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SUD of EPS
(Electronic Procurement Through Settlement)

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Public Works and Government Services Canada
Audit and Review

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Executive Summary

Authority for the Project

This Systems Under Development (SUD) project was part of the 2000/2001 Audit and Review plan as approved by Public Works and Government Services Canada's (PWGSC's) Audit and Review Committee.

Objective

The overall objective of the project was to assess the effectiveness of the Management Control Framework (MCF) for the Electronic Procurement Through Settlement Project (which has since been renamed the e-Purchasing project), including those processes intended to meet stated requirements, to manage change, to manage risks, and to provide for adequate controls.

Scope

This audit focused on the activities undertaken to ensure the success of the e-Purchasing initiative, with an emphasis on:

- Definition and Communication of requirements, objectives and goals;
- Organizational structures, including the provision of resources;
- Planning and Risk Assessment, including, workload estimates and costs;
- Capability/Continuous Learning, including training and operating instructions;
- Direct Control Activities and mechanisms;
- Indicator/Measurement Controls; and,
- The overall Project Management Regime.

Background

PWGSC, as a common service procurement organization, has a mandate to organize the supply of goods and services for the benefit of the Government of Canada. Over time, and to fulfil this mandate, various organizational units within the department undertook initiatives to establish systems that would enable departments and agencies to acquire goods and services rapidly, efficiently and cost-effectively. The depth and breadth of end-user purchasing and/or cataloguing functionality in these systems varied considerably, and many of them were commodity specific. As well, functions and features were duplicated, and it was believed that significant benefits could be realized by delivering the functionality of these systems in a cohesive and integrated manner.

Originally, the project that was to deliver the cohesive and integrated functionality was the e-Purchasing project's predecessor: Electronic Procurement Through Settlement (EPTS). It was to provide an integrated environment for government employees to electronically submit requisitions for goods and services, and place orders with authorized suppliers against standing offers and catalogues. It was also to provide a means for suppliers to receive orders, submit invoices and receive payments. The objective was to automate the procurement and purchasing processes from end to end, making them more effective and efficient for both government employees and the supplier community.

e-Purchasing was a component of this larger "vision". As a component, it omitted all functions and features associated with procurement, including the competitive selection of suppliers, and was intended only to support recurrent purchasing once suppliers had been qualified and contracts awarded.

A combination of factors led management to scale back the scope of EPTS. Rather than pursuing significant business and technological change, as EPTS would have, management decided to implement electronic purchasing and settlement by "knitting together" some or all of the existing systems that had been developed over time. It fell to e-Purchasing to accomplish this scaled-back and substantially less risky, though by no means easy or risk-free, objective.

Key Findings

e-Purchasing has been a well-managed project. While there are some areas that could be enhanced, given the resources available to the project team, they targeted their efforts in those areas within their control that had the highest risk.

e-Purchasing has strategic importance for PWGSC. It is a key component of the department's efforts to meet the Government's on-line commitments for 2004. It has become part of the larger Electronic Supply Chain (ESC) initiative which has received $13.5 M in Treasury Board funding for the period up to March 31, 2002. This has increased the uncertainty concerning the longer term plans for e-Purchasing.

Procurement Reform currently underway in the Treasury Board Secretariat is likely to have an impact, but at this juncture no one contacted during the review was certain what it would be. There is a recognition that certain rules and regulations may need to change to maximize the potential of e-Purchasing. Several key issues that will have a significant impact on the project functionality require policy direction from TBS.

A well-defined project office was established within e-Government Services in Government Telecommunications and Informatics Services (GTIS). Many of the features of the TBS-CIOB (Chief Information Officer Branch) Enhanced Management Framework (EMF) were adopted. Due to limited funding, the Project Office was unable to do all the things that it would have liked to do in the areas of Project Management and Control. Resource constraints within Supply

Operations Services Branch (SOSB) had an adverse impact on the Sector's ability to provide timely input to the Project Team.

There is very strong support from the ADM SOSB for the project. There are significant challenges, however, within SOSB to rationalizing its diverse initiatives and technologies and integrating them into the e-Purchasing solution. The organizations that developed them, often without the support of GTIS, are proud of what they have accomplished and are reluctant to give them up to what was seen as a GTIS-driven system.

A phased development approach has been used, with Release 1.0 going into production mode on December 18, 2000 on time and without problems. The GTIS project team has implemented a continuous risk management regime which they have used to identify project risks that are within its span of control to influence. Some of the lower level risks had not been documented as of the end of December 2000.

Several factors have made budgeting and planning challenging, including ongoing scope changes, a need to include applications that were never designed with future integration in mind, and an overall budget that was established before the functionality was finalized. This has necessitated adjusting the scope to fit the budget.

