Richard</td> <td>Dermatology</td> <td>07/2005</td> <td></td> <td>N</td> </tr> </tbody> </table>		Name	Disp.	Last Encounter	Next encounter	Right of Access	Diaz, Ellen	Cardiology	01/2006	07/2006	Y	Fournier, Janice	RN	08/2005		N	Cohen, Richard	Dermatology	07/2005		N	<b>Medications</b> <table border="1"> <thead> <tr> <th>Date</th> <th>Medications</th> <th>Prescriptions</th> <th>Last Filled</th> </tr> </thead> <tbody> <tr> <td>11/1989</td> <td>Hydrochlorothiazide 25 mg</td> <td>One tab at breakfast</td> <td>12/2005</td> </tr> <tr> <td>03/1999</td> <td>Glyburide 5 mg</td> <td>One tab twice daily</td> <td>12/2005</td> </tr> <tr> <td>01/2001</td> <td>Metformin 500 mg</td> <td>Two tabs twice daily</td> <td>12/2005</td> </tr> <tr> <td>03/2001</td> <td>Atorvastatin 20 mg</td> <td>One tab at supper</td> <td>12/2005</td> </tr> <tr> <td>02/2002</td> <td>Atenolol 50 mg</td> <td>One tab at breakfast</td> <td>12/2005</td> </tr> <tr> <td>02/2002</td> <td>ECASA 325 mg</td> <td>One tab at breakfast</td> <td>12/2005</td> </tr> <tr> <td>02/2006</td> <td>Ramipril 10mg</td> <td>One tab at supper</td> <td>02/2006</td> </tr> <tr> <td>06/2005</td> <td>Cloxacillin 500 mg</td> <td>Discontinued</td> <td></td> </tr> <tr> <td>05/2004</td> <td>Beclomethasone Cream</td> <td>Discontinued</td> <td></td> </tr> </tbody> </table>		Date	Medications	Prescriptions	Last Filled	11/1989	Hydrochlorothiazide 25 mg	One tab at breakfast	12/2005	03/1999	Glyburide 5 mg	One tab twice daily	12/2005	01/2001	Metformin 500 mg	Two tabs twice daily	12/2005	03/2001	Atorvastatin 20 mg	One tab at supper	12/2005	02/2002	Atenolol 50 mg	One tab at breakfast	12/2005	02/2002	ECASA 325 mg	One tab at breakfast	12/2005	02/2006	Ramipril 10mg	One tab at supper	02/2006	06/2005	Cloxacillin 500 mg	Discontinued		05/2004	Beclomethasone Cream	Discontinued	
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Source: Adapted from a Canada Health Infoway Inc. illustration.

Note: The individual is fictional.

The auditors note an absence of standards even among EHR projects that have been completed, perhaps because of differing statutory requirements and limitations for the jurisdictions involved. This has obvious implications from a preservation standpoint, especially where migration of digital records to an “archival” system administered by an “archival” program is concerned.

None of the audit reports, the consolidated report released by the Canadian Auditor General or any of the reports of the participating provinces make any reference to archivists, archives or preservation. What strategy, if any, should the archival community take towards the EHR initiative? What are the implications for archival programs, whether they are small, medium, or large, of aggregating the EHR’s component records, i.e., the records of the family doctor, with those of the pharmacies and hospital treatments, by resident for a provenance-based administration?

The audit reports relating to the EHR do not suggest how the archival community might engage in the EHR initiative in Canada. Leading the development of a model standard by the (inter)national record keeping profession may provide a means of surmounting the juridical limitations on the needed standards, e.g., a model standard for digital records comparable to the legal community’s *Uniform Electronic Commerce Act*. The archival community could likewise start a national discussion of the long-term implications of a patient-based EHR both for those primary users of the records, i.e., patients and care-givers over the human lifespan as well as for secondary users of the records, i.e., beyond the subjects’ lifespan, such as medical researchers and genealogists.



**APPENDIX 1:** Titles and links, some no longer correct, to audit reports reviewed.



# InterPARES 3 Project

International Research on Permanent Authentic Records in Electronic Systems

TEAM Canada

**Title:** General Study 17 – Public Sector Audit Reports on Digital Recordkeeping: Inventory of Audit Reports

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**URL:** [http://www.interpares.org/rws/display\\_file.cfm?doc=ip3\\_canada\\_gs17\\_reports\\_inventory\\_v1-1.pdf](http://www.interpares.org/rws/display_file.cfm?doc=ip3_canada_gs17_reports_inventory_v1-1.pdf)

**DOCUMENT CONTROL**

Version history			
<u>Version</u>	<u>Date</u>	<u>By</u>	<u>Version notes</u>
1.0	2010-08-29	J. Suderman, M. Groover, A. Tomé	Review draft prepared for TEAM Canada plenary workshop 07.
1.1	2010-11-01	R. Preston	Minor content and copy edits.

