The Auditor-General
Audit Report No.24 2006–07
Performance Audit

Customs' Cargo Management Re-engineering Project

Australian Customs Service

Australian National Audit Office

ISSN 1036–7632

ISBN 0 642 80943 7

Australian National
Audit Office

Canberra ACT
7 February 2007

Dear Mr President
Dear Mr Speaker

The Australian National Audit Office has undertaken a performance audit in the Australian Customs Service in accordance with the authority contained in the *Auditor-General Act 1997*. I present the report of this audit and the accompanying brochure to the Parliament. The report is titled *Customs' Cargo Management Re-engineering Project.*

Following its tabling in Parliament, the report will be placed on the Australian National Audit Office's Homepage—http://www.anao.gov.au.

Yours sincerely

Ian McPhee
Auditor-General

The Honourable the President of the Senate
The Honourable the Speaker of the House of Representatives
Parliament House
Canberra ACT

AUDITING FOR AUSTRALIA

The Auditor-General is head of the Australian National Audit Office. The ANAO assists the Auditor-General to carry out his duties under the *Auditor-General Act 1997* to undertake performance audits and financial statement audits of Commonwealth public sector bodies and to provide independent reports and advice for the Parliament, the Government and the community. The aim is to improve Commonwealth public sector administration and accountability.

For further information contact:
The Publications Manager
Australian National Audit Office
GPO Box 707
Canberra ACT 2601

Telephone: **(02) 6203 7505**
Fax: **(02) 6203 7519**
Email: **webmaster@anao.gov.au**

ANAO audit reports and information about the ANAO are available at our internet address:

http://www.anao.gov.au

Audit Team

Barbara Cass
Dianna Smith
Janna Gilbert
Kristen Foster
Peter White

Contents

Abbreviations

ANAO	Australian National Audit Office
AQIS	Australian Quarantine Inspection Service
ATO	Australian Taxation Office
BCP	Business Continuity Plan
CAPEC	Conference of Asia Pacific Express Carriers
CBFCA	Customs Brokers and Forwarders Council of Australia
CCF	Customs Connect Facility
CEIs	Chief Executive's Instructions
CI	Customs Interactive
CMR	Cargo Management Re-engineering
CMS	Cargo Management Strategy
COMPILE	Customs Online Method of Preparing from Invoices Lodgeable Entries
CPGs	Commonwealth Procurement Guidelines
CRA	Cargo Risk Assessment
Customs	Australian Customs Service
DSD	Defence Signals Directorate
EDI	Electronic data interchange
EDS	Electronic Data Systems Australia
FMA	Financial Management and Accountability

IAG	Industry Action Group
ICS	Integrated Cargo System
ICT	Information Communication Technology
IRG	Industry Reference Group
IWGC	Industry Working Group on Customs
OBS	Office of Business Systems
P&A	Profiling and Alerts
PKI	Public Key Infrastructure
The Consortium	The Computer Associates Consortium
TML	Trade Modernisation Legislation
UAT	User acceptance testing
USD	Unicentre Service Desk

Glossary

Alerts	Entity specific risk indicators such as names and addresses.
Cascade reporting	Requirement that each cargo reporter notify Customs of any other cargo reporters on whose behalf they have carried cargo or on-sold any space.
Customs Connect Facility (CCF)	The technical infrastructure providing a secure communication gateway for the ICS.
Customs Interactive	The component of the CCF that allows external and internal clients to interact online with the ICS.
Data integrity	Safeguarding the accuracy and completeness of information and processing methods.
Defence Signals Directorate	The Defence Signals Directorate is Australia's national authority for signals intelligence and information security. Part of its role is to assess and provide information security products for the Australian Government.
Electronic data interchange	The electronic exchange of business data from one computer application to another in a structured format using a communication link.
Function point count	A method of understanding the size of a software project. Function point analysis can be used to track and monitor scope creep.
Outturn reporting	A comparison of cargo actually received against the corresponding cargo report to identify any surplus and shortages in cargo.
Profile	One or a cluster of risk indicators that, when grouped together, present the characteristics of a high risk consignment.

Public Key Infrastructure	An arrangement that provides for trusted third-party vetting, usually a Certificate Authority (CA) of user identities.
SSA-NAME3	Software for applications that need to search or match names, addresses and identification data.
Underbond movement process	Customs may give permission to move underbond cargo between approved premises. This cargo remains subject to Customs' control until it is cleared for home consumption.
User acceptance testing (UAT)	The process whereby the business area verifies that an IT system meets its requirements to a level sufficient to implement the system.

Summary and Recommendations

Summary

Background

1. The Australian Customs Service (Customs) recognised the need to re-engineer its cargo management processes in 1996 and published its Cargo Management Strategy (CMS) in 1997. The strategy sought to fully integrate the people, processes and technology associated with cargo management. The CMS was further progressed in the Cargo Management Re-engineering (CMR) Business Model. The model outlined the CMR project's objective to introduce new cargo management processes and systems to improve the effective delivery of services to Government, industry and the community.

2. The CMR project was a large and complex Information Communication Technology (ICT) project that spanned many years. It was to improve import and export processes, increase cargo management efficiency for industry and improve targeting of high-risk cargo. Key aspects of the project were:

- re-engineering Customs' business processes;
- legislative change to support this new business environment; and
- developing the Integrated Cargo System (ICS) to replace Customs' transaction processing systems.[1]

3. The project also included the Customs Connect Facility (CCF) and the Cargo Risk Assessment (CRA) system. The CCF is the secure communication gateway that allows internal users and external clients to interact with the ICS. The CRA system is used to identify and assess potentially high-risk cargo.

4. The Trade Modernisation Legislation (TML) package was intended to modernise the way Customs managed the movement of cargo. It was also to provide the legal basis for an electronic business environment. Because of the substantial changes facing industry and Government, provisions in the legislation allowed Customs up to two years to introduce the ICS following the International Trade Modernisation Act being passed. This meant that the ICS was to be implemented by 20 July 2003.

5. Electronic Data Systems (EDS) Australia began developing the CMR applications[2] in 1998 under Customs' existing information technology (IT)

---

1 These systems included: Export Integration; Air Cargo Automation; Sea Cargo Automation and Customs Online Method of Preparing from Invoices Lodgeable Entries (COMPILE).

2 The CMR applications included the Integrated Cargo System and the Customs Connect Facility.

outsourcing arrangements. In October 2001, Customs and EDS agreed that EDS would continue to manage the infrastructure, desktop and voice and data aspects of the project, with remaining analysis and development to be done by one or more third parties. In early 2002, the Computer Associates Consortium (the Consortium) was engaged to develop the ICS and separate contracts were established with IBM and SecureNet to develop the CCF. Given the scope of the work to be undertaken, Customs was under considerable pressure to meet the legislative implementation date of July the following year.

6. The CMR project encountered delays and significant cost increases. In 1999, Customs estimated the project would cost $30 million.[3] The total reported cost of the CMR project as at the end of February 2006 was $205 million.[4] Between February and June 2006, Customs made additional payments of $7.7 million for further developments and support of the ICS and CCF. The ICS was implemented in three releases: Release 1a was a trial with industry during March and April 2003; Release 2, the exports component, was implemented on 6 October 2004; and Release 3, imports processing, was implemented on 12 October 2005.

