

9.**FINANCE -
CORPORATE FINANCIAL MANAGEMENT SYSTEM (CFMS)****BACKGROUND**

9.1 In 1995, Department of Finance staff developed a departmental business analysis to provide a framework for identifying departmental and government-wide opportunities to redesign business processes and to utilize supporting technology. One opportunity identified as a priority was the acquisition and implementation of a new, fully-integrated financial management system to gather, accumulate and summarize the financial transactions of the Province. This system became known as the Corporate Financial Management System (CFMS).

9.2 In October 1995, the Department issued a request for proposals to *"...supply the application and operating software/hardware and provide professional staff to implement a corporate financial management system for the Province of Nova Scotia."* This tender was awarded in March 1996. The application software selected was *Systems Applications and Products in Data Processing (SAP)* and the proponent selected was Deloitte & Touche Consulting Group / ICS.

9.3 An October 10, 1996 CFMS project bulletin stated *"...Nova Scotia is the first province or state in North America to implement SAP."* The vision for the project as defined in the bulletin was *"...A fully integrated Corporate Financial Management System, will effectively transform the manner in which we conduct the financial business of government in the future, provide for enhanced decision making, provide for improved cost control, and establish the foundation for streamlining processes and procedures..."*

9.4 The SAP application, which runs at the Department of Finance, consists of a number of integrated modules for general ledger, budgeting, funds management, cash management, accounts payable, project accounting, procurement, goods receipt, inventory, and accounts receivable. Software licenses for the payroll and related administration systems modules were not acquired. These functions continue to be processed through the Province's existing human resource management system (HRMS), which runs at the Systemhouse Data Centre. It was indicated to us that SAP is considered compliant with regards to the Year 2000 issue (a topic which is discussed in Chapter 3 of this Report).

9.5 The 1997 Report of the Auditor General included observations and comments from a preliminary review of CFMS and the CFMS project. The objective of that review was to gather project-related documentation and information, and to identify and develop lines of inquiry to support planning for more detailed audit coverage. Our primary concern expressed in that report related to several significant control issues that had not been dealt with prior to implementation of the CFMS on April 1, 1997 and still had not been addressed at the time of writing that report. We commented that those control issues *"...may represent significant risk to the system of internal control as it relates to the accounting for public funds."*

9.6 During 1998, this Office and the Department of Finance jointly commissioned a national public accounting and consulting firm to conduct a review of the business control environment surrounding CFMS and the CFMS implementation project.

RESULTS IN BRIEF

9.7 The following is a summary of our principal observations.

- The CFMS was implemented on April 1, 1997 as planned. A detailed review performed in March 1998 by an external firm, at the joint request of the Department of Finance and this Office, identified a number of areas or opportunities, some significant, for improving the level of control over the CFMS and related processes and functions. The external firm stated *“while we did not detect any monetary errors during our limited testing of controls, the focus of our testing was on control compliance rather than detection of monetary errors.”*
- The Department of Finance has recently assigned a full-time person to manage the process of developing a strategy and timetable, and the implementation of the specific recommendations. This process is currently underway and has been identified by management as a priority for the Department. Progress and issues should be regularly tracked and reported to senior management.
- Further, specific strategies and plans need to be formulated, approved and acted upon, if government is to make appropriate progress towards realizing the potential business process improvements and other benefits from a system like CFMS.

SCOPE OF 1998 REVIEW

9.8 As previously indicated, we conducted a preliminary review of the CFMS and the CFMS project and provided observations and comments in our 1997 Report. Since that time this Office and the Department of Finance jointly commissioned a review of the business control environment surrounding CFMS and the CFMS implementation project. This was part of our overall strategy to gain an understanding of the CFMS and its supporting infrastructure as well as to specifically focus on the control structures. The results of this review, including our participation in the review project, will serve to support and enhance our future audit efforts as we undertake new audit responsibilities for the *Public Accounts* of Nova Scotia.

9.9 In February 1998, Ernst & Young, a national public accounting and consulting firm, was selected as the successful proponent to conduct an assignment entitled “Review of CFMS System Controls and Implementation.” The following is an excerpt from the Objectives and Scope section of the Ernst & Young report dated March 1998:

“...The primary objectives of this review are to:

- review the new procedures implemented as a result of the CFMS project and evaluate whether there are adequate controls in place for processing transactions;*
- determine if the physical and online access security is limited to only appropriately authorized users and system support staff and managers;*
- review and assess the general IT environment controls including program change controls, back up and recovery procedures and disaster recovery plans to address the risk of system failure due to hardware and communications malfunctions;*
- assess the project implementation management to determine if the project management risks were properly managed and to ensure there are no other risks which have not been addressed. (This does not include an audit of the conversion.)*

