



99-641 Final Report

Audit of Major Contracts

Approved: ARC Meeting of Feb. 1, 2000



Public Works and
Government Services
Canada

Travaux publics et
Services gouvernementaux
Canada

Audit and Review

Vérification et Examen

Canada

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Executive Summary

Authority for the Project

The project was approved by Public Works and Government Services Canada's (PWGSC) Audit and Review Committee as part of the 1999/2000 Audit and Review Plan.

Objectives

The audit's overall objective is to provide assurance that major federal contracts managed by Supply Operations Service Branch (SOSB), PWGSC, comply with contracting legislation and policy, and appropriate risk management policies.

The objective of this Preliminary Survey phase was to identify audit issues and the risks associated with those issues which may require more extensive study by way of a Detailed Examination.

Scope

The audit focused on major contracts managed by Supply Operations Service Branch (SOSB) and which were active through the period 1993/94 to present. For the purposes of the audit, major contracts were defined as those with an original value of \$100 million or more, which is the threshold value used to define Major Crown Projects¹. Areas of particular interest were the responsibilities and activities of PWGSC as Contracting Authority.

Background

The Auditor General has indicated an intent to investigate major government contracts. He is expected to be particularly interested in examining issues related to competition, compliance and risk management, as well as control, value for money and results. This is consequently an area which the Deputy Minister, PWGSC, wished to have explored in order (i) to be of assistance to the Auditor General, and (ii) to obtain assurance that contracting policies and procedures, including those related to risk management, are being adhered to and that the department's accountability pertaining to such contracts is being met.

Key Findings

As a result of the Preliminary Survey, four major audit issues were identified:

¹ A few contracts of lesser value were included if reasons other than original value made them of interest.

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- Late delivery and consequences for integration problems with related/linked projects;
- Firm price basis of payment for developmental projects;
- Identification of needs/requirements; and
- Lessons learned re project management and contract administration.

Conclusions

The four major issues identified represent areas of potential risk to PWGSC.

Recommendations

It is recommended that:

1. *Given the audit has raised the most salient issues, and that these have been discussed with and recognized by the auditee organization, no further work be undertaken by the Audit and Review Branch at this time; and*
2. *With respect to the issues raised, the Assistant Deputy Minister, Supply Operations Service prepare and implement an appropriate Action Plan.*

1 Introduction

1.1 Authority for the Project

The project was approved by the Public Works and Government Services Canada's (PWGSC) Audit and Review Committee as part of the 1999/2000 Audit and Review Plan.

1.2 Objectives

The audit's overall objective is to provide assurance that major federal contracts managed by Supply Operations Service Branch (SOSB), PWGSC, comply with contracting legislation and policy, and appropriate risk management policies.

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1.3 Scope

The audit focused on major contracts managed by Supply Operations Service Branch (SOSB) active through the period 1993/94 to present. Major contracts were defined as those with an original value of \$100 million or more, which is the threshold value used to define Major Crown Projects². Areas of particular interest were the responsibilities and activities of PWGSC as Contracting Authority.

1.4 Background

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2 Results of the Preliminary Survey Phase

2.1 Work Performed

The Preliminary Survey was based on a review of relevant documentation, including policies, procedures and previous audit work (see below), as well as interviews with Contract Managers responsible for the contracts selected for investigation. In all, 25 major contracts were selected for review, two of which³ could not be investigated during the review period. The Preliminary Survey also included a cursory review of specific contracting files for the selected projects and discussion with a representative from the Office of the Auditor General.

The focus of the review of contract files was on the identification of issues of a systemic nature related to major contracts in general rather than on issues that may be specific only to a given contract. Of particular interest in this regard were:

- the accountabilities of PWGSC with respect to the monitoring and reporting of the work;
- the reasons for changes in cost and schedule which occurred during the course of the contracts; and
- whether or not an adequate risk management system was in place.

2.2 Profile of the Entity

2.2.1 Description

A brief summary for each major contract reviewed is provided in Annex A.

2.2.2 Recent Reviews/Recent Initiatives

The following studies were reviewed as part of the Preliminary Survey:

- ♦ "Modernizing Accountability Practices in the Federal Government", draft discussion paper by Treasury Board Secretariat/ Office of the Auditor General (1998)
- ♦ "Materiel Management in the Federal Government", Auditor General of Canada (Nov. 1996)
- ♦ "DND Major Capital Projects - Industrial Development Initiative", Auditor General of Canada (1992)
- ♦ "Contracting Performance", Auditor General of Canada (April 1996)

³ Canadian Space Station Project (CSS) and for Non-core services at Goose Bay.