Processes have been developed to monitor the project on an ongoing basis. Resource constraints and changing conditions limited the Project Manager's ability to update project schedules and plans in a timely manner. As the project was relatively small, the Project Manager did not view this as a serious risk as he could keep all of these details in mind. There is a recognition, however, that as the project moves forward and is subsumed within ESC, it will no longer be possible to keep all the relevant details in mind. As well, plans to document the business and technical lessons learned from Release 1.0 within 30 working days of it going into production have not been realized.

Finally, a common definition of project success has not been developed. For GTIS staff, it appears to be a project developed on time and on budget with whatever functionality that can be provided. For others, it is a system that can be used to order, receive and settle in a totally electronic manner. Lack of agreement concerning success criteria has been identified as a project risk and an Office of Primary Interest (OPI) has been identified for it. The lack of metrics, however, makes it difficult to address.

Conclusions

Despite its resource constraints, the e-Purchasing project has thus far achieved what it set out to accomplish, and it has done so in an orderly and disciplined manner. Moreover, this review found very few weaknesses in the MCF for the e-Purchasing project, and the few that it did exhibit were either addressed during the course of the review, or did not pose significant risks.

e-Purchasing exhibited many of the factors that underlie successful projects:

- disciplined project management and control activities;
- well-defined functional requirements; and,
- a strong process for identifying project risks.

There are, however, several areas that the Department should address before it moves forward with ESC:

- The delay in developing the business and technical lessons learned from Release 1.0 of the project is disappointing. Input on this was finally solicited from, primarily, the GTIS project team members, a week after it was initially scheduled for completion. As a precursor to ESC, the e-Purchasing project may provide important insights into the range and kinds of issues that ESC will have to overcome, and into what may be required to do this. The perspective of the e-Purchasing project team, particularly concerning those issues and risks that it was able to manage because its project was modest and compact, may be invaluable for the much larger, more ambitious, complex and risky initiative that the ESC comprises.

- While not strictly required by the TBS-CIOB EMF, the lack of a common definition of project success is disturbing. That this did not hamper e-Purchasing over the time period of this review is immaterial. The project only had the opportunity to implement its initial, limited-scope deliverables before it became subsumed within ESC. Had the project continued to stand alone, the lack of a common definition of success would have made it virtually impossible to come to an unambiguous conclusion about whether e-Purchasing met its objectives. It would have depended entirely on personal perspectives. Moreover, preliminary indications are that ESC, which has a much wider array of stakeholders, and hence greater number of potentially conflicting individual perspectives concerning what it has to accomplish to succeed, *may* be moving forward on the same basis.

The above, while minor in the context of e-Purchasing, may be significant for ESC, and should be one of a number of elements of the ESC that is monitored as the project unfolds.

Recommendation

It is recommended that:

1. *The Assistant Deputy Minister, Supply Operations Services Branch, ensure that the Director General, Electronic Supply Chain, complete the business and technical lessons learned from e-Purchasing as soon as possible.*

1 Introduction

1.1 Authority for the Project

This Systems Under Development (SUD) project was part of the 2000/2001 Audit and Review plan as approved by Public Works and Government Services Canada's (PWGSC's) Audit and Review Committee.

1.2 Objective

The overall objective of the project was to assess the effectiveness of the Management Control Framework[1] (MCF) for the Electronic Procurement Through Settlement Project (which was renamed the e-Purchasing project during this audit), including those processes intended to meet stated requirements, to manage change, to manage risks, and to provide for adequate controls.

1.3 Scope

The scope of this audit included the Secure Electronic Commerce and Emerging Technologies Sector of Government Telecommunications & Informatics Services (GTIS), and all interfacing organizations within the department.

1.4 Background

PWGSC, as a common service procurement organization, has a mandate to organize the supply of goods and services for the benefit of the Government of Canada. Over time, and to fulfil this mandate, various organizational units within the department undertook initiatives to establish systems that would enable departments and agencies to acquire goods and services rapidly, efficiently and cost-effectively. The depth and breadth of end-user purchasing and/or cataloguing functionality in these systems varied considerably, and many of them were commodity specific. As well, functions and features were duplicated, and it was believed that significant benefits could be realized by delivering the functionality of these systems in a cohesive and integrated manner.

Originally, the project that was to deliver the cohesive and integrated functionality was the e-Purchasing project's predecessor: Electronic Procurement Through Settlement (EPTS). It was to provide an integrated environment for government employees to electronically submit requisitions for goods and services, and place orders with authorized suppliers against standing offers and catalogues. It was also to provide a means for suppliers to receive orders, submit invoices and receive payments. The objective was to automate the procurement and purchasing processes from end to end, making them more effective and efficient for both government employees and the supplier community.