7. The implementation of ICS Exports (Release 2) was relatively successful. This was in contrast to the implementation of ICS Imports (Release 3), which had a significant impact on Australia's supply chain and international trading environment. Problems with the functionality and performance of the ICS and CCF resulted in substantial disruption to the movement of cargo, particularly in the sea cargo environment. As widely reported, Australia's major ports were congested with a backlog of containers awaiting clearance and delivery for many weeks.

Audit objective and scope

8. The objectives of the audit were to:

- examine Customs' management of the CMR project; and
- determine whether the ICS and CCF met:
  - project and operational objectives; and

[3] The expected cost took into consideration the external build of the ICS software component. It excluded costs such as project management, training, implementation, communication, staffing and the CCF.

[4] Customs considered the project to be completed as at 28 February 2006, with ongoing costs for further development and support of the ICS and CCF.

- user capability and functionality requirements.

9. Particular emphasis was given to the following areas:

- the project management framework that supported the CMR project;
- implementation arrangements for the ICS; and
- ongoing operational arrangements.

10. After this audit commenced, Customs engaged Booz Allen Hamilton to undertake a separate review of the ICS. The purpose of that review was to provide Customs with a forward looking report on the lessons to be learned from the implementation of the ICS, its current status and the opportunities to enhance benefits for both Government and industry. The ANAO consulted closely with the Booz Allen Hamilton team and is supportive of the recommendations in their report, which was released in May 2006. The review made thirteen recommendations relating to the ongoing management and governance of the Cargo Management Re-engineering Program at both strategic and tactical levels.[5]

Audit findings and overall conclusion

Overall conclusion

11. Customs operates within Australia's international trading environment and must balance its border protection responsibilities with the need to facilitate legitimate trade. To successfully develop and implement a project of the size and complexity of the CMR project within this environment was a major challenge for Customs. The project encountered considerable delays, cost overruns and the implementation of the imports component of the ICS caused substantial disruption to the movement of cargo at Australia's major ports and airports.

12. The management framework that Customs had in place to support this project lacked many of the basic fundamentals necessary to successfully implement a large ICT project. The outcomes to be achieved and the expected benefits from the project were never clearly defined. There was no overall CMR project plan, financial management plan, project budget or proper assessment of the risks facing the project. There was also a lack of supporting documentation surrounding contractual arrangements. Delays in the early

[5] Booz Allen Hamilton, *Review of the Integrated Cargo System*, 16 May 2006, pp. 47-49.

years of the project had major repercussions for the latter stages of the project. Project teams were continually under pressure to meet tight deadlines, which were not achieved. Delays with the project necessitated three amendments to the legislated implementation date.

13. Customs underestimated the complexity and the risks associated with the project and failed to properly respond to emerging issues and changes in risks. The implementation was not supported by a coordinated implementation strategy or adequate business continuity planning. Insufficient time was allowed for system testing, particularly end-to-end testing. Customs did not have quality assurance mechanisms to assess the readiness of third-party software providers, the quality of their software or the preparedness of industry participants. Problems with the Cargo Risk Assessment system also impacted on Customs' ability to clear cargo and to target and assess high-risk cargo, increasing the risks to Australia's border security and Customs' revenue collection responsibilities.

14. The CMR project involved significant changes in system design, operating procedures, working relationships, business processes, skill levels and attitudes. The extent of these changes also meant that the impact on industry stakeholders would be substantial. Although Customs imposed these changes on industry, it did not manage the change process well and did not fully appreciate industry's capacity to meet these changes. A lack of understanding of industry's business processes contributed to the problems that occurred in October 2005 when ICS Imports was introduced.

15. Customs acknowledges that the CMR project could have been better managed and has learnt lessons from the project. It has initiated a number of reviews to improve its processes, revised its organisational structure and is modifying the ICS to more closely align with user and business requirements. It is also taking steps to more actively engage industry. Successfully implementing the outcomes of these reviews and initiatives and rebuilding its relationship with industry will be critical if Customs, industry and the community are to realise the full benefits of the CMR project.

16. Recognising the difficulties facing agencies undertaking large ICT projects, the Government recently introduced its *Responsive Government* policy[6],

[6] The *Responsive Government - a New Service Agenda* policy was introduced in March 2006 and outlines the Government's aim of effectively utilising ICT to assist in providing better service delivery, improving efficiency and reducing costs.

including the ICT Investment Framework and the Gateway Review Process.[7] These initiatives provide a project management and evaluation framework to assist agencies. It is still incumbent on agencies, however, to put in place the management structures, systems and processes necessary to effectively manage these projects.

Initial Development of the CMR project—Chapter 2

Engagement with industry

17. Customs put in place a number of strategies to involve and consult industry. However, it did not have a large proportion of industry's 'buy-in' for the CMR Business Model or project. This was a potential risk to the successful implementation of the project. Throughout the development of the Business Model, industry raised concerns about a number of issues and these were never resolved to their satisfaction. For example, onerous cargo reporting requirements, a strict sanction regime for non-compliance and concerns with the underbond movement process.[8] In considering these issues, Customs advised that it had to balance industry's concerns with its border protection responsibilities. This notwithstanding, if some of the issues raised by industry had been more thoroughly examined by Customs early in the project, a number of the problems faced in October 2005 may have been minimised. Customs is now working with industry to address these issues.

Legislative change

18. Customs advised that the import and export processing provisions of the Customs Act do not align with all existing business rules and ICS processes. Customs is examining options to address these inconsistencies. Because there are implications for Customs when trying to enforce compliance with the legislative requirements, it is important that Customs resolve these inconsistencies as a matter of priority.

---

[7] The Australian Government has introduced the Gateway Review Process for projects assessed as being of medium or high risk and over specific financial thresholds. Gateway is a project assurance methodology that involves short, intensive reviews at critical points in the project's lifecycle by an independent review team.

[8] Customs may give permission to move underbond cargo between approved premises. This cargo remains subject to Customs' control until it is cleared for home consumption.

Project Management Framework—Chapter 3

The CMR project business cases

19. Customs developed a business case for the project that it subsequently revised. Neither business case adequately identified costs, benefits, risks, deliverables or timelines. No consolidated financial business case or detailed cost estimates were prepared and signed off at the commencement of the CMR project. There was no identified source of funding in either business case and no strategy for determining whether the project had achieved its overall objectives or outcomes. This means that Customs was poorly placed to determine whether the project was both affordable and achievable.

The decision to fund the CMR project internally

20. Customs funded the project internally from existing resources. This decision was based on the initial cost estimate of $30 million and that it had considerable cash reserves at the time. Customs has been unable to provide documentation to support this key decision. The ongoing internal funding of the increased costs associated with the CMR project eroded Customs' available cash reserves and put pressure on operating resources. In 2003–04, Customs sought and received a conditional equity injection[9] of $43 million and was subject to a review of its financial position by the Department of Finance and Administration.