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- ◆ "DND - Buying Major Capital Equipment", Auditor General of Canada (April 1998)

Support Directorate", Audit and Review Branch, PWGSC (May 1995)

- ◆ "Major Crown Projects - Lessons-learned Report", Audit and Review Branch, PWGSC (Aug. 1994)
- ◆ "Evaluation of the Project Support Directorate", Audit and Review Branch, PWGSC (Apr. 1995)
- ◆ "Report on Non-competitive Procurement", Treasury Board Secretariat (Jan. 26, 1999)

2.3 Preliminary Findings

The Preliminary Survey identified four key areas of concern:

- Late delivery consequences for integration problems with related/linked projects;
- Firm price basis of payment for developmental projects;
- Identification of needs/requirements; and

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costs/damages to the Crown. In addition to TCCCS and LAV/APC, the Land Force Command System (LFCS) and Canadian Leopard Battle Tank Modification will be affected as both will also be fitted with TCCCS deliverables. Similar integration issues exist for the Military Automated Air Traffic System (MAATS) due to the late delivery of the Canadian Automated Air Traffic System (CAATS).

2.3.2 Firm Price Basis of Payment for Developmental Projects

The government has entered into large scale developmental projects on a fixed price basis. The Auditor General (AG) has previously examined this issue, as reflected in Chapter 24 of his Annual Report, published November 1996. The 1996 AG report primarily focused on matters of concern regarding the CAATS project. At the time, the Auditor General expressed cautiously positive comments regarding TCCCS: *"In this project, there are serious risks associated with delays in software development modules that could cause financial problems. However, the project team paid close attention to the risks identified."*

The AG's 1996 Report said: *"Given the rapid pace of change, risks are further increased when the government enters into long-term fixed price contracts with requirements that are essentially ambiguous, poorly defined, or changing frequently."* The Report also said: *"...single, large, lengthy, fixed-price contracts are not suitable for large information technology projects because they appear to limit management's ability to adjust to changed conditions. There is an urgent need to improve the procurement and contract processes for information technology projects."* The Preliminary Survey identified issues related to these observations by the Auditor General in regard to the Canadian Forces Supply System Upgrade (CFSSU), Military Automated Air Traffic System (MAATS), and TCCCS contracts.

An issue not explicitly addressed by the Auditor General's 1996 Report, but of possible concern to the government, is that the Crown pays a premium within fixed price contracts due to the onus on the contractor to absorb the project risks. A typical concern regarding fixed price contracts is scope change and its impact on costs and schedule (see 2.3.3. below). Other concerns are the lack of incentive for the contractor to adhere to the schedule in a fixed price situation, and the lack of leverage by the Crown to encourage adherence to the project schedule. It is also difficult for the Crown to assess the earned value relative to the payments made. In essence, schedule change costs are a project risk that the contractor has built into the fixed price. The extent to which this has been a problem, and how it was handled, in a major contract such as TCCCS may provide lessons-learned.

Departmental managers, in discussing this issue, have noted that alternative approaches, e.g. cost-reimbursable, present other risks and costs to the government. A more open basis of payment requires more administration and person resources. A fundamental challenge is to achieve an appropriate risk balance through the basis of pricing, such that the basis of payment reflects an equitable sharing of risk between the Crown and the contractor. While there is no perfect solution, this leads to the need for appropriate due diligence and risk assessment as important inputs to the pricing basis decision. AMES has recently developed a risk assessment

model which assesses risk on a project basis. It may be useful for AMES to examine the possible benefit of this model to address the above noted concerns.

2.3.3. Identification of Needs/Requirements

The 1996 AG Report commented on the importance of defining requirements as a key to project success. It said: *"The government runs unnecessary risks when it enters into long-term, fixed price contracts before a clear understanding of what will be built is reached by all parties. The fixed price developmental contract ought to be let only when the government and the developer have reached a common understanding and definition of the requirements."*

Unidentified needs can lead to disruptions and delays in the completion of the identified work. Scope change can lead to rebaselining of milestones and deliverables, descoping of some aspects in order to keep overall project costs within a fixed price, or claims from contractors for extra costs. Often these project risks are not fully evident until a contract is well underway. The Preliminary Survey suggests that such risks may have been faced by the Electronic Support and Training System Project (EST), and Light Armoured Vehicle – Reconnaissance (LAV/RECCCE) contracts.

