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Final Report

**Audit of Management Control over Information Technology
Funding for Infrastructure Sustainability**

2006-12-08

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EXECUTIVE SUMMARY

Objective and Scope

The Public Works and Government Services Canada (PWGSC) Audit, Assurance and Ethics Committee approved the Audit of Management Control over Information Technology (IT) Funding for Infrastructure Sustainability within PWGSC as part of the 2005-06 Audit and Evaluation Plan. The objective was to assess management control over IT funding for infrastructure sustainability within PWGSC to ensure adequate planning and resourcing mechanisms.

The scope of the audit included the Information Technology Services Branch (ITSB) as well as internal interfacing organizations within the department. The infrastructure includes hardware, software, communications, etc. that support PWGSC business lines as well as corporate applications. The scope did not include Information Management nor IT services provided to other government departments.

Audit criteria were drawn from the Control Objectives for Information and related Technology (CobiT) issued by the IT Governance Institute and the concepts expressed in Treasury Board of Canada Secretariat's (TBS) Management Accountability Framework (MAF).

Audit Conclusions

PWGSC uses IT in support of all its business lines. Sustainable IT infrastructure is important to ensuring that PWGSC can deliver its services. The transition of ITSB to the IT-SSO provides a timely opportunity for PWGSC enterprise level consideration of IT Infrastructure investment needs.

The audit found the following weaknesses in management controls over IT funding for infrastructure sustainability:

- There is no department-wide governing body tasked with making decisions specifically for IT investments, particularly for infrastructure sustainability. Important decisions to be made include: an approach to investment in IT sustainability; identification of investment priorities; allocation of resources to those priorities; and, monitoring of investment in IT sustainability. Accountabilities for ensuring a sustainable IT infrastructure are diffused and shared, resulting in no one body being truly accountable for ensuring a sustainable IT infrastructure.
- Absence of a clear, long-term integrated approach to investing in IT infrastructure capital replacement increases the risk of insufficient funding. This could lead to inefficiencies and lost savings due to the unpredictability of funding and the piecemeal nature of the

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investments. Further, strategies and plans to invest in new technologies to sustain current infrastructure have been constrained by the lack of long-term funding.

- Although risks associated with the IT infrastructure sustainability have been identified, it is not clear whether they are being acted upon.

Recommendations

It is recommended that the CEO - ITSB:

1. Take the lead to establish a governing body dedicated to considering matters related to IT infrastructure sustainability. This body should be representative of client Branches and accountable for, among other things: the approach to investment in IT infrastructure sustainability; the identification of IT investment priorities; and, the allocation of resources to those priorities.
2. Take the lead to propose a department-wide long-term IT infrastructure sustainability investment fund and develop a plan, in cooperation with client Branches, addressing both IT operating and IT capital investments that will contribute to the strategic objectives of the Department.
3. Ensure that risks related to IT sustainability are formally assessed, that mitigation strategies are developed, and that these risks and mitigation strategies are monitored and reported to senior management through their inclusion in the department's corporate risk management profile.

1 INTRODUCTION

1.1 Authority for the Project

The Audit of Management Control over Information Technology (IT) Funding for Infrastructure Sustainability within PWGSC was approved by the PWGSC Audit, Assurance and Ethics Committee as part of the 2005-06 Audit and Evaluation Plan.

1.2 Objective

The objective was to assess management control over IT funding for infrastructure sustainability within PWGSC to ensure adequate planning and resourcing mechanisms.

1.3 Scope and Approach

The scope included the Information Technology Services Branch (ITSB) as well as internal interfacing branches, namely: Finance; Accounting, Banking & Compensation; Acquisitions; Government Information Services; Real Property Services; and Service Integration. The infrastructure includes hardware, software, communications, etc. that supports PWGSC business lines as well as corporate applications. The audit scope did not include Information Management (IM) nor IT services provided to other government departments.

Audit criteria were drawn from the Control Objectives for Information and related Technology (CobIT) issued by the IT Governance Institute and the concepts expressed in Treasury Board of Canada Secretariat's (TBS) Management Accountability Framework (MAF).

1.4 Background

PWGSC, like all departments in the Government of Canada, uses IT in support of its business lines and there are challenges with respect to development of funding strategies for infrastructure sustainability. Ensuring that the IT infrastructure is sustainable is important to ensure that PWGSC can deliver its services in a timely, efficient and effective manner. For the purposes of this audit, infrastructure sustainability is defined as maintaining the operability of the IT infrastructure.