**Section 1: Federal – Office of the Auditor General**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2005	February Status Report, 1 – “Information Technology Security,” p. 1ff. ( <a href="http://www.oag-bvg.gc.ca/internet/docs/20061103ce.pdf">http://www.oag-bvg.gc.ca/internet/docs/20061103ce.pdf</a> )	X		
2005	February Status Report, 8. – “Managing Government: Financial Information,” p. 3ff, ( <a href="http://www.oag-bvg.gc.ca/internet/docs/20050208ce.pdf">http://www.oag-bvg.gc.ca/internet/docs/20050208ce.pdf</a> )		X	X
2005	November Report, 2: “The Quality and Reporting of Surveys,” p. 1ff. ( <a href="http://www.oag-bvg.gc.ca/internet/docs/20051102ce.pdf">http://www.oag-bvg.gc.ca/internet/docs/20051102ce.pdf</a> )		X	
2006	May Report, 7. – “Acquisition of Leased Office Space,” p. 220f. ( <a href="http://www.oag-bvg.gc.ca/internet/docs/20060507ce.pdf">http://www.oag-bvg.gc.ca/internet/docs/20060507ce.pdf</a> )			X
2006	November Report, 3 – “Large Information Technology Projects,” p. 1ff, ( <a href="http://www.oag-bvg.gc.ca/internet/docs/20061103ce.pdf">http://www.oag-bvg.gc.ca/internet/docs/20061103ce.pdf</a> )			X
2007	February Status Report, 6 – “The Management of the Social Insurance Number,” p. 21ff. ( <a href="http://www.oag-bvg.gc.ca/internet/docs/20070206ce.pdf">http://www.oag-bvg.gc.ca/internet/docs/20070206ce.pdf</a> )		X	
2007	October Report, 6 – “Management of the 2006 Census: Data Quality Management and Planning Performance Need to be Better Documented,” p. 14ff. ( <a href="http://www.oag-bvg.gc.ca/internet/docs/20071006ce.pdf">http://www.oag-bvg.gc.ca/internet/docs/20071006ce.pdf</a> )	X		
2008	December Report of the Commissioner for the Environment and Sustainable Development, 3.51f. “Managing Environmental Programming: Agriculture and Agri-Food Canada – There Has Been Slow Progress in Fixing Data Problems,” p. 15f. ( <a href="http://www.oag-bvg.gc.ca/internet/docs/parl_cesd_200812_03_e.pdf">http://www.oag-bvg.gc.ca/internet/docs/parl_cesd_200812_03_e.pdf</a> )	X		X
2008	December Report, 5 – “Managing Information Technology Investments, Canada Revenue Agency,” p. 3ff. ( <a href="http://www.oag-bvg.gc.ca/internet/docs/parl_oag_200812_05_e.pdf">http://www.oag-bvg.gc.ca/internet/docs/parl_oag_200812_05_e.pdf</a> )	X		
2008	December Report, 8 – “Reporting on Health Indicators, Health Canada,” p. 1ff, ( <a href="http://www.oag-bvg.gc.ca/internet/docs/parl_oag_200812_08_e.pdf">http://www.oag-bvg.gc.ca/internet/docs/parl_oag_200812_08_e.pdf</a> )		X	
2010	Spring Report, 1. – “Aging Information Technology Systems,” p. 5ff. ( <a href="http://www.oag-bvg.gc.ca/internet/docs/parl_oag_201004_01_e.pdf">http://www.oag-bvg.gc.ca/internet/docs/parl_oag_201004_01_e.pdf</a> )	X		X
2010	April Report, “Electronic Health Records in Canada: An Overview of Federal and Provincial Audit Reports,” p. 1ff.		X	



	<a href="http://www.oag-bvg.gc.ca/internet/docs/parl_oag_201004_07_e.pdf">http://www.oag-bvg.gc.ca/internet/docs/parl_oag_201004_07_e.pdf</a>			
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## Section 2: Provincial

### Alberta

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2005/6	Annual Report Vol. 1, 5.3 & 5.7 "Alberta Agriculture's Food Safety Information Systems," p. 84f. & 94f.  <a href="http://www.oag.ab.ca/files/oag/ar2005-06volume1.pdf">http://www.oag.ab.ca/files/oag/ar2005-06volume1.pdf</a>			X
2006/7	Annual Report Vol. 2, "Justice And Attorney General: Systems," p. 127 f. <a href="http://www.oag.ab.ca/files/oag/2006-2007_Annual_Report_Vol_2.pdf">http://www.oag.ab.ca/files/oag/2006-2007_Annual_Report_Vol_2.pdf</a>	X		X
2008	Annual Report Vol. 2, "Alberta Investment Management Corporation, 3.8: Controls over Records Management," p. 291f. <a href="http://www.oag.ab.ca/files/oag/Oct_2008_Report.pdf">http://www.oag.ab.ca/files/oag/Oct_2008_Report.pdf</a>	X		X
	Annual Report Vol. 2, "Service Alberta," p. 345f.  <a href="http://www.oag.ab.ca/files/oag/Oct_2008_Report.pdf">http://www.oag.ab.ca/files/oag/Oct_2008_Report.pdf</a>			X
2009	Annual Report Vol. 1, "Advanced Technology & Education," p. 13f. <a href="http://www.oag.ab.ca/files/oag/April_2009_Annual_Report.pdf">http://www.oag.ab.ca/files/oag/April_2009_Annual_Report.pdf</a>			X
	Annual Report Vol. 2, "Electronic Health Records," p. 59f. <a href="http://www.oag.ab.ca/files/oag/April_2009_Annual_Report.pdf">http://www.oag.ab.ca/files/oag/April_2009_Annual_Report.pdf</a>	X	X	X
	Annual Report Vol. 2, "Food Safety – Follow-Up," p. 87f. <a href="http://www.oag.ab.ca/files/oag/OAGOct2009report.pdf">http://www.oag.ab.ca/files/oag/OAGOct2009report.pdf</a>			X

### British Columbia

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2005	Audit of Government's Corporate Accounting System - Part 1  <a href="http://www.bcauditor.com/files/publications/2005/report3/report/audit-government%E2%80%99s-corporate-accounting-system.pdf">http://www.bcauditor.com/files/publications/2005/report3/report/audit-government%E2%80%99s-corporate-accounting-system.pdf</a>	X	X	X
2006	Audit of Government's Corporate Accounting System - Part 2	X	X	X