2.3.4. Lessons-learned re Project Management and Contract Administration

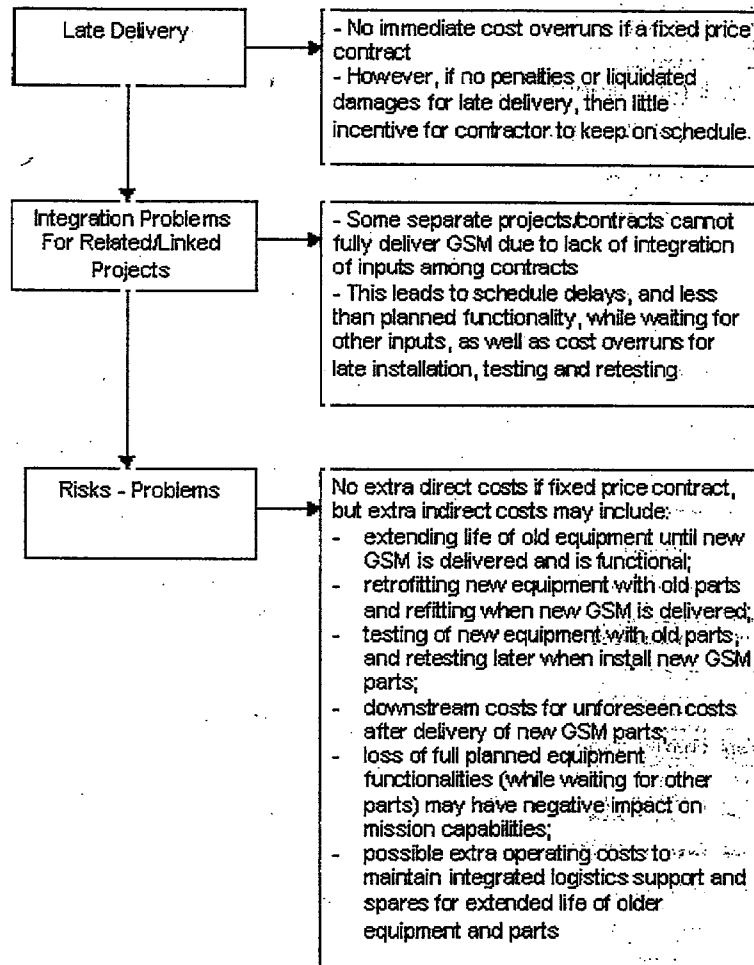
Some traditional concerns regarding major contracts include project planning, task management and change management. In general, project planning sets the overall statement of work into a framework which includes the interdependency of activities with milestones for deliverables and claims, performance expectations and an essential communication tool to all parties. Task management sets detailed components of the statement of work into detailed work packages with time frames and budgets upon which the progress of the work can be monitored. In effect, task management provides a basis against which progress and variances can be identified, as well as updated forecasts for project completion. Change management covers the identification and control of changes to technical requirements and related impacts on resourcing, scheduling, costs, and performance. Task management and change management are closely related to configuration management because they are aspects of project configuration.

The Auditor General examined the Income Security Program Redesign (ISPR) and reported in 1995 that it needed continuing corrective action to manage project risks. It had a revised schedule, budget and contracted deliverables. His 1996 Report said the following about ISPR: *"Risks remain very high that further changes in schedule, cost or requirements will be necessary to complete the project; management needs to continue taking strong action to mitigate these risks as much as possible."* In view of these previous AG concerns, and the long time frame and large scale of the ISPR project, it may be useful to examine it from a "lessons learned" perspective.

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Exhibit 1

Late Delivery - Unrecognized Integration Issues⁴



⁴ NOTE: GSM, as identified in Exhibit 1, stands for Government Supplied Material.

2.3.5 OAG and Risk Management

The Office of the Auditor General has indicated that, in their future review of major contracts, they would consider the publication "Risk Management: Guideline for Decision-Makers" (a National Standard of Canada published by the Standards Council of Canada - Reference CAN/CSA-Q850-97) as a basis for audit criteria.

3. Conclusions

The following four major audit issues represent areas of potential risk to PWGSC and are therefore possible candidates for immediate action and/or more in-depth study:

- Late delivery - consequences for integration problems with related/linked projects;
- Firm price basis of payment for developmental projects;
- Identification of needs/requirements; and
- Lessons-learned re project management and contract administration.

Further, given the specific interest by officials of the Office of the Auditor General in the CSS Guideline regarding risk management, the possible application of the Guideline to future audit work by the department may warrant consideration.

4. Recommendations

It is recommended that:

1. *Given the audit has raised the most salient issues, and that these have been discussed with and recognized by the auditee organization, no further work be undertaken by the Audit and Review Branch at this time; and*
2. *With respect to the issues raised, the Assistant Deputy Minister, Supply Operations Service prepare and implement an appropriate Action Plan.*

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Annex A

Overview by Major Contract

A.1 Anti-Armour Project (AAP)

This project is divided into four separate contracts.

The first contract was for the industrialization of Canadian companies, to allow them to participate in the production of ERYX components, in order to ensure the Canadian Government obtained 7 per cent Industrial and Regional Benefit content in the main contract.