Integrated Cargo System project management framework

21. The Consortium responsible for developing the ICS established a Project Charter as the basis for effectively managing this project. The Charter clearly outlined the scope of the project, deliverables and timelines as well as respective roles and responsibilities. Variations to the original requirements were negotiated and agreed to by all parties and all deliverables were signed off by Customs. To meet the timeframes stipulated in the Charter, the Consortium required that Customs turn around comments on Detailed Design Specifications and Detailed Business Analyses within three days for interim chapter level reviews. Customs acknowledges that the short period for review adversely affected the quality of its input.

[9] Equity injections are provided to agencies to, for example, enable investment in new capacity to produce departmental outputs when normal cash flow is insufficient.

Customs Connect Facility project management framework

22. Customs was unable to provide a CCF business case and could only provide the CCF Project Charter for Release 1. On assuming responsibility for the CCF project in January 2003, Customs' Information Technology Branch advised the CCF Steering Committee that there was: no endorsed project management plan; a lack of clarity surrounding the current and future financial position of the project; and no clear input from industry stakeholders. Customs initiated two reviews, which resulted in changes to improve the management and governance arrangements for the CCF project.

CMR project governance arrangements

23. Customs established a governance framework for the development of the ICS and CCF. Customs' Executives were informed of the project's status through steering committee meetings, Executive Group meetings, Deputy Chief Executive Officer briefings and reports to the Audit Committee. The reports prepared for a number of these meetings consistently rated the risks associated with the ICS (and particularly the Imports Release) as 'extreme' or 'high'. However, the minutes of these meetings do not indicate that Customs monitored the project's risks and costs or the follow-up action to be taken to address emerging risks.

24. There was no financial management plan or project budget prepared for the CMR project overall or the CCF and ICS individually. Also, the minutes of meetings did not reflect discussions surrounding project costs. Given the number and value of contracts associated with the project, the ongoing monitoring of costs should have been an integral part of the project's governance arrangements. The ANAO recognises that, from 2004–05, financial reporting in relation to the CMR project was more comprehensive. Costs were reported and monitored annually but not against an overall project budget or considered within a project management context.

Implementation planning

25. Customs did not prepare an implementation strategy to cover the introduction of the ICS Imports Release. Customs may have considered many of the factors impacting on, and the risk associated with, the introduction of this Release. However, these were not incorporated into a consolidated implementation strategy that was reviewed and agreed to by all parties involved. The lack of an implementation strategy meant that many decisions

immediately following the implementation were made in a 'crisis' environment.

Managing the CMR Contracts—Chapter 4

26. The payments against all CMR contracts totalled $141 million.[10] The ANAO reviewed the contracts associated with the four major contractors involved in developing the CMR applications. This included a total of 13 contracts and 65 variations to the contracts.

27. Customs was unable to provide any documentation outlining the method of procurement or approval for the expenditure of public money in 39 instances. These included six contracts and 33 contract variations, with a combined contracted value of $29.9 million. Without these core documents, Customs is unable to demonstrate that it complied with its Chief Executive's Instructions, the Commonwealth Procurement Guidelines and the financial management framework. Although Customs has taken steps in recent years to improve its procurement processes, the ANAO has recommended that Customs review its contract management arrangements for major ongoing projects.

CMR System Development—Chapter 5

28. The ANAO reviewed the development of the CMR applications, including requirements management, change management, problem and incident management, testing processes and application security. Data integrity testing was also undertaken by the ANAO.[11]

Requirements management

29. The user requirements for the CMR applications were not well defined and Customs did not have a structured approach to managing and monitoring their delivery. A high proportion of the additional contract costs ($22.5 million) were due to the need for changes to the user requirements. The majority of the functionality specified in the requirements documentation was implemented by October 2005. However, the ICS is continuing to undergo significant system

[10] This does not include the cost of any work undertaken by EDS between December 1997 and October 2001 (when EDS was released from its obligation to deliver the ICS). Customs advised that the method of recording EDS payments makes it very difficult to determine costs incurred specifically for CMR as these were incorporated into the total expenses of Customs' Information Services Agreement.

[11] The Australian and New Zealand Standard AS/NZS 7799.2.2003, Information Management defines data integrity as 'safeguarding the accuracy and completeness of information and processing methods'.

enhancement and modification. There are system releases scheduled for at least 24 months post-October 2005.

CMR testing

30. The CMR project did not have a defined testing methodology and testing was not always executed in accordance with test plans. In addition, the majority of ICS releases experienced a high number of defects and change requests at the conclusion of acceptance testing. Insufficient time was allowed for testing of earlier ICS and CCF releases. The quality and management of testing improved considerably for ICS Versions 5 to 7, with fewer tests failing.[12]

31. Industry (and Customs) had insufficient time to successfully complete the planned business simulation testing prior to implementation. The testing undertaken showed that industry and some external software developers were experiencing problems in integrating with the ICS. Industry testing was contingent on a stable test environment and this was not always available. A production version of ICS Imports was available from December 2004. However, Customs continued to make changes to improve the quality of the system until one week prior to the system going live on 12 October 2005 and this contributed to the problems that occurred. By contrast, the Exports implementation allowed a longer coordinated period to test a considerably less complex implementation.

Problem and incident management

32. An effective problem and incident management process records the issues impacting on system performance or usability, and provides information on the resolution and timeframe required to resolve these problems. The ANAO concluded that Customs' processes for problem and incident management were not sufficient to support the ICS implementation. This adversely impacted on Customs' ability to support users.

[12] Release 3 of the ICS was split into Versions 3 and 4. Version 5 was approved change requests that were unable to be completed for Versions 3 and 4. Version 6 was implemented into production on 6 November 2005 and included the first major release of ICS code after Imports go live. Version 7 included 10 major releases and, as at August 2006, was in production.

External interfaces

33. The ICS application exchanges data with a range of external Government entities.[13] The ANAO found that Customs' existing Memoranda of Understanding with these agencies do not reflect the implementation of the ICS. In particular, they do not clearly specify each party's responsibilities for system changes, data management and user training.

Data integrity

34. The ANAO identified that a number of system issues post-ICS Imports implementation affected the payment and receipt of revenue. Customs' approach to remedying some of these issues was to implement data changes to the production environment ('data fixes'). There were a large number of data fixes implemented during the period October 2005 to March 2006.

35. Customs and the ANAO undertook data integrity testing that focused on client registration information to determine the extent to which transactions and information exchanges could be relied upon. The ability to test the integrity of Customs' data was severely limited by the lack of available documentation. The ANAO considers that to maintain the completeness, accuracy and validity of data stored in the ICS, business and system rules need to clearly specify the requirements for data management.

ICS security controls

36. The ANAO reviewed Customs' management of access to information and data in the ICS application. A number of weaknesses in the access controls were identified. A particular concern was the ineffective segregation of security profiles, increasing the risk of inappropriate access to information or data. Customs is taking steps to address these issues.

Risk Assessing Cargo—Chapter 6

37. All cargo information reported in the ICS is processed through the CRA system, which has two components: risk profiling and work management. The risk profiling component is designed to identify potentially high-risk cargo

[13] These entities include: Australian Quarantine Inspection Service (AQIS); the Australian Taxation Office; the Australian Bureau of Statistics; the Department of Defence; and Department of Industry, Tourism and Resources.

and uses SSA-NAME3 (SSA) as its profile matching tool.[14] There are approximately 100 export profiles and several thousand import profiles in the system. When cargo information matches a profile or alert, the cargo is automatically held and the cargo report or declaration is referred to a workgroup for further action. Evaluators within the workgroup decide whether the cargo is released or held for further examination.