	<a href="http://www.bcauditor.com/files/publications/2006/report5/report/audit-government%E2%80%99s-corporate-accounting-system.pdf">http://www.bcauditor.com/files/publications/2006/report5/report/audit-government%E2%80%99s-corporate-accounting-system.pdf</a>			
2008	Managing Government's Payment Processing  <a href="http://www.bcauditor.com/files/publications/2008/report4/report/managing-government%E2%80%99s-payment-processing_0.pdf">http://www.bcauditor.com/files/publications/2008/report4/report/managing-government%E2%80%99s-payment-processing_0.pdf</a>			X
	Strengthening Accountability in BC: Trends and Opportunities in Performance Reporting  <a href="http://www.bcauditor.com/files/publications/2008/report2/report/strengthening-accountability-british-columbia.pdf">http://www.bcauditor.com/files/publications/2008/report2/report/strengthening-accountability-british-columbia.pdf</a>			X
2009	Report #8 (2008/2009), "Follow-up Report: Updates on the Implementation of Recommendations from Recent Reports"  <a href="http://www.bcauditor.com/files/publications/2008/report8/report/follow-report-updates-implementation-recomendations-recent-reports.pdf">http://www.bcauditor.com/files/publications/2008/report8/report/follow-report-updates-implementation-recomendations-recent-reports.pdf</a>			
	- "Infection Control" (Section 5 - 2007) <a href="http://www.bcauditor.com/files/publications/2007/report_11/report/bcoag-infection-control.pdf">http://www.bcauditor.com/files/publications/2007/report_11/report/bcoag-infection-control.pdf</a>			X
	- "Managing PharmaCare" (Section 6 – March 2006) <a href="http://www.bcauditor.com/files/publications/2006/report8/report/managing-pharmacare.pdf">http://www.bcauditor.com/files/publications/2006/report8/report/managing-pharmacare.pdf</a>			X
	- "IT Audits of the Corporate Accounting System" (Section 9 – 2005/2006) <a href="http://www.bcauditor.com/files/publications/2005/report3/report/audit-government%E2%80%99s-corporate-accounting-system.pdf">http://www.bcauditor.com/files/publications/2005/report3/report/audit-government%E2%80%99s-corporate-accounting-system.pdf</a>		X	
	"Wireless Networking Security in Victoria Government Offices: Gaps in the Defensive Line" (Feb)  <a href="http://www.bcauditor.com/files/publications/2009/report15/report/wireless-networking-security-victoria-government-offices.pdf">http://www.bcauditor.com/files/publications/2009/report15/report/wireless-networking-security-victoria-government-offices.pdf</a>	X		
2010	Report #2 (2009/2010), "Follow-up Report: Updates on the Implementation of Recommendations from Recent Reports"  <a href="http://www.bcauditor.com/files/publications/2010/report_11/report/bcoag-follow-up-11-09-10.pdf">http://www.bcauditor.com/files/publications/2010/report_11/report/bcoag-follow-up-11-09-10.pdf</a>			
	- Infection Control (Section 2 – 2 <sup>nd</sup> follow-up, March 2007)			X
	- IT Audits of the Corporate Accounting System (Section 4 – 2 <sup>nd</sup> follow-up, 2005/2006)		X	

-	Managing PharmaCare (Section 5 – 2 <sup>nd</sup> follow-up, March 2006)			X
-	Wireless networking Security (Section 9 – Feb 2009)		X	
	Wireless Networking Security in Government: Phase 2 (Mar 2010) ( <a href="http://www.bcauditor.com/files/publications/2010/report_10/report/bcoag-wireless-networking-security.pdf">http://www.bcauditor.com/files/publications/2010/report_10/report/bcoag-wireless-networking-security.pdf</a> )			X
	Electronic Health Record Implementation in BC (Feb) ( <a href="http://www.bcauditor.com/files/publications/2010/report_9/report/bcoag-electronic-health-records-ehr.pdf">http://www.bcauditor.com/files/publications/2010/report_9/report/bcoag-electronic-health-records-ehr.pdf</a> )	X	X	X
	The PARIS System for Community Care Services: Access and Security (Feb) ( <a href="http://www.bcauditor.com/files/publications/2010/report_7/report/bcoag-PARIS-IT-security-system-records.pdf">http://www.bcauditor.com/files/publications/2010/report_7/report/bcoag-PARIS-IT-security-system-records.pdf</a> )			X

**Manitoba**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2003	Audit of Public Accounts, “A Review of Gentax: An Integrated Tax Processing Software Application,” p. 139f. ( <a href="http://www.oag.mb.ca/reports/AUDITPA_DEC03.pdf">http://www.oag.mb.ca/reports/AUDITPA_DEC03.pdf</a> )	X	X	
2006	Audit of Public Accounts, “Assessment of General Computer Controls over the Technological Infrastructure,” p. 111f. ( <a href="http://www.oag.mb.ca/reports/public_accounts_2006_part1.pdf">http://www.oag.mb.ca/reports/public_accounts_2006_part1.pdf</a> )		X	

**New Brunswick**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2001	Annual Report, 8. “Audit of the Provincial Archives,” p. 173f. ( <a href="http://www.gnb.ca/oag-bvg/2001/agrep01e.pdf">http://www.gnb.ca/oag-bvg/2001/agrep01e.pdf</a> )	X		
2006	Annual Report Vol. 2, 4.121f. “Marketing boards’ wood tracking systems,” p. 124f., and 1.137f., “Forest Products Commission’s Reporting Processes,” p. 125f. ( <a href="http://www.gnb.ca/oag-bvg/2001/agrep01e.pdf">http://www.gnb.ca/oag-bvg/2001/agrep01e.pdf</a> )			X
2009	Annual Report, Vol. 2, 5. “Matters Arising from our Tests of Controls,” p. 111f.	X		X

	<a href="http://www.gnb.ca/oag-bvg/2009v2/agrepe.pdf">http://www.gnb.ca/oag-bvg/2009v2/agrepe.pdf</a>			
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**Newfoundland & Labrador**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2000	Annual Report, 3.24 "Public Records," p. 267f.  <a href="http://www.ag.gov.nl.ca/ag/annualReports/2000AnnualReport/public_records.pdf">http://www.ag.gov.nl.ca/ag/annualReports/2000AnnualReport/public_records.pdf</a>	X		
2005	Annual Report, 2.18.4f. "Royal Newfoundland Constabulary: Information Technology," and 2.18.5 "Royal Newfoundland Constabulary: Information Management," p. 381f.  <a href="http://www.ag.gov.nl.ca/ag/annualReports/2005AnnualReport/CH2.18.pdf">http://www.ag.gov.nl.ca/ag/annualReports/2005AnnualReport/CH2.18.pdf</a>		X	X
2008	Annual Report, 2.2f. "Office of the Chief Information Officer: Audit," p. 34f.  <a href="http://www.ag.gov.nl.ca/ag/annualReports/2008AnnualReport/AR2008.pdf">http://www.ag.gov.nl.ca/ag/annualReports/2008AnnualReport/AR2008.pdf</a>	X		X