The second contract is the main contract, and is for the production of ERYX weapon systems - a man-portable missile launcher capable of defeating modern armoured vehicles. This contract allows for call-up options until year 2003. To date, nine options have been exercised.

The third contract was for the development and production of 52 ERYX video interactive gunnery simulators (EVIGS). The first and third contracts were completed in September 1997 and June 1998, respectively.

The last contract is for 52 ERYX Precision Gunnery Simulators (EPGS), for an amount for the development and for production. Currently, the contract is behind schedule and problems related to have yet to be corrected. In view of these problems, the contract manager has taken the necessary steps to minimize the financial risks to Canada. A Senior Review Board of the Department of National Defence (DND) was scheduled to review the contract in July 1999 and to consider the options related to developing the system. The audit team was advised subsequent to its preliminary survey work that a "green light" had been given to pursuing the development and procuring the 52 EPGS systems.

This project was reviewed by the Auditor General in April 1998 and met the expectations of a rigorous risk management process.

Review assessment/recommendations

In light of the foregoing, in particular the state of completeness of the project and the controlled risks with respect to the Precision Gunnery Simulator, further review is not recommended at this time.

A.2 CC-130 Hercules Avionics

Initially, the project covered the development of the avionics and its installation in five aircraft. The contract was awarded to CAE Aviation Limited, on a sole-source basis, on December 2, 1994 in the amount of \$55.1M, with an option to implement the avionics upgrade for an additional 25 aircraft at a cost of \$77.6M. In March 1995, an amendment was issued to exercise the option, bringing the contract value to \$132.7M.

A profit audit was conducted in 1997 for all government contracts at CAE

The contract is currently behind the delivery date which is scheduled for June 1996. In June 1996, the Crown advised that it was seeking consideration for the late delivery of the work. The liquidated damages provision of the contract will be enforced.

Review assessment/recommendations

The problem related to late delivery may warrant review.

A.3 CF-18 System Engineering Support

This contract was awarded to Bombardier Inc. in the amount of \$216.3M on July 2, 1996. The contract is to provide systems engineering support for the CF-18 on a preauthorized basis for a period of three years. At present, an amendment is being negotiated to extend the period of performance by three months.

Every fiscal year, the contractor provides a report on progress related to the level of effort provided by their company, a budget is agreed to between the company and the Crown, and the contract is amended to reflect an annual limitation of expenditure. There is no formal reporting system within PWGSC to senior management.

Review assessment/recommendations

This Contract does not appear to present any significant risk to the Crown and is therefore not recommended for further review.

A.4 CSH - Canadian Search and Rescue Helicopter

This contract was awarded on a competitive basis to E.H. Industries Ltd. on April 6, 1998 in the amount of \$579.8M. This project is for the production of fifteen Search and Rescue Helicopters. The first helicopter is to be delivered on [redacted] and the last on [redacted]. The overall program is proceeding on schedule. There are a number of potential changes to the aircraft and the contractor has submitted ten contract change proposals for which negotiations are currently underway. Due to the fact that this type of helicopter has proven technology, it appears that the risk to the Crown is relatively low.

Review assessment/recommendations

In light of the foregoing, and provided that the changes to the aircraft are adequately controlled, no further review is recommended at this time.

A.5 EST - Electronic Support and Training System (Challenger)

The EST system project was approved to define, identify, procure and install equipment necessary to provide the Canadian Forces land, sea and air elements with effective airborne electronic warfare (EW) training. The implementation contract was awarded on March 1, 1993 to Lockheed Martin Canada, as the Prime Contractor, in the amount of \$128.4M.

During the course of the contract, a study revealed that the cabling had to be hardened on all three planes to meet the electromagnetic interference (EMI) requirements. Therefore a decision was made to award a separate contract to Lockheed Martin in the amount of \$20M to replace the existing cabling. The initial basis of payment of Time and Materials was changed to firm price

It is unclear why this major change was not included as part of the original contract since the work was necessary to adequately complete the work of the main contract. Furthermore, the use of a firm price basis of payment for a development project could be an issue.

, a sub-contractor for the project, submitted a claim o to Lockheed. Lockheed presented this claim to the Crown in its initial claim. ; later increased its claim to Lockheed t Lockheed then indicated an intention to settle its dispute with the Crown only after settlement had been reached with the sub-contractors. The claim has been open for several years and is still outstanding. Meanwhile, a decision was made to transfer the production work to Transport Canada Aircraft Services (TCAS).

The project i s behind schedule

s. The Auditor General's report of April 1998 (Chapter 4), indicated that the risk management, options analysis, and monitoring and reporting requirements for this project had been "mostly not met".