[1] The MCF used in this review is adapted from the Control Design Optimizer™ developed by MCS Control Training and Design.

e-Purchasing was a component of this larger "vision". As a component, it omitted all functions and features associated with procurement, including the competitive selection of suppliers, and was intended only to support recurrent purchasing once suppliers had been qualified and contracts awarded.

A combination of factors led management to scale back the scope of EPTS. Rather than pursuing significant business and technological change, as EPTS would have, management decided to implement electronic purchasing and settlement by "knitting together" some or all of the existing systems that had been developed over time. It fell to e-Purchasing to accomplish this scaled-back and substantially less risky, though by no means easy or risk-free, objective.

2 Issues Examined

This audit focused on the activities undertaken to ensure the success of the e-Purchasing initiative, with an emphasis on:

- definition and communication of requirements, objectives and goals;
- organizational structures, including the provision of resources;
- planning and risk assessment, including, workload estimates and costs;
- capability/continuous learning, including training and operating instructions;
- direct control activities and mechanisms;
- indicator/measurement controls; and,
- the overall project management regime.

3 Findings

3.1 Definition and Communication of Objectives

This initiative is viewed as a strategic imperative by PWGSC management.

e-Procurement, including e-Purchasing projects, is widely regarded as one of the most beneficial aspects of Business-to-Business (B2B) e-Commerce. The economic promise of such projects is vast, creating pressures in most organizations to move procurement to the Internet.

The business case for e-Purchasing within PWGSC is equally compelling. Implementing an integrated Internet-based purchasing system for a range of standard products (office supplies, translation services, informatics professional services, computer hardware and software, etc.) offers savings of several million dollars annually across government.

e-Procurement has been identified as a "Pathfinder" project as part of the Government's on-line commitment for 2004. Senior management views it as a strategic imperative. It is not merely the case that if PWGSC does not proceed, clients will build their own systems. If they do, the potential benefits of e-Purchasing, many of which stem from volume pricing reductions and the elimination of maverick buying, may be foregone.

There is strong support from the ADM SOSB for the project.

There are also significant challenges within SOSB to rationalizing the diverse initiatives and technologies that were to be integrated within the e-Purchasing solution. The organizations that have developed these initiatives, often without strong support from GTIS, are proud of what they have been able to accomplish with the resources available to them. They were reluctant to give up their accomplishments to what was originally perceived as a GTIS-driven system.

The ADM of SOSB, however, has been very active in ensuring that there is ongoing communication to staff within SOSB about the importance of the e-Purchasing project. Most managerial conferences include a presentation on it, and the ADM SOSB repeatedly stresses that it is her number one priority.

While specific objectives by Release were set out, a common definition of project success has not been developed.

For GTIS staff it appears to be a project developed on time and on budget with whatever functionality that can be provided. For others, it is a system that can be used to order, receive and settle in a totally electronic manner. The TBS-CIOB EMF does not require the specific identification of project success criteria. Lack of agreement concerning success criteria has been identified as a project risk and an Office of Primary Interest (OPI) has been identified for it. The lack of metrics, however, makes it difficult to address.

3.2 Organizational Structure

A well defined project structure was established that identified all the key stakeholders within PWGSC.

The governance structure as outlined in the draft Project Charter was implemented. A Steering Committee chaired by the Director, Supply Management Directorate, SOSB was established with representation from all the key stakeholders including SOSB, Government Operations Services (GOS), Real Property Services and GTIS. It was responsible for approving key decisions (i.e., strategic, scope, requirements, financial) related to the project direction.

Key business decisions were forwarded to the SOSB Business Systems Oversight Committee who in turn reported through the Supply Executive Committee to the Department's Information Management Committee (IMC). Project risks were escalated through the e-Purchasing Steering Committee to the e-Government Risk/Issue Management Committee. This committee in turn reported to the TBS Government on Line Office.

A dedicated project office was established within e-Government Services in GTIS.

e-Purchasing has become part of the larger Electronic Supply Chain (ESC) project which has received $13.5M in Treasury Board funding.

As a result of becoming part of ESC, the organizational structure for e-Purchasing has been modified. The dedicated project office within GTIS now also reports to the Director General, ESC who has also assumed the chair of the e-Purchasing Steering Committee.

3.3 Planning and Risk Assessment

A phased approach to developing the system is being used:

- Release 1.0 went into production mode December 18, 2000 on time and without problems. It was designed to provide a web-based front-end to knit together a number of existing, in-production systems. It involved minimal new coding and was designed to get a working initial version of the eventual solution into users hands.