**Nova Scotia**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2005	Annual Report Vol. 1, 5. "Pension Administration System (PENFAX)," p. 65f.  <a href="http://www.oag-ns.ca/June2005/June2005%20FullReport.pdf">http://www.oag-ns.ca/June2005/June2005%20FullReport.pdf</a>			X
	Annual Report Vol. 1, 6. "Nova Scotia Hospital Information System (NSHIS) Project," p. 80f.  <a href="http://www.oag-ns.ca/June2005/June2005%20FullReport.pdf">http://www.oag-ns.ca/June2005/June2005%20FullReport.pdf</a>			X
2008	Annual Report Vol. 1, 5. "Governance of Information Technology Operations," p. 67f. ( <a href="http://www.oag-ns.ca/feb2008/2008feb2008.pdf">http://www.oag-ns.ca/feb2008/2008feb2008.pdf</a> )			X
2009	Annual Report, 3. "Information Technology Security," p. 39f.  <a href="http://www.oag-ns.ca/feb2010/full0210.pdf">http://www.oag-ns.ca/feb2010/full0210.pdf</a>			X
2010	Vol. 1, 2. "Electronic Health Records," p. 9f.  <a href="http://www.oag-ns.ca/feb2010/full0210.pdf">http://www.oag-ns.ca/feb2010/full0210.pdf</a>		X	X

**Ontario**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2007	Annual Report, 3.01 “Archives of Ontario and Information Storage and Retrieval Services,” p. 36f.  ( <a href="http://www.auditor.on.ca/en/reports_en/en07/en_2007AR.pdf">http://www.auditor.on.ca/en/reports_en/en07/en_2007AR.pdf</a> )	X	X	X
2009	Annual Report, 4.01 “Archives of Ontario and Information Storage and Retrieval Services – Follow-Up,” p. 337f.  ( <a href="http://www.auditor.on.ca/en/reports_en/en09/2009AR_en_web_entire.pdf">http://www.auditor.on.ca/en/reports_en/en09/2009AR_en_web_entire.pdf</a> )	X	X	X
	Special Report: Ontario’s Electronic Records Health Initiative”  ( <a href="http://www.auditor.on.ca/en/reports_en/ehealth_en.pdf">http://www.auditor.on.ca/en/reports_en/ehealth_en.pdf</a> )	X	X	X

**Prince Edward Island**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2010	Annual Report, 3 “Implementation of the Electronic Health Records Initiative,” p. 15f. ( <a href="http://www.gov.pe.ca/photos/original/ag_report2010.pdf">http://www.gov.pe.ca/photos/original/ag_report2010.pdf</a> )	X		X

**Quebec**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2001/2	Rapport à l’assemblée nationale pour l’année 2001-2002, Tome II, Chapter 5: Gouvernance des ressources informationnelles dans le secteur de la santé et des services sociaux  ( <a href="http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2001-2002-T2/fr_Rapport2001-2002-T2-Chap05.pdf">http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2001-2002-T2/fr_Rapport2001-2002-T2-Chap05.pdf</a> )			X
2003/4	Rapport à l’assemblée nationale pour l’année 2003-2004, Tome I, Chapter 4: Gestion de la sécurité informatique  ( <a href="http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2003-2004-T1/fr_Rapport2003-2004-T1-Chap04.pdf">http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2003-2004-T1/fr_Rapport2003-2004-T1-Chap04.pdf</a> )		X	X
2004/5	Rapport à l’assemblée nationale pour l’année 2004-2005, Tome II: Chapter 3: Prestation de services du gouvernement en ligne  ( <a href="http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2004-">http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2004-</a>			X

	<a href="#">2005-T2/fr_Rapport2004-2005-T2-Chap03.pdf</a>			
2004/5	Rapport à l'assemblée nationale pour l'année 2004-2005, Tome II, Chapter 5: Suivi de verifications optimisation des ressources  ( <a href="http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2004-2005-T2/fr_Rapport2004-2005-T2-Chap05.pdf">http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2004-2005-T2/fr_Rapport2004-2005-T2-Chap05.pdf</a> )		X	
2005/6	Rapport à l'assemblée nationale pour l'année 2005-2006, Tome II, Chapter 4: Main-d'oeuvre liée aux ressources informationnelles: besoin, disponibilité et affectation  ( <a href="http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2005-2006-T2/fr_Rapport2005-2006-T2-Chap04.pdf">http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2005-2006-T2/fr_Rapport2005-2006-T2-Chap04.pdf</a> )			X
2009/10	Rapport à l'assemblée nationale pour l'année 2009-2010, Tome I, Chapter 6: Vigie relative au projet Dossier de santé du Québec  ( <a href="http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2009-2010-T1/fr_Rapport2009-2010-T1-Chap06.pdf">http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2009-2010-T1/fr_Rapport2009-2010-T1-Chap06.pdf</a> )	X		X

### Saskatchewan

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2006	Annual Report, Vol. 3, 6. "Information Technology Office," p. 207f.  ( <a href="http://www.auditor.sk.ca/saskrepnew.nsf/html/2006vol3.html/\$file/full.pdf">http://www.auditor.sk.ca/saskrepnew.nsf/html/2006vol3.html/\$file/full.pdf</a> )			X
2007	Annual Report, Vol. 3, 14. "Information Technology Office," p. 269f.  ( <a href="http://www.auditor.sk.ca/saskrepnew.nsf/html/2007vol3.html/\$file/full.pdf">http://www.auditor.sk.ca/saskrepnew.nsf/html/2007vol3.html/\$file/full.pdf</a> )			X
2008	Annual Report, Vol. 3, 12. "Information Technology Office," p. 235f.  ( <a href="http://www.auditor.sk.ca/saskrepnew.nsf/html/2008vol3index.html/\$FILE/2008vol3fr.pdf">http://www.auditor.sk.ca/saskrepnew.nsf/html/2008vol3index.html/\$FILE/2008vol3fr.pdf</a> )			X
2009	Annual Report, Vol. 1, 7. "Information Technology Office," p. 91f.  ( <a href="http://www.auditor.sk.ca/saskrepnew.nsf/html/2009vol1index.html/\$FILE/2009vol1fr.pdf">http://www.auditor.sk.ca/saskrepnew.nsf/html/2009vol1index.html/\$FILE/2009vol1fr.pdf</a> )			X
	Annual Report, Vol. 3, 10.C. "Electronic Health Records," p. 211f.  ( <a href="http://www.auditor.sk.ca/saskrepnew.nsf/html/2009vol3index.html/\$FILE/2009vol3fr.pdf">http://www.auditor.sk.ca/saskrepnew.nsf/html/2009vol3index.html/\$FILE/2009vol3fr.pdf</a> )	X	X	X