- *determine if the new system is meeting the user needs;*
- *assess the adequacy of the training developed by the project team;*
- *review the reporting functions in use and, through input from the users, determine if additional reporting is required;*
- *compare the original Request for Proposal (RFP) for the SAP implementation to the actual features of the system implemented."*

PRINCIPAL FINDINGS

Auditor General's Observations and Comments

9.10 As noted in Chapter 12 of the 1997 Report of the Auditor General, Department of Finance management and the Office of the Auditor General agreed to jointly contract for a review of the business and control environment surrounding CFMS and the CFMS implementation project. This project was tendered and the successful proponent was Ernst & Young, a national public accounting and consulting firm. One of the clauses of this contract was that staff of the Department of Finance Internal Audit Division as well as staff of the Office of the Auditor General would actively participate on the team led by Ernst & Young.

9.11 The fieldwork was performed primarily in March 1998. A report was drafted, reviewed and cleared over the summer and a final report was issued to the Deputy Minister of Finance and the Auditor General in September 1998.

9.12 Information we gathered last year, in conjunction with observations from the Department of Finance Internal Audit Division, and our participation in the Ernst & Young review, raises a number of concerns, with respect to the adequacy of the system and controls in place, which need to be addressed by Finance and government generally. Further, specific strategies and plans need to be formulated, approved and acted upon, if government is to make progress towards realizing the potential business process improvements and other benefits from the CFMS system.

9.13 Since the release of the final report, we have contacted Finance management in an effort to determine whether specific strategies and detailed plans have been identified to manage and monitor the process for addressing the recommendations contained in the report. We were provided a preliminary listing of the key recommendations with general status information. Considering that not all of the recommended actions are the responsibility of Finance, it is important that there be a formal and appropriately detailed action plan and management trail in place to ensure that all recommended actions are fully considered as well as to manage and monitor the ongoing progress. Finance has recently assigned a full-time person to manage the process of developing a strategy and timetable, and the implementation of the specific recommendations. This process is currently underway and has been identified by management as a priority for the Department. Progress and issues should be regularly tracked and reported to senior management.

9.14 As previously mentioned, the Province of Nova Scotia was the first province or state in North America to implement SAP. The CFMS Project Manager has further stated that "*...the Nova Scotia government played a large role in clearing the way for SAP implementations in the Public Sector in North America. This project is known throughout North America as a SAP Success Story. We have hosted several site visits from organizations such as government of Puerto Rico, Quebec (Provincial), Manitoba, and Orlando airport. I have presented the Nova Scotia experience at several conferences in North America.*"

Ernst & Young Review - Background

9.15 In order to put this project in perspective the following background information was provided in the Ernst & Young report.

“The mission statement for the CFMS implementation project was:

To successfully implement standard business practices, enabled by an integrated technology: to support Financial Services for the government

The government’s CFMS implementation project was organized into several sub-teams all working together as one integrated project group. The project team was broken into individual teams consisting of management, quality assurance or internal audit, communication, training, technical and various functional teams (accounts payable, budgeting, general ledger, procurement, accounts receivable/cash management and inventory). The planning and scoping of the project began in April, 1996, with the system going live on April 1, 1997.

The government’s implementation of SAP R/3 involved many inter connecting modules and required a high degree of interaction and teamwork. Management of the implementation project was two-tiered.

- Strategic direction was provided by the Steering Committee and the Project Manager.*
- Tactical day-to-day operational direction was provided by the Project Manager, two Integration Managers and the team leaders of the individual sub-teams.*

The project was resourced utilizing approximately forty full-time government staff seconded to the project from various government departments. The implementation partners were Deloitte & Touche/ICS Consulting Group. On average, there were seven full-time consultants working with the project team with another six consultants working part-time throughout the project when appropriate and as required. There was also an extended team in place which consisted of personnel from across government. This team was used as a mechanism to provide feedback, confirm modifications to processes, hierarchy design, information flow and verify procedures. The extended team was assembled on an as needed basis to review and critique the work in progress.

At the time of the CFMS implementation project, other major initiatives affecting the same client base were underway within the Nova Scotia government. Two of these initiatives included:

- A project to blend the Nova Scotia provincial sales tax and the federal government’s GST. Deadline for this initiative was also April 1, 1997.*
- Massive restructuring to the finance, information technology and human resource divisions across all government departments and agencies. This restructuring resulted in the establishment of Corporate Service Units (CSUs) which were created at the same time as the implementation phase of the CFMS project.*

The creation of the CSUs affected all of the financial, information technology and human resource management staff across government. New organization structures were put in place to support the extended client base. Directors and managers in the areas of finance,

human resources and information technology had to re-apply for expanded positions. This made it extremely challenging for the staff involved to create positions, recruit staff, rationalize services and define new procedures; while at the same time contribute to the CFMS project. Coincidentally, the CFMS project itself was developing and enabling process and procedural change.