- Release 1.1 is scheduled for May, 2001 and is to include credit card functionality.

- The more distant the release, the greater uncertainty associated with the functionality that will be provided through it. A Release 2.0 was originally planned and scheduled for the fall of 2001. The functionality to be provided in this Release is still being determined. The subsuming of e-Purchasing within ESC is having an impact on this decision.

The scope has been adjusted to fit the budget.

Ongoing scope changes have made it difficult for the GTIS Project Office to stabilize the project's work breakdown structure and schedule. GTIS had difficulty in developing firm cost estimates as some of the applications planned for inclusion in e-Purchasing were never designed with future integration in mind. They were finding that they needed to look at the applications in considerable detail to determine what would be required to link them with the planned new system. Budgets were established before the functionality was finalized.

Budgets do not include PWGSC A-base resources that are being used for the project. There is no requirement to formally plan for the commitment of internal resources to the project.

The GTIS project team is working hard to identify project risks that are within its span of control and influence.

An e-Government Program Issue and Risk Management Plan, which includes e-Purchasing risks, was produced December 11, 2000. It was recognized that the overall framework needed to be modified for e-Purchasing, so that the escalation path would follow the e-Purchasing project's governance structure (the e-Government Program Risk Management regime's path was solely through the GTIS chain of command, which was considered appropriate for an infrastructure-oriented project, but not for an end-user application).

The project team has patterned its continuous risk management regime after the Software Engineering Institute's (SEI) Continuous and Team-based Risk Management regimes. The focus has been on the top "N" risks (those that have either a high probability or a high impact, as well as at least a medium in the other dimension). The number of risks in the top N can vary from week to week as risks escalate or decline depending on the effectiveness of mitigation plans, changes in the internal and external environment, etc. It is too early to tell how effective this process will be, especially for ESC.

Risk statements need to be worded with care for the e-Purchasing Steering Committee, which is comprised of SOSB representatives from various commodity areas. Each statement must fully capture the risk so that responsibility for managing can be assigned appropriately. At the same time, the statement should not be open to the interpretation that it is an accusation.

All risks had not been documented as of the end of December, 2000. The Project Team has focused on the specific risks that team members can directly influence, and have not included those that would require ADM, DM or TBS intervention. There is a belief that senior management is aware of these, and that it is therefore not necessary to draw them to their attention.

There is some concern within the e-Purchasing Project Office that the uncertainty concerning the longer term plans for the project have increased as a result of it becoming part of the ESC initiative. While Release 1.1 scheduled for May of this year is expected to remain as planned, anything beyond that release remains to be determined. On the other hand, significant issues

surrounding potential requirements to change supply policies, procedures and business rules to enable the development of a cost-effective e-Purchasing system will now be addressed as part of ESC .

There is currently a Procurement Reform initiative underway in Treasury Board Secretariat (TBS) which is expected to have an impact on e-Purchasing.

No one contacted during the course of this review was certain what impact Procurement Reform may have on the e-Purchasing initiative. There is a sense that certain rules and regulations may have to change to maximize its potential. There are a number of committees at various levels - Assistant Deputy Minister (ADM), Director General (DG), and Director. SOSB is represented at all of these levels.

Several key issues require policy direction from TBS.

The direction provided will have a significant impact on the functionality that can ultimately be incorporated into ESC and, within it, e-Purchasing.

Issues include:

- can government credit card numbers be transmitted via the Internet without PKI encryption?
- can payment be authorized based on electronic acknowledgement of the receipt of goods?
- can government credit card numbers be stored on a secure government of Canada site?

3.4 Capability/Continuous Learning

Past initiatives by PWGSC to implement commodity-specific aspects of electronic purchasing have provided the e-Purchasing Project Office with confidence that it understands the factors that are critical to the success of the system.

The office has developed a phased Project Management Plan based on the lessons it has learned from these initiatives.

3.5 Direct Control Activities and Mechanisms

The project is being implemented in phases so as to reduce the development risk.

With each successive phase there is increasing uncertainty concerning the functionality that it will provide.

A variety of tools are being used to manage the project including:

- Functional Specifications/Requirements Fit Grid: This outlines the specifications for the identified functionality and the extent to which it can be provided with existing systems.

- A work breakdown structure and schedule that is being maintained with Microsoft Project. For each element of the work, package it shows the duration, start, finish, predecessors, OPI, budget cost, actual cost to date, percentage work completed and resources. It is recognized that a more robust tool will be required for ESC.

3.6 Indicator/Measurement Controls

Processes have been developed to monitor the project on an ongoing basis.