CRA profiles

38. The CRA system was to significantly improve Customs' risk assessment capability. However, this has not occurred. Target identification and selection processes are now less efficient and some areas of Customs consider them to be less effective than the legacy systems they replaced. This is primarily because of the restrictions placed on the criteria used to construct profiles. The expected reporting and research functionality, which is crucial to Customs' intelligence function, was also not available when the system went live.

39. SSA is a powerful tool for searching and matching data but it requires a significant amount of tuning to suit the specific requirements of the data it is searching. The tuning of SSA software presented problems. Two major issues were the demands on processing power (CPU burn) and the poor quality of the matches produced. In March 2005, Customs began to tune SSA in an attempt to obtain a data population that produced a desirable level of matching for ICS Imports. A version upgrade was also installed in the CRA system in August 2005. Rather than the expected improvement, the upgrade, combined with the poor quality SSA population, resulted in a significant reduction in the quality of profile matching and high CPU burn. This caused significant problems when the system went live on 12 October 2005 and is yet to be fully resolved.

Implementation of ICS Imports

Deactivation of risk profiles

40. Shortly after the system went live it became apparent that there were serious problems with the risk profiling functionality. Cargo was being held

[14] The CRA system contains alerts, profiles, events and community protection and permit queries. Alerts are entity specific such as names and addresses. Profiles include broader clusters of risk indicators. Events detect behaviours in industry that may indicate non-compliance and potential risks. Community protection and permit queries notify the reporter that there are requirements for certain goods to be accounted for and authorised for entry into Australia.

because of excessive profile matching on cargo reports and import declarations. System performance was also affected because of the extensive processing time required. To facilitate the movement of cargo and to reduce the backlog of profiled transactions, air and sea cargo profiles were deactivated. Over 4 000 profiles were deactivated and gradually re-instated over a period of 12 days following the implementation. This included 1 300 AQIS profiles. The ANAO was advised that, although this decision was taken in consultation with the business areas in Customs' Central Office, the owners of these profiles such as Customs' regions, AQIS and law enforcement agencies were not consulted.

Targeting risk cargo

41. The deactivation of risk profiles presented a considerable risk to Australia's border security and Customs' revenue collection responsibilities. These profiles covered areas such as counter terrorism, illicit drugs, revenue, prohibited items and compliance. During this period 778 554 air and sea cargo reports and 252 129 import declarations were processed by the ICS. Although not all reports/import declarations were high risk, there is a high probability that some 'at risk' cargo was not identified while profiles were inactive. During this time, Customs could not assess the potential risks associated with this cargo and, if necessary, inspect it prior to its release from Customs' control.

42. Customs is taking steps to improve the CRA system and its risk assessment of cargo. It has initiated and is giving priority to four projects to review data quality, risk selection, reporting and useability of the CRA system. It is also undertaking a review of its intelligence operations that will focus on improved risk assessment processes and technology in the cargo environment.

Implementation of the Systems—Chapter 7

43. The ICS Exports Release was initially planned to go live in September 2002. It was not introduced until 6 October 2004. Customs and industry considered the Exports Release was relatively successful although some problems required Customs to provide a higher than expected level of support to industry. The exports component is considerably less complex than the Imports Release and has fewer industry participants.

44. ICS Imports was initially scheduled to go live in April 2003. It was not implemented until 12 October 2005. Almost immediately there was disruption to the movement of cargo—initially in the air cargo environment closely followed by sea cargo.

Readiness for Imports

45. The implementation date of 12 October 2005 was determined by consensus at a Ministerial Roundtable meeting on 5 July 2005.[15] Participants at this meeting included the Minister, Customs senior managers, AQIS officers, peak industry bodies, stevedores, third-party software developers and business organisations. ICS Imports was to be available from 19 July 2005 as this date would give industry a three-month transition period, supported by a stable system. It would allow software developers to undertake thorough end-to-end testing and also provide the opportunity for industry to train staff and become familiar with the new system.

46. The system made available in July had a large number of outstanding incidents and Customs continued to make software changes up to one week prior to the cutover date. Third-party software developers advised the ANAO that this impacted on their ability to update their software, undertake testing and release software packages to their customers. Some customers received their software updates only days before the 12 October 2005 cutover and, in some cases, after this date. This meant that these clients were unable to interact with the ICS and CCF.

47. Industry's lack of readiness was demonstrated in a survey completed on 10 October 2005 by the industry ICS User Representative. Only 13 per cent of the 211 respondents advised they were fully operational and less than 10 per cent supported the decision to go live. The major concerns raised were that software had not been delivered and, where it had been delivered, applications were not working and staff had not had adequate training. Customs agreed on 10 October to allow service providers who were unable to communicate with the ICS to continue to report import declarations in the existing COMPILE system (this became known as the COMPILE Extension).

48. The COMPILE Extension arrangement was extremely resource intensive and seriously disrupted normal operations in most Customs' regions for many weeks. It involved staff matching the COMPILE entry with the corresponding cargo report in the ICS and, in some cases, faxing the appropriate clearance to clients. In New South Wales alone this project initially involved 10 staff and increased to 60 officers at its peak.

[15] Because of the problems being experienced with the CMR project the Minister for Justice and Customs had convened a number of roundtable discussions so that he could listen to industry's concerns. The first meeting was held in January 2004.

Impact on industry

49. The introduction of ICS Imports had a severe impact on all sectors of Australia's importing industry over many weeks. This impact was far greater for some than others, depending on their level of preparedness. Those organisations that either did not receive their software packages or their software was incompatible with the ICS experienced considerable difficulty. For many organisations, staff were required to work very long hours over several weeks.

50. Some of the issues facing industry following the implementation included:

- data integrity issues as the ICS required a far higher standard of data accuracy than the legacy systems it replaced;
- a high number of workarounds, which created considerable confusion;
- cascade reporting and sequencing of reports[16], which caused considerable problems for containerised sea cargo and resulted in cargo being held;
- difficulties in determining cargo status because of a lack of adequate system diagnostics;
- cargo terminals and depots that were not receiving electronic notification of cargo status, which meant that cargo could not be released;
- problems associated with the clearance of part-shipment consignments as the current design of the ICS does not reflect how the air freight business operates; and
- difficulties in gaining permission to move cargo that was underbond.

51. There was a general view from industry that the training provided by Customs was inadequate. The information sessions were not interactive and provided little opportunity for industry to fully appreciate the breadth of change. Although the industry test environment was available for training, it did not replicate the production environment, changes were continually being made to the system and there was insufficient 'real' data to enable proper training.

[16] Cascade reporting required the ocean bill of lading to match lower level bills before clearance could be given and cargo reports had to be sequentially reported.