Review assessment/recommendations

The project has encountered several problems related to needs identification; late delivery of the equipment; claims against the Crown, the Prime Contractor and the sub-contractors; transfer of the production work to Transport Canada Aircraft Services; and award of a related contract.

It is recommended that the project be reviewed for identification of needs, basis of payment and late delivery.

A.6 Income Security Program Redesign Project (ISRP)

This contract, in the amount of \$148.7M, was awarded to EDS of Canada Ltd. on a competitive basis in March 1994 for the design, development, supply, integration, test, delivery and installation of the Client Service Delivery Network (CSDN) of ISRP.

Since its inception, the project has experienced several problems related to legislative and scope changes, concurrent design and development activities which created the potential for rework. A project assessment report was produced by ALLTEL in August 1997, concluding that the overall risk was high, in particular with respect to

The report evaluated several options including termination of the contract. The Crown elected to enter into a settlement and final release agreement on March 31, 1998.

The Contract was terminated

Review assessment/recommendations

This project should be considered for review to identify lessons-learned and their implications for contract administration.

A.7. Light Armoured Vehicle-Armoured Personnel Carrier (LAV/APC)

The initial contract was awarded to the Diesel Division of General Motors, on a sole-source basis, for the procurement of 240 vehicles for an amount of \$552M. The contract included three options to procure an additional 120, 120 and 171 vehicles, respectively. Option 1 was exercised in August 1998 for an amount of \$241M. As of [redacted] vehicles have been delivered and accepted by the Crown.

There is a risk management process in place and biweekly meetings are being held.

The schedule is impacted by the delays encountered under TCCCS. In addition, as the LAV/APC vehicles are delivered in an incomplete state of readiness, they will not allow DND to adequately carry out its mission until the equipment from TCCCS and LFCS has been properly installed and tested in the vehicles.

Review assessment/recommendations

It is recommended that a review be conducted to assess the risks and problems to the Crown related to late delivery of the TCCCS and LFCS projects.

A.8 Light Armoured Vehicle / Reconnaissance LAV (LAV/RECCE)

This contract was awarded to the Diesel Division of General Motors, on a sole-source basis, on March 12, 1993. The original contract value was \$543.2M and final value was \$629.3M. The contract was for the procurement of 225 Light Armoured Reconnaissance vehicles (LAV/RECCE).

The production schedule has been completed and 203 vehicles have been delivered. There were more than 100 amendments to the contract related to various scope changes. The result was a reduction in the quantity of vehicles to be delivered in order to complete the work within the approved budget. The contract is ongoing for spare parts until 2001.

It was reported that TCCCS does not have a material impact on this project, as the vehicles are utilizing older technology.

In discussing this project, departmental managers provided the following explanation regarding the state of contractual arrangements for the delivery of Integrated Logistics Support (ILS). The LAV/RECCE vehicles are presently being supported under a short term, interim Contractor Support Contract. A long term, steady state or In-service Support contract has yet to be formed. Although the long term vehicle support requirement is outside the Project Office mandate, preparatory contract details and basic terms and conditions will be culled by the Project Office and offered for future use by the Department.

Review assessment/recommendations

This project could be reviewed to assess the identification of needs, the development of the cost estimate and the scope changes.

A.9 Land Force Command System (LFCS)

Computing Devices Canada (CDC) was awarded a sole source contract in November 1996 for the Land Force Command System (LFCS). The Land Force requires a tactical, automated, command and control information system (CCIS) to provide commanders and their staffs with automated support that will enhance their capability to plan, direct, and monitor missions quickly under stressful conditions. This C² system will be integrated with the Tactical Command Control Communications System (TCCCS) army communication system to distribute LFCS information and disseminate orders. CDC is also the Prime Contractor for the TCCCS project.

The project is dependent upon the successful completion of the TCCCS for which the deliveries of equipment are behind schedule.

The LFCS contract was to be transferred to TCCCS before the end of June 1999. As such, extra contract costs or damages which may be incurred in the performance of LFCS as a result of delays in the contractor's performance of TCCCS would be to the account of CDC.

Other risk mitigation features which have been incorporated into the project to reduce the Crown's exposure include:

- management in accordance with the Treasury Board Enhanced Framework for Information Technology Projects;
- evolutionary delivery of software coupled with two contractual off-ramps which limit the maximum Crown liability at key points in the project; and
- milestone payments are effected on completion of clearly defined activities & holdback released on gate completion.

Review assessment/recommendations

It is recommended that the scheduled integration with TCCCS and LAV/APC be reviewed to ensure that consequential costs/damages to the Crown are minimized. The review should include an examination of both the direct and indirect impacts and costs of the TCCCS late delivery.

A.10 Military Automated Air Traffic Control System (MAATS)

The project is for the design, manufacture and installation of the MAATS for air traffic control services at various DND sites across Canada.