On going project performance is assessed using a bi-weekly Project Status Report. Resource constraints, and the need to react to changing conditions, have prevented the Project Office from consistently updating project schedules and plans in a timely manner. As a result, the contracted Project Manager did not always have timely and accurate performance monitoring information for every aspect of the project. However, he believed that because the project was relatively small, he and several other key players could keep all these details in mind, and understand impending problems and issues.

The contracted Project Manager does not view the gaps in performance monitoring information as a serious risk to the project, though it is recognized that the project is vulnerable to the loss of key individuals. It is also recognized that as the project moves forward and becomes subsumed within ESC, it is becoming more complex and it will no longer be possible to keep all the relevant details mind, or to properly track the project with the tools currently being used. Adopting the tools used for the Secure Channel Project was under consideration.

Some delays are being experienced in capturing the lessons learned from Release 1.0.

The e-Purchasing work plan and schedule called for an identification of the business and technical lessons learned from Release 1.0 within 30 working days of it going into production. Input on this was finally solicited from primarily the GTIS project team members, a week after it was initially scheduled for completion.

3.7 Project Management Regime

A well-defined Project Office structure was established within GTIS.

A full-time project office was established within e-Government Services of GTIS. Many of the features of the TBS-CIOB (Chief Information Officer Branch) Enhanced Management Framework (EMF), were adopted and tailored to the approved budget. Key responsibilities were defined in the draft Project Charter and someone assigned responsibility.

There were ongoing problems associated with the resourcing levels within the GTIS Project Office, and with getting timely input especially from SOSB via the Steering Committee.

The Project Office was not resourced to do all of the things that it would have liked to do, particularly in the Project Management and Control disciplines that were implemented. SOSB had specifically requested the additional Treasury Board funding it received for ESC to address some of resource constraints that were impinging on its ability to support e-Purchasing.

SOSB has established a dedicated Project Office in the newly-created Electronic Supply Sector (headed by a Director General) to take overall responsibility for e-Purchasing as part of the larger and more ambitious ESC initiative.

This office will take the lead for defining the business requirements and associated business rules for ESC.

There was a recognition within SOSB that the project had to be driven by the business users, not, as had been the case with e-Purchasing, by GTIS. The creation of this office should provide added visibility for the project, and a focal point for the resolution of project risks/issues.

4 Conclusions

Despite its resource constraints, the e-Purchasing project has thus far achieved what it set out to accomplish, and it has done so in an orderly and disciplined manner. Moreover, this review found very few weaknesses in the MCF for the e-Purchasing project, and the few that it did exhibit were either addressed during the course of the project, or did not pose significant risks.

e-Purchasing exhibited many of the factors that underlie successful projects:

- disciplined project management and control activities;
- well-defined functional requirements; and,
- a strong process for identifying project risks.

There are, however, several areas that the Department should address before it moves forward with ESC:

- The continuing delay in developing the business and technical lessons learned from Release 1.0 of the project is disappointing. As a precursor to ESC, the e-Purchasing project may provide important insights into the range and kinds of issues that ESC will have to overcome, and into what may be required to do this. The perspective of the e-Purchasing project team, particularly concerning those issues and risks that it was able to manage because its project was modest and compact, may be invaluable for the much larger, more ambitious, complex and risky initiative that the ESC comprises.

- While not strictly required by the TBS-CIOB EMF, the lack of a common definition of project success is disturbing. That this did not hamper e-Purchasing over the time period of this review is immaterial. The project only had the opportunity to implement its initial, limited-scope deliverables before it became subsumed within ESC. Had the project continued to stand alone, the lack of a common definition of success would have made it virtually impossible to come to an unambiguous conclusion about whether e-Purchasing met its objectives. It would have depended entirely on personal perspectives, which is inappropriate for a publicly-funded endeavour. Moreover, preliminary indications are that ESC, which has a much wider array of stakeholders, and hence greater number of potentially conflicting individual perspectives concerning what it has to accomplish to succeed, *may be* moving forward on the same basis.

The above, while minor in the context of e-Purchasing, may be significant for ESC, and should be one of a number of elements of the ESC that is monitored as the project unfolds.

5 Recommendation

It is recommended that:

1. *The Assistant Deputy Minister, Supply Operations Services Branch, ensure that the Director General, Electronic Supply Chain, complete the business and technical lessons learned from e-Purchasing as soon as possible.*

6 Action Plan

Recommendation

It is recommended that:

1. *The Assistant Deputy Minister, Supply Operations Services Branch, ensure that the Director General, Electronic Supply Chain, complete the business and technical lessons learned from e-Purchasing as soon as possible.*

Action Plan

To follow.