Customs Connect Facility

52. Problems with third-party software and the need for additional online searching to determine cargo information forced many customs brokers and freight forwarders to use the online Customs Interactive (CI) facility. Despite being seen as a contingency if the electronic data interchange (EDI) was not available, the CI facility was not designed to accommodate such a high number of concurrent users or the type of activity they were undertaking. Under the additional load, the CI became increasingly hard to use and its response time slowed to frustrating levels.

Help desk arrangements

53. The overloading of the CI facility had a considerable impact on Customs Information and Support Centre (Level 1 Help Desk). The Help Desk was the first place industry turned to for assistance. Customs advised that, in the initial days of the implementation, the Help Desk coped well with the increased volume of calls. However, as the problems associated with ICS were complex and could not be resolved quickly and the delays in clearing cargo increased, the wait time and queues grew to unsatisfactory levels, particularly during peak times.

Business continuity arrangements

54. Customs developed business continuity plans (BCP) for exports and imports processing. The Exports BCP was comprehensive and had worked effectively when needed. The Imports BCP was only released to industry in August 2005 and was based on an ICS outage greater than two hours (or a series of equivalent minor outages). It did not address the functionality deficiencies or poor system performance that occurred. The BCP did not include a Business Impact Analysis or any consideration of disaster recovery or backup of information. Customs is currently reviewing the Imports BCP and expects this project to be completed by early 2007.

Impact on Customs

55. The implementation of ICS Imports had a significant impact on Customs' own business operations. The ANAO was advised that from 12 October to mid-December 2005 very little (if any) compliance activity was undertaken as part of the Compliance Assurance Strategy.[17] The majority of

[17] This includes post transaction audit activity, compliance activity in relation to licensed premises and the audits undertaken as part of the Compliance Benchmark Testing Program to measure revenue leakage.

Compliance Assurance staff were involved in ICS implementation activities and responding to clients' requests.

56. Contingency arrangements were inadequate. The majority of Customs' regions advised the ANAO that they had developed contingency arrangements as part of their business continuity planning. However, these plans were not relevant for what occurred on 12 October 2005 and several weeks thereafter. The regions were not prepared for the length of the contingency period, the high level of ongoing support required by industry and the many intervention strategies that had to be implemented as part of system workarounds 'to just move the cargo'.

Ongoing Arrangements—Chapter 8

57. Customs has been working to resolve the many issues identified during the ICS implementation period. In addition to the Booz Allen Hamilton review, Customs has undertaken a number of other reviews and is implementing initiatives to improve its systems and processes and relationship with industry. These include:

- establishing the Industry Action Group, which is jointly chaired by Customs and industry to address technology, business and procedural issues for external ICS users;
- establishing a new Program Management Branch (Trade Facilitation) and governance arrangements;
- reviewing its Imports Business Continuity Plan;
- developing new training products and manuals; and
- reviewing its User Support Framework.

58. The ANAO has taken into consideration these reviews and initiatives when developing our audit recommendations. The recommendations are designed to complement improvements already being implemented by Customs. The implementation of the audit recommendations will assist Customs to improve the ongoing management of both the ICS and CCF and the management of major projects more generally.

59. The rebuilding of Customs' relationship with industry and the successful implementation of the recommendations flowing from recent reviews and initiatives will place Customs in a better position to realise the benefits offered by the CMR project.

Agency response

60. Through the implementation of the Cargo Management Re-engineering (CMR) Project, Customs has delivered a robust platform for business re-engineering, replaced our legacy cargo management systems and introduced the Trade Modernisation Legislation to support the new security and trade facilitation environment.

61. At the same time, Customs acknowledges that there are some things that could have been done to make the implementation smoother and that there are lessons for Customs that will arise not only in the continuing development of the Integrated Cargo System (ICS) but also in future major systems developments. Customs has made significant progress in addressing the shortcomings identified by the ANAO in this report and taking action to ensure they do not re-occur.

62. Our staff responded quickly to address the immediate problems experienced by industry following the implementation of the imports processing component of the ICS in October 2005 and the system has functioned reliably during the past 14 months. However, it is clear that much remains to be done to realise the potential benefit of the ICS for both Customs and industry. Industry is now actively engaged with Customs in undertaking this work. Over the past year, Customs has implemented significant changes to the ICS to address the difficulties faced by industry and worked hard to build a more effective industry relationship for the future.

63. Recognising the serious impact on Customs and industry, Customs commissioned external reviews of the ICS implementation and intelligence processes. Additionally, Customs has undertaken internal reviews of key business processes including the Cargo Risk Assessment component of the ICS.

64. In early 2006, Customs engaged independent experts to assist it to identify the business improvements required to address any shortfalls of the ICS, and to deliver any unrealised benefits for government or industry.

65. The review of the ICS proposed a number of recommendations, addressing improvements to governance arrangements; tactical improvements providing for increased functionality, usability and system stability; and strategic transformation actions. A number of actions have been completed, including:

- Implementation of a range of enhancements to the ICS addressing functionality issues. Work on further enhancements continues in line with a work program agreed with industry;
- Establishment of the Cargo Processing Executive Steering Committee, chaired by the CEO of Customs and comprising senior representatives from industry and Customs, to provide on-going strategic direction to Customs Trade Facilitation Program;
- Development of a Trade Facilitation program management structure to ensure sound governance of the work program;
- Implementation of the first stage of new organisational accountabilities that better align operational outcomes with agency objectives, including the creation of a dedicated focus on end-to-end cargo management processes;
- Establishment of new cargo management business re-engineering projects, including projects examining Alternative Cargo Reporting, Supply Chain Security and Standardised Data Sets – co-design with industry and other stakeholders is a feature of these projects;
- Revision of software development procedures governing release of software;
- Implementation of a revised ICS Business Continuity Plan.

66. Action continues to ensure all recommendations of the independent review are addressed. Monitoring of implementation is occurring through Customs Executive Management and the Customs Audit Committee.

67. The external review of the intelligence function reported findings in December 2006. This review will provide a sound vision for the future development of Customs intelligence capability and to provide recommendations on how this can be achieved. To provide a stronger alignment of intelligence activity with agency outputs a new Intelligence and Targeting Division has been established.

68. Action was undertaken in late 2005 and 2006 to address internal user issues associated with the Cargo Risk Assessment component of the ICS. Four working groups were established to consider issues in relation to usability, information quality, reporting and cargo selection. A number of CRA system enhancements have been implemented and an ongoing work program is being progressed as a high priority.

Recommendations

The ANAO has made seven recommendations aimed at improving the ongoing management of the Integrated Cargo System and the Customs Connect Facility and project management processes. The ANAO considers that Customs should give priority to Recommendations 1, 6 and 7.

Recommendation No.1
Para. 2.26

The ANAO recommends that Customs implements the necessary arrangements to align the import and export processing provisions of the *Customs Act 1901* with the Integrated Cargo System business rules and processes as a matter of priority.

Customs response: Agree

Recommendation No.2
Para. 3.70

The ANAO recommends that Customs review its major ongoing projects to gain assurance that they are supported by a sound project management framework.

Customs response: Agree

Recommendation No.3
Para. 4.37

The ANAO recommends that Customs review its contract management arrangements for major ongoing projects to ensure compliance with:

- Chief Executive's Instructions;
- Commonwealth Procurement Guidelines; and
- Financial Management and Accountability Regulations.