ITSB provides electronic infrastructure and professional services to all departments and agencies in the areas of network and computer services, telecommunications, and application development. PWGSC's IM/IT environment includes more than \$635M/yr in expenditures and approximately \$200M in asset base¹. PWGSC's capacity to ensure the sustainability of IT infrastructure to support internal operations, the services it provides, and the stewardship of the assets with which it is entrusted is a key requirement.

¹ Strengthening PWGSC's IM/IT. Presentation to Departmental Operations Committee. February 8, 2006.

2 Findings, Conclusions and Recommendations

2.1 Findings

2.1.1 Adequacy of IT Governance for Planning and Resourcing

The audit found weaknesses in IT governance as a management control with respect to infrastructure sustainability. There is no department-wide governing body dedicated to making decisions specifically for IT investments, and particularly for IT infrastructure sustainability. For the most part, decisions regarding IT infrastructure sustainability have been taken within ITSB, and within existing funding allocations. ITSB has authority to make department-wide investment decisions. However, Branches and Special Operating Agencies also have the flexibility to independently make investments on their own, that may impact the departmental IT infrastructure.

Branch spending decisions tend to be focused on individual operational requirements and not on investment in IT infrastructure sustainability. Without a department-wide focus on IT sustainability, annual spending decisions will continue to be focused only on short-term operational requirements, without sufficient regard to investing in IT infrastructure capital replacement.

Although Branches within PWGSC identify IT investment priorities, there is no formal process for ensuring department-wide prioritization and associated allocation of resources. While ITSB consults with Branches to determine upcoming priorities, these priorities are not assessed or ranked across Branches, nor are they linked to PWGSC department-wide priorities. Business lines consider their A-base IT funds as their own (even though the funds have been transferred to ITSB). PWGSC Branches have been planning bilaterally with ITSB.

ITSB manages the IT infrastructure investments for PWGSC and it charges for its services. Rates charged to ITSB's external clients contain provisions for IT sustainability and evergreening. The rates charged to PWGSC do not include these provisions. Branches can also request funding from the DM or Strategic Reserve for projects, including IT infrastructure replacement projects, through a formal bi-annual business case process. When Branches prepare their business cases, they normally consult with ITSB regarding the costs for IT infrastructure in support of their IT projects.

A five-year Capital Investment Plan is prepared and presented to ITSB senior management for funding allocations. However, these plans have not been providing an integrated long-term vision for investment in IT sustainability, explaining how investment in IT would contribute to PWGSC's strategic objectives and related costs and risks. The plans do not address funding sources, the timing for receipt of funds, or acquisition strategies which have an impact on planning and price negotiation. Without a long-term department-wide IT strategy, investment in

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IT infrastructure is done on a piecemeal basis in reaction to the immediate needs of the individual Branches. Furthermore, strategies to invest in new technologies have been constrained by the lack of long-term funding. Consequently, resources have been directed towards maintaining old technology for as long as possible.

Table 1 below also demonstrates how infrastructure replacement funding has been addressed through special funding and year-end allocations. The information was taken directly from a presentation to the DOC by the CEO-ITSB on November 24th 2004, and summarizes funding for IT infrastructure sustainability (numbers were not audited). Table 1 shows that since 1996/97, \$142.0 million was invested in IT infrastructure from which \$116.4 million (82%) came from special funding.

Table 1: Funding for IT Infrastructure Sustainability (unaudited)

Fiscal Year	Amount of Special Funding (in millions)	Amount of Year End Funding (in millions)	Total Funding (in millions)	Source of Funding
1996/97	\$ 40.0	-	\$ 40.0	Office Infrastructure Renewal
1997/98	-	\$ 4.0	4.0	Year End GTIS
1998/99	-	3.0	3.0	Year End GTIS
1999/00	25.0	-	25.0	Year 2000
2000/01	-	2.5	2.5	Year End GTIS
2001/02	32.0	7.2	39.2	Program Integrity (PI) Rust Out
2002/03	14.2	2.6	16.8	PI Rust Out & Year End ITSB
2003/04	-	6.3	6.3	Year End ITSB
2004/05	5.2	Unknown	5.2	DM's Reserve
Total	\$ 116.4	\$ 25.6	\$ 142.0	

For 2005-06, \$4.94 million came from Year End, Accounting Banking Compensation Branch. For 2006-07 ITSB has prepared a Funding Proposal Business Case for the Financial Management and Comptrollership Committee identifying “\$7.8 million for critical investments absolutely required”. Special funding is reserved for one-time initiatives with no multi-year funding. The lack of forward funding makes both annual and long term planning difficult.