The CFMS Project Manager was also required to serve as the Information Technology Director for the Finance CSU, technically fulfilling two full time positions. The two SAP R/3 integration managers were also required to assume additional duties and roles. The finance directors, who sat on the CFMS Project steering committee and were responsible for the strategic direction of the CFMS project, were also responsible for creating and implementing new financial CSU structures within their respective departments.

It was a time of major change within the Nova Scotia government. It is our understanding that a decision was made to phase in the implementation of standard business practices, and the first two steps to achieving this goal were completed in parallel which were: i)the SAP R/3 implementation across government and, ii)the completion of the Corporate Service Unit restructuring. These two steps alone amounted to significant organizational and procedural change. Incorporated into the CFMS project were various changes to procedures allowing the government to implement SAP R/3 without customization.

The third critical step towards the implementation of standard business practices was a plan to follow the CFMS implementation project with a project that would ensure that best business practices are adhered to across government. This would be achieved by completing and refining the redesign processes, formalizing new procedures into policy and teaching clients to apply SAP to their business in order to work "smarter". It is our understanding that these tasks have already been worked on in pockets throughout government over the past year, but still require a formal, government-wide approved initiative with high level commitment of resources. This will complete the work necessary to achieve maximum benefit of SAP R/3 within the Nova Scotia government. It is our understanding that with approval from the senior financial executives of the various departments, it is the intention of Finance's Corporate Information Systems Divisions to initiate and plan this project."

Overview of Results of Ernst & Young Review

9.16 As previously indicated, Ernst & Young completed fieldwork in March 1998 and reported findings and recommendations to the Department of Finance and the Auditor General in September 1998. Certain of the issues identified by Ernst & Young had previously been raised by the Quality Assurance Team on the SAP implementation project and reported to the CFMS project steering committee prior to or around the time the system was implemented on April 1, 1997.

9.17 Ernst & Young's work confirmed the concerns previously identified by the Department of Finance Internal Audit Division and this Office, and also identified a variety of other matters that need to be considered by Department of Finance and government.

9.18 The following is a summary of the principal observations reported by Ernst & Young.

- *"Government requires significant improvement to the level of automated and manual controls to achieve control objectives. Improvements to the controls are required to ensure the integrity of information and allow for proper management trails to support recorded transactions."*

- *“Government has implemented appropriate controls in several key areas, such as system startup parameters. However, we also noted several opportunities for improving the SAP control environment.”*
- *“We identified several areas where improvements to the IT environment could be considered.”*
- *“Most users have not achieved an acceptable level of understanding of the system required for their position, and still have a number of misunderstandings and questions about the system.”*
- *“It is not possible, as at the time of this review, to judge whether CFMS has resulted in benefits for the government.”*

9.19 Ernst & Young’s report identified a variety of recommendations for consideration by Finance and government generally (see Exhibit 9.1 on page 105 for a list of recommendations).

CONCLUDING REMARKS

9.20 The review of CFMS conducted by Ernst & Young has served to confirm the preliminary issues discussed in our 1997 Annual Report and has gone further to identify additional areas of risk and concern that need to be appropriately addressed by government.

9.21 If government and its departments are to realize the full benefits of the CFMS, a significant commitment is needed to plan for and implement the recommendations on an appropriately structured and prioritized basis. Finance has recently assigned a full-time resource to manage the implementation of the recommendations provided by Ernst & Young. It has been indicated that an assignment of priorities and accountabilities has been started and that certain recommendations have already been completed.

*Exhibit 9.1***LISTING OF ERNST & YOUNG'S KEY RECOMMENDATIONS**

Listing of Key Recommendations from Review of CFMS System Controls and Implementation

This appendix includes an extract of the key recommendations from the Report on the Review of CFMS System Controls and Implementation.

The recommendations from the review cover system configuration, access controls and transaction processing controls. For security reasons, specific recommendations related to certain sensitive security control issues have been excluded from this appendix.

Process Integrity

- To address the control weaknesses identified in this report, the government should focus on redesigning the processes to take advantage of the automation and controls that are possible in an SAP environment. This will assist with the development and implementation of appropriate controls to ensure the accuracy of the government's financial reporting. As well, this will help the government to maximize the net benefits from the implementation of SAP. The challenge will be to undertake a process redesign given the other government initiatives that are competing for resources.