Customs response: Agree

Recommendation No.4
Para. 5.45

The ANAO recommends that Customs develop, as a part of its software development lifecycle, a standardised approach to the testing and implementation of application projects and system modifications. This approach should require that:

- standards are established prior to the approval of the test project plan; and
- testing be undertaken in accordance with the project test plan.

Customs response: Agree

Recommendation No.5
Para. 5.75

The ANAO recommends that Customs updates its existing Memoranda of Understanding to reflect the implementation of the Integrated Cargo System. This should clearly establish: inter-agency consultative arrangements; security of information; message integrity requirements; and other administrative arrangements.

Customs response: Agree

Recommendation No.6
Para. 8.12

The ANAO recommends that Customs' review of the Integrated Cargo System (ICS) Imports Business Continuity Plan include:

- an evaluation of Customs' Business Continuity Management framework, specifically assessing its continued appropriateness following the implementation of the ICS and its relationship to existing disaster recovery requirements;
- documenting a control framework for transactions that occur as a result of a disruption to normal business activities; and
- developing processes for regularly reviewing and testing continuity plans.

Customs response: Agree

Recommendation No.7
Para. 8.27

The ANAO recommends that Customs review its strategy for communicating with industry and, as part of this review:

- identify the most appropriate forums for communicating with industry;
- establish formal feedback and review mechanisms;
- determine the information to be exchanged and the most appropriate delivery method for each industry sector; and
- assess the practicalities of implementing an industry/Customs secondment program.

Customs response: Agree

Audit Findings and Conclusions

1. Background and Context

This chapter outlines the Australian Customs Service's (Customs) role in regulating Australia's trading environment. It discusses aspects of Customs' Cargo Management Re-engineering project and outlines the objective and scope of the audit and report structure.

Introduction

1.1 The Australian Customs Service (Customs) is responsible for regulating the movement of goods and people across Australia's border and collecting customs duty and other revenue. Customs plays a vital role in preventing illegal and harmful goods from entering Australia. This role is undertaken in an environment of increased global awareness and concern about border and supply chain security.[18] Customs has to balance protecting the community with the need to ensure that the legitimate movement of cargo is not unnecessarily impeded.

1.2 In 2005–06, Australia imported 8.1 million cargo consignments valued at approximately $167 603 million and Customs collected $7 535 million in customs duty and taxes. For the same period, Australia exported 1.2 million cargo consignments valued at approximately $151 792 million.[19] In 2006–07, imports and exports are both expected to grow by about 7 per cent.[20]

The Cargo Management Re-engineering project

1.3 Customs recognised the need to re-engineer its cargo management processes in 1996 and published its Cargo Management Strategy (CMS) in 1997. This strategy sought to deliver a strategic outcome for cargo management that fully integrated people, processes and technology.

1.4 The Cargo Management Re-engineering (CMR) project was born out of the CMS. It was multi-faceted and intended to deliver: new import and export processes; increased cargo management efficiency for industry; and improved targeting of high-risk cargo. Key aspects of CMR were the re-engineering of

---

[18] Supply chain security is the development and implementation of security controls over each process in the international trade cycle.

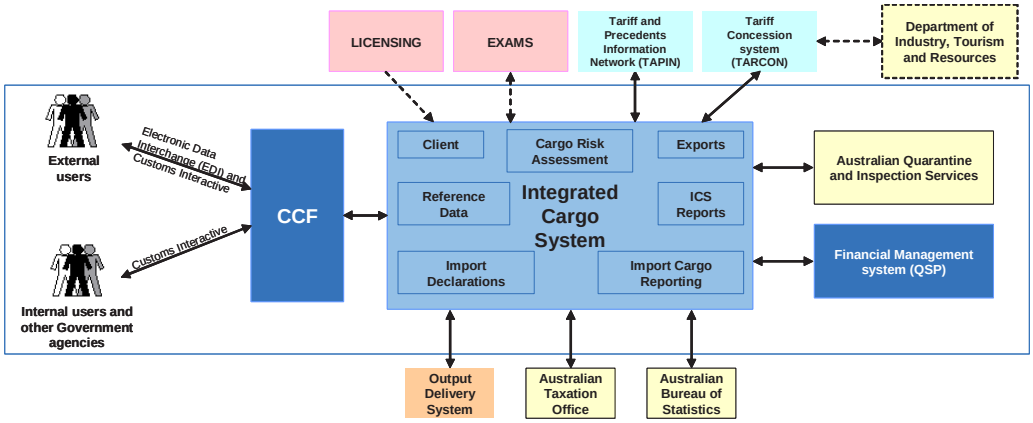
[19] Figures are based on the number of export declarations issued.

[20] Australian Government, *Budget Paper No. 1, Statement 3: Economic Outlook, Overview* [Internet]. Australian Government, Australia, 2006, available from <http://www.budget.gov.au/2006-07/bp1/html/bp1_bst3.htm> [accessed 16 August 2006].

Customs' business processes, legislative change and the development of an integrated cargo system to replace Customs' transaction processing systems.[21] Included in the project were the Customs Connect Facility (CCF) and the Cargo Risk Assessment (CRA) system. The CCF is a communications and data transformation 'gateway' that allows external clients and internal users to transact with Customs' business applications. The CRA system identifies and assesses potentially high risk cargo. Figure 1.1 illustrates the CMR applications.

Figure 1.1

CMR applications



Source: Australian Customs Service

1.5 The CMR project was a large and complex Information Communication Technology (ICT) project that spanned many years. Electronic Data Systems (EDS) Australia began the development of CMR applications in 1998 under Customs' existing IT outsourcing arrangements. In October 2001, Customs and EDS agreed that EDS would focus on the architecture and integration aspects of the system, with remaining analysis and development to be done by one or more third parties. The application and system development for the CMR project included three major components:

- the analysis, design, development and implementation of the new Integrated Cargo System (ICS) application;
- the analysis, design, development and implementation of the CCF; and
- re-development of a number of existing applications and interfaces.

[21] These systems included: Export Integration; Air Cargo Automation; Sea Cargo Automation and Customs Online Method of Preparing from Invoices Lodgeable Entries (COMPILE).

In early 2002, Customs engaged the Computer Associates Consortium (the Consortium) to develop the ICS and established separate contracts with IBM and SecureNet to develop the CCF.

1.6 The CMR project encountered difficulties, including significant cost increases and delays in implementing the ICS. In 1999, Customs estimated the integrated cargo system to cost $30 million. It based this estimate on its expectation that there would be an integrated cargo system component only and did not include the CCF and other costs such as project management, training, implementation, communication and staffing. The total reported cost of the CMR project as at the end of February 2006 was $205 million.[22] Between February and June 2006, Customs made additional payments of $7.7 million for further developments and support of the ICS and CCF.

1.7 Customs funded the project internally and it had a considerable impact on resources. Customs subsequently received an equity injection[23] of $43 million and was subject to a review of its financial position by the Department of Finance and Administration. Customs advised that:

> The review resulted from a forecast loss in 2004–05, due in large part to the final stages of the CMR project and the fact that [Customs] had been required to undertake some Government initiatives without additional funding.[24]

This resulted in continued funding that enabled Customs to, amongst other things, restore its compliance capabilities and deal with the increasing numbers of international passengers.