2010	Annual Report, Vol. 1, 3. "Saskatchewan Crop Insurance Corporation – Security Awareness Processes," p. 15f.  ( <a href="http://www.auditor.sk.ca/saskrepnew.nsf/html/2010vol1index.html/\$FILE/2010vol1fr.pdf">http://www.auditor.sk.ca/saskrepnew.nsf/html/2010vol1index.html/\$FILE/2010vol1fr.pdf</a> )			X
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### Section 3: Municipal

Audit reports dating from 2005 to the present that were published by the following municipalities were reviewed for this study. Municipalities that do not have a municipal auditor, i.e., a standing, independent audit office that reports directly to the municipal council, are marked with a '\*'.

Calgary	Charlottetown*	Edmonton	Halifax	Iqaluit*	Montreal
Ottawa	Quebec City (Fr. only)	Regina*	St. John* <sup>26</sup>	St. John's*	Saskatoon*
Toronto	Vancouver*	Victoria*	Whitehorse*	Winnipeg	Yellowknife*

#### Calgary

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2005	Audit Report 04-16, "Corporate Records Management Program, City Clerk's Office" ( <a href="http://www.calgary.ca/docgallery/bu/city_auditors/audit_reports/2004/ar04-16_corp_rec_man_program.pdf">http://www.calgary.ca/docgallery/bu/city_auditors/audit_reports/2004/ar04-16_corp_rec_man_program.pdf</a> )	X		
2008	See also: "Follow-up of Outstanding Audit Recommendations – Approach and Status Report (2008), Appendix B" ( <a href="http://www.calgary.ca/docgallery/bu/city_auditors/attachments/attachment_19-AC2008-29_attach_fup.pdf">http://www.calgary.ca/docgallery/bu/city_auditors/attachments/attachment_19-AC2008-29_attach_fup.pdf</a> )			
2005	Audit Report 05-05, "IT Business Continuity Plans" ( <a href="http://www.calgary.ca/docgallery/bu/city_auditors/audit_reports/2005/ar05-05_it_business_continuity_plan.pdf">http://www.calgary.ca/docgallery/bu/city_auditors/audit_reports/2005/ar05-05_it_business_continuity_plan.pdf</a> )			X
2008	Audit Report 08-01, "Public One Stop Service (Posse) System" ( <a href="http://www.calgary.ca/docgallery/bu/city_auditors/annual_reports/audit_report_posse_08_01.pdf">http://www.calgary.ca/docgallery/bu/city_auditors/annual_reports/audit_report_posse_08_01.pdf</a> )			X

<sup>26</sup> St. John does not appear to have a City Auditor but is developing Performance Reports as part of Council's [Accountability Framework](#).

2010	Audit Report AR10-03 (12 May 2010), Human Resources Performance Audit, section 4.8, "The process for compiling requisition files needs to be improved" <a href="http://www.calgary.ca/portal/server.pt/gateway/PTARGS_0_0_780_235_0_43/http%3B/content.calgary.ca/CCA/City+Hall/Municipal+Government/City+Auditors+Office/Audit+Services/City+Auditors+Reports/Reports+2010.htm">http://www.calgary.ca/portal/server.pt/gateway/PTARGS_0_0_780_235_0_43/http%3B/content.calgary.ca/CCA/City+Hall/Municipal+Government/City+Auditors+Office/Audit+Services/City+Auditors+Reports/Reports+2010.htm</a>		X	
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**Montreal**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2005	("Application OASIS-control taxation environment"; e-Cite: Internet strategy" sections), pp. 10-19, 40-66. <a href="http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_en/media/documents/RapportAnnuel2005_en.pdf">http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_en/media/documents/RapportAnnuel2005_en.pdf</a>	X		X
2006	Report of the City General Auditor to the Conseil Municipal and to the Conseil D'Agglomeration ("E-Mail at the Ville de Montreal"; "Information processing centres' environment" sections), pp. 19-49. <a href="http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_fr/media/documents/RapportAnnuel2006_en.pdf">http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_fr/media/documents/RapportAnnuel2006_en.pdf</a>			X
2007	Report of the City General Auditor to the Conseil Municipal and to the Conseil D'Agglomeration ("IT change management"; "Client enquiry management (CEM)" sections), pp.28-69. <a href="http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_en/media/documents/RapportAnnuel2007_en.pdf">http://ville.montreal.qc.ca/pls/portal/docs/page/verificateur_en/media/documents/RapportAnnuel2007_en.pdf</a>		X	X
2008	Report of the City General Auditor to the Conseil Municipal and to the Conseil D'Agglomeration, pp. 44-62 <a href="http://ville.montreal.qc.ca/pls/portal/docs/PAGE/VERIFICATEUR_EN/MEDIA/DOCUMENTS/RAPPORTANNUELANGLAIS2008.PDF">http://ville.montreal.qc.ca/pls/portal/docs/PAGE/VERIFICATEUR_EN/MEDIA/DOCUMENTS/RAPPORTANNUELANGLAIS2008.PDF</a>		X	

**Toronto**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2010	May 7 Audit Report – "Administration of Municipal Land Transfer Tax, Revenue Services Division: Appendix 1" <a href="http://www.toronto.ca/audit/2010/appendix1_june16.pdf">http://www.toronto.ca/audit/2010/appendix1_june16.pdf</a>			X
	March 12 Audit Report – "Governance and Management of City Wireless Technology Needs Improvement: Appendix 1"			X