As ITSB transitions to the new IT-Shared Service Organization (IT-SSO) PWGSC will need to strengthen the planning and resourcing of its infrastructure requirements from a PWGSC enterprise perspective. This means combining and prioritizing all of its IT infrastructure investments.

2.1.2 Controls over IT Budgeting and Monitoring

The audit found there are a number of controls in place over budgeting and monitoring for IT infrastructure within ITSB. A budget is prepared within ITSB that distributes costs to operate and maintain the infrastructure in support of various Branch programs. The process to monitor costs is effective. Costs are monitored and reported at the directorate, branch and department levels. A cost management process is in place to compare actual costs to budgeted costs. Significant differences in forecast variances are explained monthly in the Departmental Management Report. Forecasts are prepared in ITSB for service line and responsibility centre (RC) levels. A detailed costing system is in place for allocating direct, indirect, and overhead costs for each service line. The costing system is used annually to assess the cost recovery of each service line.

2.1.3 Adequacy of Performance Controls

Performance related to IT infrastructure is monitored and reported regularly within ITSB. Operational performance targets related specifically to IT infrastructure have been established internally by ITSB, and are measured and reported monthly through the Dashboard and Monthly Operations Report (MOR). The MOR, discussed in detail at the ITSB Operations Committee meetings, reports on several performance metrics, including detailed measures on availability, utilization, response times and volumes of various IT infrastructure. A colour scheme (green, yellow, red) is used to highlight where performance drops below targets. Corrective actions are taken where possible to avoid a degradation of service levels.

With respect to service levels for client Branches, these are not well defined. While service agreements are established between individual Branches and ITSB for the delivery of basic services such as Office Systems Support Services, service levels are not identified. Charges are negotiated with Branches for each service provided. In many cases, services and their related charges are negotiated individually with each Branch to accommodate specific business requirements. However charges to client Branches are prepared based on the amounts in the individual service agreements, with no reference to formal performance levels.

As ITSB transitions to the new IT-Shared Service Organization (IT-SSO) where PWGSC will purchase IT infrastructure services from the IT-SSO, new templates for Service Level Agreements are being developed for standard services for all client Branches. The new template includes detailed performance targets such as wait times for problem reporting, response times and availability.

2.1.4 Adequacy of Risk Management

Risks associated with the IT infrastructure have been identified and assessed by ITSB on behalf of all clients in PWGSC. ITSB has also documented a Branch Risk Profile to assist ITSB

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management in mitigating its identified risks. Specific risks to the infrastructure are identified through an asset capitalization database (AMMIS – Automated Material Management Information System) and are also raised periodically by the DG Service Management and Delivery (SM&D).

Early in 2005 IT infrastructure risks were identified and assessed as high within a Draft PWGSC Corporate Risk Profile. There is a risk of insufficient funding to support the lifecycle replacement of IT infrastructure assets designated by ITSB as requiring replacement. This could lead to inefficiencies in operations and lost opportunities for savings.

Although risks are identified by ITSB, the audit found that risk identification has not led to risk mitigation. Since mitigation plans to address investment in IT infrastructure sustainability have not been formally prepared, the audit cannot conclude whether PWGSC management has explicitly accepted the level of risk tolerance. Without a clear understanding of who owns and manages the risk, the department may be assuming a level of risk associated with its IT infrastructure, outside the risk tolerance of senior management and client Branches.

2.2 Conclusions

PWGSC uses IT in support of all its business lines. Sustainable IT infrastructure is important to ensuring that PWGSC can deliver its services. The transition of ITSB to the IT-SSO provides a timely opportunity for PWGSC enterprise level consideration of IT Infrastructure investment needs.

The audit found the following weaknesses in management controls over IT funding for infrastructure sustainability:

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- Absence of a clear, long-term integrated approach to investing in IT infrastructure capital replacement increases the risk of insufficient funding. This could lead to inefficiencies and lost savings due to the unpredictability of funding and the piecemeal nature of the investments. Further, strategies and plans to invest in new technologies to sustain current infrastructure have been constrained by the lack of long-term funding.
- Although risks associated with the IT infrastructure sustainability have been identified, it is not clear whether they are being acted upon.

2.3 Recommendations

It is recommended that the CEO - ITSB:

1. Take the lead to establish a governing body dedicated to considering matters related to IT infrastructure sustainability. This body should be representative of client Branches and accountable for, among other things: the approach to investment in IT infrastructure sustainability; the identification of IT investment priorities; and, the allocation of resources to those priorities.
2. Take the lead to propose a department-wide long-term IT infrastructure sustainability investment fund and develop a plan, in cooperation with client Branches, addressing both IT operating and IT capital investments that will contribute to the strategic objectives of the Department.
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