1.8 Supporting the CMR project was the Trade Modernisation Legislation package. Provisions in the legislation required the ICS to be introduced by 20 July 2003. Delays with the development of the applications necessitated three amendments to the legislation. This meant that the project was constantly being driven by the need to meet a legislative deadline.

1.9 The ICS was implemented in three releases:

- Release 1a was a trial with industry during March and April 2003;
- Release 2, the exports component, was implemented on 6 October 2004; and

---

[22] Customs considered the project to be completed as at 28 February 2006, with ongoing costs for further development and support of the ICS and CCF.

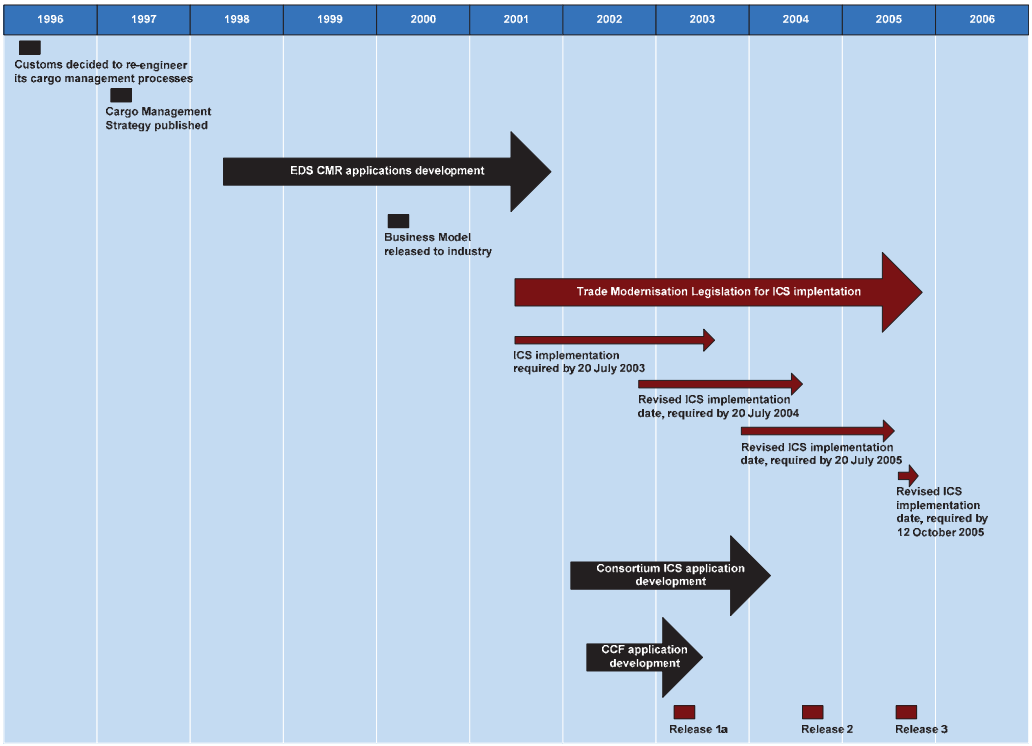
[23] Equity injections are provided to agencies to, for example, enable investment in new capacity to produce departmental outputs when normal cash flow is insufficient.

[24] Australian Customs Service, *Annual Report 2004–05*, Customs, Canberra, 2005, p. 2.

- Release 3, imports processing, was implemented on 12 October 2005.

1.10 Figure 1.2 illustrates the key project milestones. The chronology of the CMR project is outlined in Appendix 2.

Figure 1.2



Source: ANAO analysis of Customs documentation

1.11 The impact that Customs can have on Australia's supply chain was highlighted with Release 3. Problems with the ICS and CCF resulted in substantial disruption to the movement of cargo, particularly sea cargo. Cargo was delayed and Australia's major ports congested with containers awaiting clearance and delivery. Industry stakeholders advised the ANAO that the implementation of Release 3 was extremely stressful and costly, and extended over many weeks. It also had a significant impact on Customs' own operations.

International comparison

1.12 Although a number of countries are moving towards adopting an integrated cargo management approach, few have yet developed or implemented an integrated cargo management system like the ICS. The ANAO

reviewed the cargo management initiatives and practices of Customs agencies in the United Kingdom (UK), the United States of America (USA), Canada, and the European Union (EU).

1.13 The UK's import and export trade procedures are supported by a range of inter-connected national and international computer systems that process import and export declarations. Canada has the Customs Internet Gateway system and the Accelerated Commercial Release Operations Support System. These cover the electronic transmission of cargo, risk management and electronic cargo release. The EU is developing an e-Customs system that will enable EU Customs' systems to communicate with each other. This system is expected to be functional by 2008.

1.14 Comparisons can be drawn between the CMR project and the USA's Automated Commercial Environment (ACE) system. The ACE project began in 1999 and has similar goals to the CMR project, including aims to consolidate and automate border processing to enhance both border and economic security.[25] Like the Australian experience, this project has encountered cost increases and time delays. The system is being implemented in seven releases and the final implementation date has been extended until 2010, from an initial deadline of 2007.

1.15 In 2006, United States Customs and Border Protection representatives visited Australia to gain an appreciation of the difficulties and issues that were associated with the implementation of the ICS. This was driven by industry's concerns that the ACE Deployment Plan may experience similar problems as those encountered with the ICS Imports Release.

Audit objective, scope and methodology

Audit objective and scope

1.16 The objectives of the audit were to:

- examine Customs' management of the CMR project; and
- determine whether the ICS and CCF met:
  - project and operational objectives; and

[25] United States Customs and Border Protection, *Automated Commercial Environment Overview* [Internet]. United States Customs and Border Protection, USA, January 2006, available from <http://www.cbp.gov/linkhandler/cgov/toolbox/about/modernization/general_info/toolkit/ace_overview.ctt/ace_overview.ppt#397,3,ACE Overview> [accessed 18 July 2006].

- user capability and functionality requirements.

1.17 Particular emphasis was given to the following areas:

- the project management framework that supported the CMR project;
- implementation arrangements for the ICS; and
- ongoing operational arrangements.

1.18 The audit was conducted in accordance with ANAO auditing standards, at a cost of $528 849.

Methodology

1.19 The audit methodology included quantitative and qualitative analysis, file and documentation reviews, and interviews with agency officers in Canberra, Sydney, Melbourne and Brisbane. The ANAO also consulted extensively with industry stakeholders, including interviews with peak bodies, customs brokers, freight forwarders, depot operators, stevedores and software developers. Audit fieldwork was undertaken from March to May 2006.

1.20 The IT audit component assessed the effectiveness of Customs' general control environment and application controls for key Customs' systems, including the ICS. The ANAO also undertook data integrity testing for client registration and financial processing.

Review of the Integrated Cargo System

1.21 After this audit commenced, Customs engaged Booz Allen Hamilton to undertake a separate review of the ICS.[26] The purpose of that review was to provide Customs with a forward looking report on the lessons to be learned from the implementation of the ICS, its current status and the opportunities to enhance benefits for both Government and industry. The ANAO consulted closely with the review team and undertook coordinated stakeholder liaison.