	<a href="http://www.toronto.ca/audit/2010/audit_report_april20.pdf">http://www.toronto.ca/audit/2010/audit_report_april20.pdf</a>			
2009	January 16 Audit Report – “Review of Management and Oversight of the Integrated Business Management System (IBMS): Appendix 1”  <a href="http://www.toronto.ca/audit/2009/audit_ibms_appendix_jan16.pdf">http://www.toronto.ca/audit/2009/audit_ibms_appendix_jan16.pdf</a>			X
2008	February 28 Audit Report – “Property Tax Appeals and Refund Processing, Revenue Services Division: Appendix 1”  <a href="http://www.toronto.ca/audit/2007/property_tax_audit_report_feb2007.pdf">http://www.toronto.ca/audit/2007/property_tax_audit_report_feb2007.pdf</a>			X

**Edmonton**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2009	June 18: “Information Technology Corporate Audit”  <a href="http://www.edmonton.ca/city_government/documents/09274_IT_Corporate_Audit.pdf">http://www.edmonton.ca/city_government/documents/09274_IT_Corporate_Audit.pdf</a>			X
	November 3: “Audit of Privacy Controls for Laptops & Tablets”  <a href="http://www.edmonton.ca/city_government/documents/07214_Privacy_Controls_Laptops_Tablets.pdf">http://www.edmonton.ca/city_government/documents/07214_Privacy_Controls_Laptops_Tablets.pdf</a>			X
2005	December 5: “Property Assessment Data”  <a href="http://www.edmonton.ca/city_government/documents/CityGov/05171_Property_Assessment_Data.pdf">http://www.edmonton.ca/city_government/documents/CityGov/05171_Property_Assessment_Data.pdf</a>			X
2008	January 22: “Property Assessment Data Follow Up”  <a href="http://www.edmonton.ca/city_government/documents/CityGov/07231_Property_Assessment_Data_Follow_up.pdf">http://www.edmonton.ca/city_government/documents/CityGov/07231_Property_Assessment_Data_Follow_up.pdf</a>			

**Halifax<sup>27</sup>**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2010	“Development and Use of Spreadsheets” (not yet published: outlined in 2010-2011 Action Plan)			X

<sup>27</sup> Halifax appointed its first Auditor General in September 2009. There are no reports published on the [Web site](#) as of 9 August 2010.

	"Records Management Policy" (not yet published: outlined in 2010-2011 Action Plan)	X		
	Halifax Government: "Freedom of Information and Protection of Privacy," and related sites: ( <a href="http://www.halifax.ca/irm/">http://www.halifax.ca/irm/</a> )	X		

**Ottawa**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2006	"Audit of the Financial Control Environment," Ch. 9 ( <a href="http://www.ottawa.ca/city_hall/mayor_council/auditor_general/audit_reports/2006/9_financial_internal_control.pdf">http://www.ottawa.ca/city_hall/mayor_council/auditor_general/audit_reports/2006/9_financial_internal_control.pdf</a> )			X
	"Audit of the IT Processes of the Computerized Financial System," Ch. 6 ( <a href="http://www.ottawa.ca/city_hall/mayor_council/auditor_general/audit_reports/2006/9_financial_internal_control.pdf">http://www.ottawa.ca/city_hall/mayor_council/auditor_general/audit_reports/2006/9_financial_internal_control.pdf</a> )			X

**Quebec City**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2006	Le Vérificateur général de la Ville de Québec, Rapport au Conseil Municipal 2006, Chapter 1 "Acquisition des équipements informatiques et sécurité du système d'information" ( <a href="http://www.ville.quebec.qc.ca/publications/docs_ville/rapport_verificateur_general_2006.pdf">http://www.ville.quebec.qc.ca/publications/docs_ville/rapport_verificateur_general_2006.pdf</a> )	X		
2006	Le Vérificateur général de la Ville de Québec, Rapport au Conseil Municipal 2006, Chapter 12: "Gestion documentaire" ( <a href="http://www.ville.quebec.qc.ca/publications/docs_ville/rapport_verificateur_general_2006.pdf">http://www.ville.quebec.qc.ca/publications/docs_ville/rapport_verificateur_general_2006.pdf</a> )		X	X
2007	Le Vérificateur général de la Ville de Québec, Rapport au Conseil Municipal 2007, Tome I, Chapter 4 "Gestion des bibliothèques" ( <a href="http://www.ville.quebec.qc.ca/publications/docs_ville/rapport_verificateur_general_2007.pdf">http://www.ville.quebec.qc.ca/publications/docs_ville/rapport_verificateur_general_2007.pdf</a> )	X		
2008	Le Vérificateur général de la Ville de Québec, Rapport au Conseil Municipal 2008, Chapter 19, "Gestion des bibliothèques" ( <a href="http://www.ville.quebec.qc.ca/publications/docs_ville/rapport_verificateur">http://www.ville.quebec.qc.ca/publications/docs_ville/rapport_verificateur</a> )	X		

	<a href="#">_general_2008.pdf</a> )			
2009	Le Vérificateur général de la Ville de Québec, Rapport au Conseil Municipal 2009, Chapter 14, “Gestion des bibliothèques” ( <a href="http://www.ville.quebec.qc.ca/publications/docs_ville/rapport_verificateur_general_2008.pdf">http://www.ville.quebec.qc.ca/publications/docs_ville/rapport_verificateur_general_2008.pdf</a> )	X		

**Winnipeg**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2008	“Assessment of Information Security Awareness” ( <a href="http://winnipeg.ca/audit/pdfs/reports/ITSecurityAwareness.pdf">http://winnipeg.ca/audit/pdfs/reports/ITSecurityAwareness.pdf</a> )			X

**Section 4: Resources and Reports From the Broader Public Sector (Schools, Universities, Hospitals, etc.)****Alberta**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2006/ 2007	Alberta Annual Report Vol. 2, “Advanced Education and Technology,” p. 3ff. ( <a href="http://www.oag.ab.ca/files/oag/2006-2007_Annual_Report_Vol_2.pdf">http://www.oag.ab.ca/files/oag/2006-2007_Annual_Report_Vol_2.pdf</a> )  <ul style="list-style-type: none"> <li>Security policy and User access privileges (p. 13) – “...644 users who could change historical Peoplesoft data without the system showing the changes.” (p. 14)</li> <li>3.6.1 “Security configuration settings” (p. 24)</li> <li>example of a performance report for a school division (p.43);</li> <li>absence of specific record – “a written business case” – lack of clarity for audit (p.45)</li> </ul>			X
			X	