The contract, valued at \$73.1M, was awarded (directed) to Raytheon Systems Company, formerly Hughes Aircraft, in 1994 and was to be operational in 1997. Because the MAATS delivery is dependent on the Canadian Automated Air Traffic Control System (CAATS), which is experiencing serious scheduling delays, the current estimated completion date is now 1998. The Contractor stated that any delay in the CAATS project schedule will be directly reflected in the MAATS project schedule, along with the additional costs. The Contractor has also identified that the software productivity is at high risk regarding cost and schedule.

Although there is no formal relationship between the Project Management Offices for MAATS and CAATS, both offices exchange correspondence and attend the Contractor quarterly review meetings on each project.

The Project Management Office (PMO) is currently negotiating an amendment to revise the project schedule dates.

Review assessment/recommendations

In light of the foregoing, it is recommended that the cost and schedule impact of the dependency of MAATS on CAATS be reviewed. Also, an assessment of the possible obsolescence of the system should be made to determine its impact on the continuation of the project.

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A.11 North Warning System (NWS)

The contract was awarded to Frontec Logistics Corp. on December 29, 1994 in the amount of \$254.6M. The contract is to provide the services required at the logistic support sites for a period of five years and at the long range radar sites for one year, as well as to maintain the contract management office in Ottawa throughout the contract.

The cost reimbursable portion of the contract is subject to audit (Consulting and Audit Canada has carried out audits for the first eighteen months of the contract).

Review assessment/recommendations

Due to the repetitive nature of the work and the fact that the contract is essentially to provide personnel for the operation and maintenance at various sites over the life of the contract, further review is not recommended at this time.

A.12 NATO Flying Training in Canada (NFTC)

This project is to train Canadian Air Forces student pilots as well as NATO Air Forces and non-NATO nations with previous relationships with Canada. The contract was entered into with the prime contractor, Bombardier, on November 18, 1997 in the amount of \$2,980M. An amendment of \$535M was approved to meet the anticipated requirement of approximately 250 foreign students and increased the contract value to \$3,385M.

The procurement of training aircraft was made through the creation of a not-for-profit holding company, Militair, and the payment thereof through the issuance of bonds guaranteed by the Crown. The planés are being leased by Bombardier from Militair.

An audit of this contract is currently underway by the Auditor General.

Review assessment/recommendations

It is recommended that no further review be conducted at this time, given the ongoing work by the Auditor General.

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A.13 Submarine Capability Life Extension (SCLE)

This project is for the lease-to-purchase of four existing Upholder Class diesel-electric submarines and the provision of initial support from the government of the United Kingdom of Great Britain and Northern Ireland and the builder of these submarines - Marconi Marine (VSEL) Ltd. (formerly Vickers Shipbuilding and Engineering Ltd.).

The contract was awarded, on a non-competitive basis, on July 2, 1998 for an amount of \$610M for the main contract and the initial support contract. The delivery of the first submarine is scheduled for [redacted] and the final submarine for [redacted].

This is a fixed price contract, subject to Economic Price Adjustment (EPA) by Treasury Board, and payment will be made upon delivery of items and the lease payment schedule.

Review assessment/recommendations

The overall progress of this project is on schedule and, because the submarines are already built, the risk to the Crown would appear to be minimal. No further review is recommended at this time.

A.14 Records, Documentation, Information Management System (RDIMS)

This project was a competitive bid contract awarded to CGI Information Systems and Management Consultants for the acquisition of a government-wide license for an integrated suite of software for a file management system.

The initial contract was signed on July 14, 1998 for \$1.7M. The fifteenth amendment, approved on June 15, 1999, brought the total contract value to \$3.9M.

This contract is similar to a standing offer agreement for the purchase of licenses for the use of software and the provision of support services.

Each client department which purchases licenses enters into a Memorandum of Understanding (MOU) with PWGSC and pay) per seat for the purchase of the license and) per seat for five years of maintenance service.

Review assessment/recommendations

Because of the relatively low contract value at this time, and the repetitive nature of the requirements of this contract, no further review is currently recommended.

A.15 Tactical Command Control Communications System (TCCCS)

This contract was awarded to Computing Devices Canada (CDC) in April 1991 for an amount of \$1,371M. The contract is for the development, testing, installation, fielding and support of a fully integrated IRIS radio system. To date, eleven amendments have been signed, increasing the contract value by \$227.5M (17%).

As of amendment number 11, the contract schedule states that the IRIS will be completed in . The project is currently behind schedule and there is a possibility that the delivery will be extended to

The system integration has been ongoing for four years with very limited success

Notwithstanding the above, about of the total contract value has been paid to date, which raises the question as to whether or not the earned value has been achieved.