Such a project would obviously be a major undertaking. The project would cross all departments and require the participation and commitment of all departments. Therefore sponsorship for the project will have to be at the senior levels of the government for it to be successful.

Since the redesign of the processes may eliminate many of the control concerns identified in this report, it would not necessarily be worthwhile to invest the time and effort to address all the control concerns identified in this report. However, there are some issues which pose a greater risk to the government which should not be delayed until the redesign of the processes is undertaken. A summary of these issues is as follows:

- There is a lack of segregation of duties. Some users have the ability to create purchase orders and goods receipts and authorize invoices for payment.
- It is possible that unauthorized purchases and payments can be made and not be detected. Specifically, some concerns are:
 - Departments do not have an up-to-date list of signatures of people with the authority to purchase goods and services.
 - A single 'tolerance group' has been set up within SAP (tolerance groups are used to limit dollar amount postings by employee per account item and per document). The government should consider setting up tolerance groups for each 'class' of employee, limiting the amount they are allowed to post per document and per account item.

Exhibit 9.1 (Cont'd)

- Users share their passwords thereby enabling them to access incompatible functions. Password standards need to be developed and communicated to all users regarding the appropriate use of passwords.
- The primary control over the accuracy of an inventory system is the performance of physical inventory counts. A physical inventory count had not been performed for at least a year, as of the time of our review.

Specific recommendations are presented by business process:

Accounts Payable

- Individuals should not be allowed to have functions which are incompatible, such as procurement and invoice authorization. A more rigorous application of SAP Authorizations could also reduce this risk. Additional user training would also be helpful in emphasizing the importance of SAP's matching concept.
- Procedures are required to ensure that invoices are appropriately matched with the related PO. As well, consideration should be given to rejecting vendor invoices which do not include a PO number, a requirement that is clearly stated on the PO. Reconciliations of the Goods Receipt/Invoice Receipt (GR/IR) accounts will also assist with this.
- All departments should have an up-to-date list of authorized signatures available to the individuals responsible for processing documents.
- A review should be undertaken to delete duplicate and inactive vendors from the vendor master file. Further, periodic reviews of the master file would facilitate the detection of duplicate/inactive vendors. Also, the policies and procedures outlining the responsibilities for the addition/modification of vendor records should be clarified across departments, given the importance of this control.
- The GR/IR accounts must be reconciled regularly for this control to be effective.
- The electronic authorization feature of SAP should be implemented for purchase orders and invoices (in those instances where there are no purchase orders).
- Authorization limits should be configured in SAP for cheque requisitions.

Accounts Receivable

- The accounts receivable processes should be reviewed to develop more efficient processes and eliminate duplication of effort. The government should re-address the use of SAP to generate invoices and/or consider electronic interfaces with legacy applications.
- At the Registry of Motor Vehicles (RMV) the processing of invoices and payments should be assigned to different individuals to provide adequate segregation of duties. Alternatively, someone other than the A/R clerk at the RMV should be reconciling the NSF bank clearing account and the A/R clearing account in the general ledger.

*Exhibit 9.1 (Cont'd)****Procurement***

- Employees should be given unique user IDs with access only to those features required by their job function. This is essential to ensure proper segregation of duties and accountability. Appropriate policies for password security should be developed which include a requirement that users should not share their user IDs and passwords. All employees should be required to review the policies and sign a statement that they have read the policies and agree to comply with them.
- Appropriate policies and procedures should be developed to ensure that all transactions are properly approved prior to input into SAP. This could be achieved through the implementation of the electronic authorization feature of SAP.
- There should be adequate segregation of duties to ensure that individuals are not responsible for incompatible functions.
- A vendor number can be changed when entering the invoice. This could potentially allow the payment to be directed to a vendor other than the supplier of goods. The appropriate implementation of '3 way matching' using SAP and controls surrounding the GR/IR accounts could mitigate this risk.
- Appropriate policies and procedures should be developed to ensure that all purchases are appropriately approved in advance.
- All departments should have an approved list of signing authorities. This list should be readily available to those who are responsible for ensuring that purchases are approved prior to entering in SAP. Procedures are also required to ensure that the list is kept current.

General Ledger

- A formal policy be developed which will provide a process for requesting and authorizing new general ledger (G/L) accounts. Approved lists of individuals within each department authorized to request new G/L accounts should be maintained.
- Overall guidelines are required to allow for a level of consistency of the account structure between departments while allowing for flexibility to allow departments to structure their accounts to meet their needs.

Inventory Management

- Independent physical counts of inventories should be performed on a regular basis and reconciled to the system's perpetual records.