**British Columbia**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
N/A	BC Health Authority Shared Services Organization, “Information Technology Services” and related websites: ( <a href="http://www.bchealthsso.ca/ForHealthAuthorities/Information+Technology+Services.htm">http://www.bchealthsso.ca/ForHealthAuthorities/Information+Technology+Services.htm</a> )	Reference		

2005	February, “Abbotsford Regional Hospital and Cancer Centre Project” ( <a href="http://www.partnershipsbcc.ca/files_2/documents/020705_PBCAbbotsford.pdf">http://www.partnershipsbcc.ca/files_2/documents/020705_PBCAbbotsford.pdf</a> )			X
2006	December, “Government’s Post-secondary Expansion: 25000 Seats by 2012” ( <a href="http://www.bcauditor.com/files/publications/2006/report7/report/government%E2%80%99s-post%E2%80%91secondary-expansion.pdf">http://www.bcauditor.com/files/publications/2006/report7/report/government%E2%80%99s-post%E2%80%91secondary-expansion.pdf</a> )			X
	“Managing PharmaCare” ( <a href="http://www.bcauditor.com/files/publications/2006/report8/report/managing-pharmacare.pdf">http://www.bcauditor.com/files/publications/2006/report8/report/managing-pharmacare.pdf</a> )	X		X
2007	“Infection Control: Essential for a Healthy British Columbia” ( <a href="http://www.bcauditor.com/files/publications/2007/report_11/report/bcoag-infection-control.pdf">http://www.bcauditor.com/files/publications/2007/report_11/report/bcoag-infection-control.pdf</a> )	X		X
2008	“Literacy: Creating the Conditions for Reading and Writing Success” ( <a href="http://www.bcauditor.com/files/publications/2008/report6/report/literacy.pdf">http://www.bcauditor.com/files/publications/2008/report6/report/literacy.pdf</a> )			X
	“Summary of Findings: BC Arts Council Audit” ( <a href="http://www.bcauditor.com/files/publications/2008/report_14/report/bcoag-art.pdf">http://www.bcauditor.com/files/publications/2008/report_14/report/bcoag-art.pdf</a> )			X

### Manitoba

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2009	“Achieving Health System Accountability” ( <a href="http://www.gov.mb.ca/health/rha/docs/ahsa2009.pdf">http://www.gov.mb.ca/health/rha/docs/ahsa2009.pdf</a> )	X	X	X
2008	“Report of the Manitoba Regional Health Authority External Review Committee” ( <a href="http://www.gov.mb.ca/health/rha/docs/report0208.pdf">http://www.gov.mb.ca/health/rha/docs/report0208.pdf</a> )	X	X	X
N/A	“Manitoba’s Electronic Health Record Project” ( <a href="http://www.manitoba-ehealth.ca/ehr/index.html">http://www.manitoba-ehealth.ca/ehr/index.html</a> )	Reference		

## Ontario

NB: The mandate of the Office of the Auditor General of Ontario was expanded, effective 1 April 2005, "to include the thousands of organizations in the broader public sector that receive government grants."<sup>28</sup>

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2009	"Ontario's Electronic Health Records Initiative"  ( <a href="http://www.auditor.on.ca/en/reports_en/ehealth_en.pdf">http://www.auditor.on.ca/en/reports_en/ehealth_en.pdf</a> )	X		X
2007, 2009	Ontario Annual Report 2007, "Ministry of Health and Long-Term Care: Drug Programs Activity," 3.05  ( <a href="http://www.auditor.on.ca/en/reports_en/en07/305en07.pdf">http://www.auditor.on.ca/en/reports_en/en07/305en07.pdf</a> )  2009 Follow-up to the above:  ( <a href="http://www.auditor.on.ca/en/reports_en/en09/405en09.pdf">http://www.auditor.on.ca/en/reports_en/en09/405en09.pdf</a> )		X	
2006 2008	Ontario Annual Report 2006: "Ministry of Health and Long-Term Care: Ontario Health Insurance Plan," 3.08  ( <a href="http://www.auditor.on.ca/en/reports_en/en06/308en06.pdf">http://www.auditor.on.ca/en/reports_en/en06/308en06.pdf</a> )  2008 Follow-up to the above:  ( <a href="http://www.auditor.on.ca/en/reports_en/en08/408en08.pdf">http://www.auditor.on.ca/en/reports_en/en08/408en08.pdf</a> )			X
2007	Toronto Central Local Health Integration Network Annual Report 2006/2007  ( <a href="http://www.torontocentrallhin.on.ca/annualreports.aspx?ekmense1=e2f22c9a_72_206_88_4">http://www.torontocentrallhin.on.ca/annualreports.aspx?ekmense1=e2f22c9a_72_206_88_4</a> )  <ul style="list-style-type: none"> <li>• "Health Services accountability framework" (p.18);</li> <li>• "eHealth strategy" (p.24)</li> </ul>	X		X
2009	Toronto Central LHIN, "Joint eHealth Strategy: eHealth Governance," p. 9f.  ( <a href="http://www.torontocentrallhin.on.ca/uploadedFiles/Home_Page/Report_and_Publications/eHealthStrategy-EN.PDF">http://www.torontocentrallhin.on.ca/uploadedFiles/Home_Page/Report_and_Publications/eHealthStrategy-EN.PDF</a> )	Reference		

<sup>28</sup> Auditor General of Ontario. 2005 Annual Report, Chapter 2, "[Towards Better Accountability](#)," p. 18.