Lastly, this project has an impact on the Land Force Command System (LFCS), the Light Armoured Vehicle/Armoured Personnel Carrier (LAV/APC), and the Canadian Leopard Battle Tanks Modification projects.

Review assessment/recommendations

It is recommended that further review of the TCCCS project be undertaken in order to identify the schedule, costs and performance risks to the Crown and integration problems for related/linked projects. In addition, the risk associated with the use of a firm price basis of payment for a development project of this magnitude should be reviewed.

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A.16 Y2K Mission Critical Systems Contracts

This contract was awarded on March 10, 1998 to seven software consulting firms, based on fixed time rates for professional services, to be renegotiated every six months. To date, over 300 tasks have been authorized, for an amount of \$180M.

The contract was established to facilitate client departments in conducting their Y2K conversions. Each department submitted a detailed requisition and statement of work for each task, and provided a rationale to support the firm selected. The proposed Contractor was to submit its proposal in accordance with the contract. The role of PWGSC is limited to the issuance of contracts and the negotiation of rates with each firm every six months. The time control and progress monitoring of the work is being conducted by the client. Each contract includes a time verification clause, but no requests for audits have yet been made.

The role of PWGSC was to put in place a work allocation methodology and to ensure the resolution of issues.

In light of the foregoing, there could be a question as to whether or not the Crown received best value for money, given that each task was treated as a stand alone project, which may have resulted in, for instance, a duplication of work.

Review assessment/recommendations

There may be merit in reviewing the execution of PWGSC's accountabilities in the performance of these contracts.

A.17 Contracted Flying Training And Support (CFTS)

This contract was awarded on December 11, 1991 to Bombardier Inc. for an amount of \$165M to provide flying training and support for primary flying, basic helicopter, multi-engine and continuing flying training to DND. There were four amendments, which increased the contract value to \$236M.

The contract was recently audited by the Auditor General. The audit focused on the evaluation process, however the results were not yet available at the time of the current review.

This is a fixed time rate contract initially issued for five years and extended for an additional two years. At present, an amendment for an additional three year period is being negotiated.

Review assessment/recommendations

Given the Auditor General's recent initiative, no further review is recommended at this time.

A.18 Provision of Engineering and Technical Services for PWGSC

This contract was awarded on June 16, 1999 to Technology Consulting Group Ltd (TCG) for the amount of \$58.9M, with options to extend the contract for four one-year terms. Due to the large number of human resources required to carry out the work, TCG has sub-contracted with seven firms. The Government Telecommunications and Informatics Services (GTIS) will be responsible for monitoring the conduct of the work at its premises.

The basis of payment is a fixed time rate for professional services. The time is monitored by GTIS and the costs are subject to audit.

Review assessment/recommendations

Although this is a new contract, there may be merit in ensuring sufficient clarity exists regarding the related roles and responsibilities within PWGSC.

A.19 Data Center Operations Services

This contract was awarded on June 16, 1999 to IBM Ltd. in the amount of \$37.8M. The contract is very similar to the Provision of Engineering and Technical Services for PWGSC (described in A.18 above).

The Government Telecommunications and Informatics Services (GTIS) will be responsible for monitoring the conduct of the work at its premises.

The basis of payment is a fixed time rate for professional services. The time is monitored by GTIS and the costs are subject to audit.

Review assessment/recommendations

Although this is a new contract, there may be merit in ensuring sufficient clarity exists regarding the related roles and responsibilities within PWGSC.

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A.20 Canadian Leopard Battle Tanks Modification

This contract was awarded to Gesellschaft Fur Logistischen Service (GLS), on a sole-source basis, on December 15, 1997 for a value of \$89.3M. With two amendments, the current value has increased to \$112.0M. The purpose of the contract is to modify 114 battle tanks, Leopard A5 version, into the Canadian Leopard C1, including the Thermal Imager System and providing the Leopard Crew Gunnery Trainer. GLS is the manufacturer of the Leopard tank.

The modification includes the installation of the IRIS radio package, which is to be supplied by the Tactical Command Control Communication Services (TCCCS) project. Due to the late delivery of these components to GLS, the Crown incurred additional costs which can be construed as consequential damages and should be recovered under the TCCCS contract.

Notwithstanding the above, the project is on schedule and should be completed within the approved budget. The risk to the Crown is considered to be minimal as the acquired system has already been developed and similar work has been conducted for several other countries. Nevertheless, attention should be paid to the condition in which the battle tanks are being turned over to the Contractor to minimize the number and value of Additional Work Requirements.

Review assessment/recommendations

Notwithstanding the impact of the late delivery of the TCCCS equipment, no further review is recommended at this time.