*Exhibit 9.1 (Cont'd)***Budgeting**

- Appropriate evidence of the final authorized budget should be retained.
- Policies and procedures should be developed to document the review and approval process for preparing the budget. The overall budget should be supported by detailed information. Documentation of reviews and approvals should be retained.

Project Accounting

- Users be provided with additional training so that they utilize project accounting module more effectively.
- Consideration should be given to strengthening the controls over the use of orders by implementing the following options, if appropriate.
 - modified authorizations for objects required to execute the transactions can restrict the number of users who have access to the function.
 - logs can be activated to record changes to master data in orders (i.e. date, items, user, fields changed). However, this log would only be effective if there was an independent review.
 - key fields can be set as mandatory. In particular, a posting cost centre should be required.
 - management reports detailing the status of orders and periodic review of major projects.
- To help ensure that orders are appropriately settled, policies and procedures should be developed.
- Consideration should be given to using Statistical Orders to track project transactions rather than Internal Orders.

Security and Authorization**Security Design Review**

- **Corporate Hierarchy Restrictions**
The government would benefit from having a formal security philosophy that was incorporated into an overall government-wide security policy.

Exhibit 9.1 (Cont'd)**Environment Review*****Security Administration and System access*****General**

- Formal policies and procedures should be developed and implemented for security and administration of the SAP servers.
- SAP is a complex application and requires an appropriate level of support.

Disaster recovery/Business Continuity Planning

- The risk of a prolonged systems outage has been reduced by measures such as regular backups and the use of third party systems that can be quickly replaced. However, to minimize the disruption that might be caused by a computer-related disaster, the government should develop a recovery strategy and a detailed recovery plan for its critical information technology.

Facilities management

- Physical security over the computer facility should be improved.

Communication/System Interfaces

- Formal policies and procedures should be developed to ensure that there are appropriate controls over the development, testing and implementation of the interface programs.
- Proper documentation of the interface programs should be developed.

Problem management

- A formal problem tracking system should be implemented which includes escalation procedures.

Change Management and Program Change Controls

- Formal procedures should be developed for changes to software on the servers.

System Software Maintenance

- Adequate human resources are required to properly maintain system software on the servers. Consideration should be given to assigning additional resources to achieve this.

Exhibit 9.1 (Cont'd)**Operations**

- Adequate human resources are required to properly operate the servers. Consideration should be given to assigning additional resources to operate the servers.

CFMS Training Program Review

The following actions should be taken and have an appropriately high level of sponsorship:

- A formal review of training needs should be undertaken. Training requirements should be detailed based on the needs of particular positions and departments.
- Based on known training requirements, target SAP skill levels and learning objectives should be established for each area, with training and support activity designed to help users attain the required proficiency.
- Post training evaluation should be conducted based on documented learning objectives.
- Training curriculum should be designed sensitive to the business process requirements of particular departments where appropriate. This activity should be undertaken based on the departmental business process innovation efforts recommended elsewhere in this report.
- SAP trainers should be recruited, trained, and evaluated based on competencies in both SAP content and in training techniques.

CFMS Implementation Review

- More flexible and market-driven compensation strategies are required for SAP specialists.
- Future corporate wide systems should be managed, or at least sponsored by, a high level committee that has representation from all departments.
- Business cases for enterprise wide systems require a more comprehensive level of review before they are approved. More attention needs to be paid to the true, across the board costs of corporate systems initiatives, with appropriate budgeting and funding mechanisms put in place to ensure completion and benefits realization.
- Effective two way communication and change management has to be considered an integral part of any future corporate wide systems initiative.

*Exhibit 9.1 (Cont'd)****User Feedback***

The following actions should be undertaken and have an appropriately high level of sponsorship:

- The positions outlined for the Corporate Information Systems (CIS) group should be filled as soon as possible. Once in place, staff should be directed to place a priority on functional improvements that would benefit the greatest number of users.
- Corporate Information Systems should develop a pro-active communications plan with the following objectives:
 - receive feedback from users;
 - encourage sharing of “how to” information among users;
 - manage user expectations regarding SAP functionality;
 - keep users and management up to date on what support and functionality is available.
- A program should be established to help individual departments reengineer and streamline their organizations based on SAP capabilities. This will be beyond the resources of the currently planned CIS support. A project team should be established to help coordinate this throughout government. Special attention should be given to effective executive sponsorship of this initiative vis a vis the user departments.
- The cost allocation approach used to fund CFMS should be reviewed to determine if alternative mechanisms would accelerate the acceptance and effective use of CFMS within the user departments. Particular attention should be paid to individual licensing costs.