**Nova Scotia**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2008	<p>“Nova Scotia Department of Health eResults Review”</p> <p>(<a href="http://www.gov.ns.ca/health/eResults/Nova_Scotia_Department_Health_eResults_Findings.pdf">http://www.gov.ns.ca/health/eResults/Nova_Scotia_Department_Health_eResults_Findings.pdf</a>) see also Web site at (<a href="http://www.gov.ns.ca/health/eResults/default.asp">http://www.gov.ns.ca/health/eResults/default.asp</a>)</p>	X		X

**Prince Edward Island**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2010	<p>“Security Assessment –Drug Information System”</p> <p>(<a href="http://www.gov.pe.ca/photos/original/ag_report2010.pdf">http://www.gov.pe.ca/photos/original/ag_report2010.pdf</a>)</p>	X		X

**Quebec**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2009/10	<p>Rapport à l’assemblée nationale pour l’année 2005-2006, Tome I, Chapter 4: Institut national de santé publique du Québec verification relative à la gestion, à la conformité et à la reddition de comptes, section 4.46</p> <p>(<a href="http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2009-2010-T1/fr_Rapport2009-2010-T1-Chap04.pdf">http://www.vgq.gouv.qc.ca/fr/fr_publications/fr_rapport-annuel/fr_2009-2010-T1/fr_Rapport2009-2010-T1-Chap04.pdf</a>)</p>			X

**Saskatchewan**

Year	Title, relevant section(s) and URL	Q1	Q2	Q3
2010	<p>Saskatchewan Annual Report 2010, volume 1, Chapter 9, “Public Service Commission,” p. 107</p> <p>(<a href="http://www.auditor.sk.ca/saskrepnew.nsf/html/2010vol1index.html/\$FILE/2010vol1fr.pdf">http://www.auditor.sk.ca/saskrepnew.nsf/html/2010vol1index.html/\$FILE/2010vol1fr.pdf</a>)</p>		X	X

**Appendix A: Public Sector Auditing: Manuals, Guidelines, Tools**

NB: These materials are included to give context to the environment in which public-sector auditors and auditees operate within Canada.

(1995, Alberta) "Auditing For The Public"

[http://www.oag.ab.ca/files/oag/Auditing\\_Public.pdf](http://www.oag.ab.ca/files/oag/Auditing_Public.pdf)

(1995, Federal) "Auditing Of Efficiency"

[http://www.oag-bvg.gc.ca/internet/docs/auditing\\_of\\_efficiency.pdf](http://www.oag-bvg.gc.ca/internet/docs/auditing_of_efficiency.pdf)

(1998, Federal) "Conducting Surveys"

[http://www.oag-bvg.gc.ca/internet/docs/conducting\\_surveys.pdf](http://www.oag-bvg.gc.ca/internet/docs/conducting_surveys.pdf)

(2001, Federal) "Audits Of Grant Contribution Programs"

[http://www.oag-bvg.gc.ca/internet/docs/grants\\_and\\_contributions.pdf](http://www.oag-bvg.gc.ca/internet/docs/grants_and_contributions.pdf)

(2000, British Columbia) "Towards a More Accountable Government: Putting Ideas Into Practise"

<http://www.bcauditor.com/files/publications/2000/report11/report/towards-more-accountable-government-putting-ideas-practice.pdf>

(2000, Federal) "Special Examination Manual"

[http://www.oag-bvg.gc.ca/internet/docs/sem\\_e.pdf](http://www.oag-bvg.gc.ca/internet/docs/sem_e.pdf)

(2002, Alberta) "Best Practices in Preparing an Integrated Results Analysis"

[http://www.oag.ab.ca/files/oag/IRA\\_Best\\_Prac.pdf](http://www.oag.ab.ca/files/oag/IRA_Best_Prac.pdf)

(2004, Federal) "Performance Audit Manual"

[http://www.oag-bvg.gc.ca/internet/docs/pam\\_e.pdf](http://www.oag-bvg.gc.ca/internet/docs/pam_e.pdf)

(2006, British Columbia) "Province of BC Audit Committees - Doing The Right Thing"

<http://www.bcauditor.com/files/publications/2006/report4/report/province-british-columbia-audit-committees.pdf>

(2008, Federal) "An Auditee's Guide to the Performance Audit Process"

[http://www.oag-bvg.gc.ca/internet/docs/aud\\_gde\\_e\\_30860.pdf](http://www.oag-bvg.gc.ca/internet/docs/aud_gde_e_30860.pdf)



(2009, Federal) “Annual Audit Manual”

[http://www.oag-bvg.gc.ca/internet/docs/fourth\\_e\\_guide\\_e.pdf](http://www.oag-bvg.gc.ca/internet/docs/fourth_e_guide_e.pdf)

(2009, Federal) “4th Edition Practise Guide”

[http://www.oag-bvg.gc.ca/internet/docs/fourth\\_e\\_guide\\_e.pdf](http://www.oag-bvg.gc.ca/internet/docs/fourth_e_guide_e.pdf)

(2010, Federal) “What to Expect: A Crown Corporation's Guide to a Special Examination”

[http://www.oag-bvg.gc.ca/internet/docs/meth\\_lp\\_e\\_33497.pdf](http://www.oag-bvg.gc.ca/internet/docs/meth_lp_e_33497.pdf)

## **Appendix B: Relevant Legislation**

Auditor General Act (Canada):

<http://laws.justice.gc.ca/PDF/Statute/A/A-17.pdf>

Auditor General Act (Alberta)

[http://www.oag.ab.ca/files/oag/AG\\_Act.pdf](http://www.oag.ab.ca/files/oag/AG_Act.pdf)

Auditor General Act (British Columbia)

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/00\\_03002\\_01](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_03002_01)

Auditor General Act (Manitoba)

<http://web2.gov.mb.ca/laws/statutes/2001/c03901e.php>

Auditor General Act (New Brunswick)

<http://www.gnb.ca/0062/PDF-acts/a-17-1.pdf>

Auditor General Act (Newfoundland & Labrador)

<http://assembly.nl.ca/legislation/sr/statutes/a2291.htm>

Auditor General Act (Nova Scotia)

<http://www.gov.ns.ca/legislature/legc/statutes/auditor.htm>

Auditor General Act (Ontario)

[http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90a35\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90a35_e.htm)

Audit Act (Prince Edward Island)

<http://www.gov.pe.ca/law/statutes/pdf/a-24.pdf>

Auditor General Act (Quebec)

<http://www.canlii.org/en/qc/laws/stat/rsq-c-v-5.01/latest/rsq-c-v-5.01.html>

Provincial Auditor Act (Saskatchewan)

<http://www.qp.gov.sk.ca/documents/English/Statutes/Statutes/P30-01.pdf>