A.21 Canadian Forces Supply Systems Upgrade (CFSSU)

This contract was awarded on a competitive basis to SHL Systemhouse Inc. on December 12, 1994 in the amount of \$159.3M. Four amendments were approved to increase the current contract value to \$168.7M. CFSSU is to replace the current outdated and inefficient Canadian Forces Supply System (CFSS). The contract implementation includes the installation of equipment and software at various locations throughout Canada, and the conversion and transition of information. The system is to incorporate Distributed Resource Planning (DRP), Warehouse Management and Bar-coding technology into an integrated, multi-echelon distribution system.

Excerpts from the AG's report of November 1996, chapter 24, are as follows:

"In both the CFSSU and CAATS projects, many dedicated people in the project management offices have struggled to keep the projects moving ahead, only to have to redo their work because requirements weren't understood or were poorly communicated.

The CFSSU project adopted the C/SPMS standard. Management's analysis of the monthly performance figures showed rising costs and a slippage in schedule. Efforts were made to take corrective action; however, senior management did not recognize the full implications of these figures until our audit confirmed the project management's analysis of the situation. The trends in the data showed that the project would take twice as long and cost over \$100 million more than expected if the project were to continue to completion with productivity at the current level. However, the trends showed productivity declining rather than staying constant. This indicated that the project would never be completed unless management took significant corrective action. At the time of our audit, project management was looking at alternative ways to meet the project objectives.

It is essential to clearly define the requirements of the system for reasonable periods of time prior to awarding long-term fixed-price contracts or starting development work.

Senior management, including (but not limited to) the project leader, the project sponsor and the project manager, must be closely involved in any systems development project.

Organizations carrying out major IT projects must have the "maturity" or capability to do so.

Priorities for time, cost and requirements must be set at the start of the project, be well communicated to all parties and be reviewed regularly so that the planned results can be achieved.

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Accurate, timely and effective performance measurements must be used to manage the project. Action plans need to be developed by departments to implement the Enhanced Framework for the Management of Information Technology Projects.

We believe, as we reported last year, that successfully developing and implementing systems entails a combination of other critical factors such as:

- effective user involvement and commitment to the success of the project;*
- the experience and expertise of the staff dedicated to the project; and*
- the separation of large projects into smaller, more manageable components, each of which provides an improved capability to the organization."*

The CFSSU contract was amended, in December 1997, to make greater use of Commercial Off-The-Shelf (COTS) software (contracted from _____, and again, in October 1998, to provide for _____ schedule extension due to difficulties encountered by the Crown in identifying external interface requirements and completing its legacy data extraction activity. Despite these amendments, SHL has presented a claim (which the Project Management Office (PMO) stated to be _____) against the Crown concerning _____. Also, an additional slip o _____ was identified as being due to the inability o _____ to deliver enhanced warehousing functionality software unit _____.

At this time, the PMO is proposing the following options for consideration by Senior Management:

Review assessment/recommendations

In light of the foregoing, it is recommended that any detailed examination be deferred until a final decision on the course of action for this project had been taken.

⁵ SHL, Systemshouse was recently bought by EDS.

A.22 Canadian Automated Air Traffic System (CAATS)

This contract was awarded to Raytheon Systems Company (formerly Hughes Aircrafts) in November 1989 and managed by SOSB until November 1996, at which time the contract and all of its obligations were assigned to NavCan (a non-for-profit corporation). Because the project is no longer under the responsibility of PWGSC, the audit team was unable to obtain the necessary information to report on it. At the time of the transfer to NavCan in 1996, the Auditor General reported numerous matters of concern in relation to the project.

CAATS is a prerequisite for the successful completion of MAATS. As noted earlier, several cost, schedule and performance risks have been identified for MAATS as being directly related to CAATS.

Review assessment/recommendations

It is recommended that this project be reviewed insofar as it integrates with the MAATS project. If MAATS is examined in greater detail, the linkages with CAATS, and the impact of CAATS late delivery and delayed integration, should receive particular attention.

A.23 ATE for CF-18 aircraft avionics

A \$290.5M contract with Harris Canada Ltd. was approved for this project on June 10, 1999. The Preliminary Survey investigation suggests that the obligations of the contractor with respect to the project schedule may not have been adequately addressed in the contract. The contract entails the outsourcing of aircraft maintenance services to obtain third-party delivery. It will require the participation of several Crown organizations in order to ensure the transfer of maintenance services from the Canadian Forces bases at Bagotville and Cold Lake to a Harris facility in Calgary. An adequate risk management structure should be put in place at the outset in order to ensure adequate coordination of the various parties and to minimize the risks to the Crown.

Review assessment/recommendations

As this contract has only recently been awarded, no further review is recommended at this time.