Acknowledgements

1.22 The ANAO would like express its appreciation to Customs' management and staff for their assistance in the conduct of this audit. We would also like to recognise the contribution of industry and Government stakeholders.

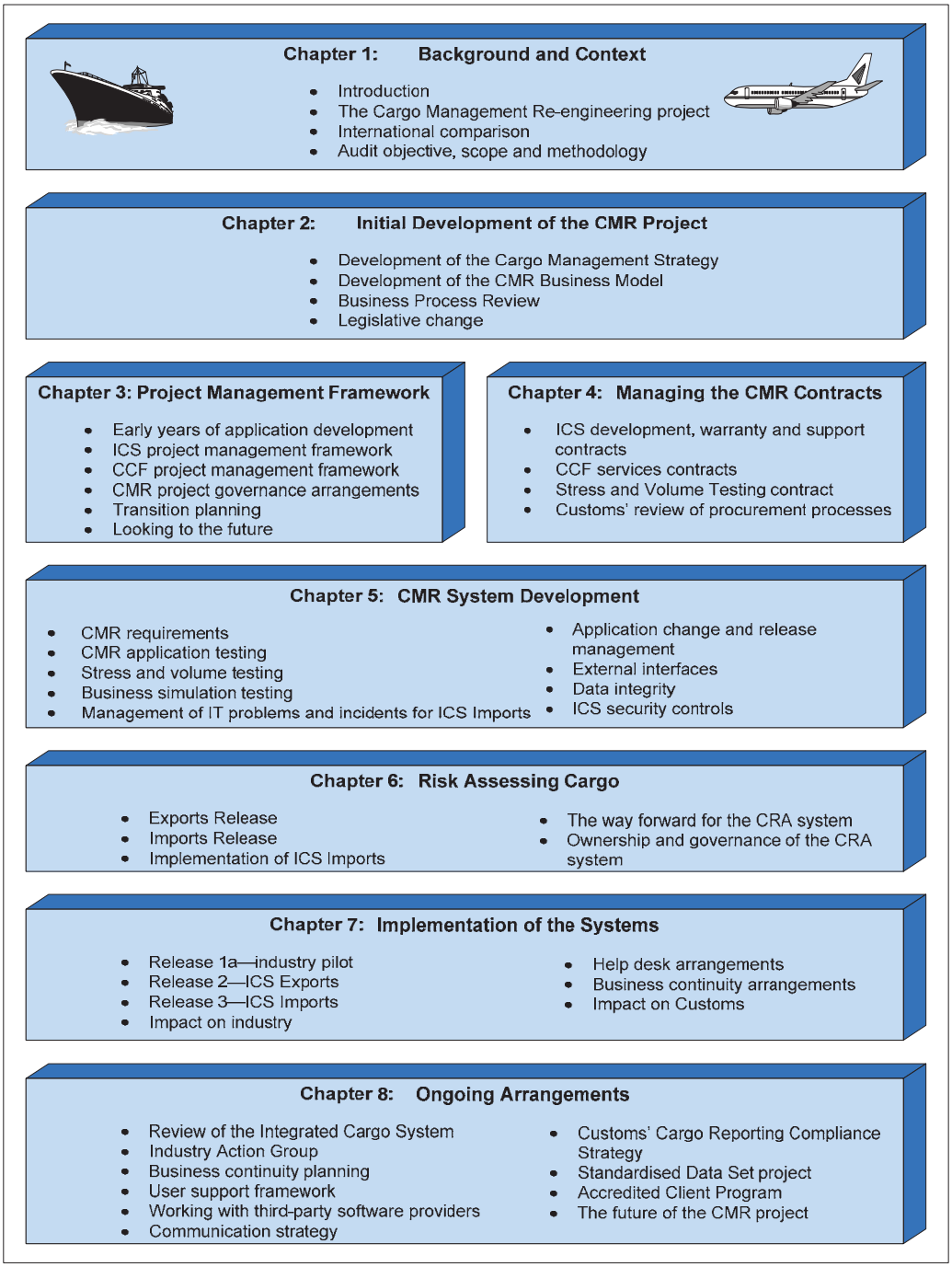
[26] Booz Allen Hamilton, *Review of the Integrated Cargo System*, 16 May 2006.

Structure of the report

1.23 Figure 1.3 illustrates the framework used by the ANAO to examine Customs' management and implementation of the CMR project. This framework forms the basis of this report.

Figure 1.3

Report structure



2. Initial Development of the CMR Project

This chapter examines the development of the Cargo Management Strategy for the re-engineering of Customs' cargo management processes. It also discusses the legislative framework supporting these processes, Customs' review of its business processes and organisational arrangements and the development of the CMR Business Model.

Introduction

2.1 As noted in Chapter 1, Customs recognised the need to re-engineer its cargo management processes in March 1996. This decision was influenced by: the commitment of Government to online service delivery; globalisation of trade; and the need to integrate and modernise Customs' IT applications. A project team was established to develop a high-level cargo management strategy that focused on the next five years.[27]

2.2 The ANAO reviewed:

- the development of the Cargo Management Strategy (CMS) and the CMR Business Model;
- Customs' Business Re-engineering Project; and
- the legislative framework supporting CMR.

Development of the Cargo Management Strategy

2.3 The project team consulted extensively with industry, Customs and relevant Government agencies.[28] An Industry Consultative Group was convened to provide a forum for discussion and advice on ideas for cargo management into the future. Within Customs, the project team ran focus groups to discuss the various components of the strategy.

2.4 Customs published the CMS in March 1997. It provided a strategic outcome for cargo management that fully integrated people, processes and technology. Key elements of the strategy were:

---

[27] Australian Customs Service, *The Cargo Management Strategy*, Customs, Canberra, 1997, p. 19.

[28] Submissions were received from 31 industry members and the team consulted with a total of 164 industry representatives and 12 Government agencies.

- better co-ordination and cooperation amongst Government agencies;
- closer links with clients; and
- an integrated cargo management system.

2.5 The CMS included a broad implementation plan to enhance cargo management—including a business process review, legislative reform and the development of an integrated cargo management system. These ideas were further progressed in the CMR Business Model.

Development of the CMR Business Model

2.6 Following the release of the CMS, Customs concluded that it needed to re-engineer its cargo systems. In April 1998, it established the Division of the Office of Business Systems (OBS) to undertake reviews of Customs' business systems and processes, the first of these being the CMR project. As part of this process, OBS developed the CMR Business Model.

Stakeholder liaison

2.7 Engaging users and stakeholders is a key success factor in any project, so it was important that Customs had their support. Customs liaised extensively with stakeholders in developing the Business Model. Two key industry forums were established in March 1999, the Industry Reference Group (IRG) and the Industry Working Group on Customs (IWGC).[29] The IRG was to provide a strategic industry perspective to the CMR project. The IWGC was established by industry representatives to rationalise and coordinate consultative arrangements after Customs declined a proposal to form a Customs/Industry Cargo Consultative Committee. Other industry bodies also consulted with Customs throughout the development of the Business Model. Although the Customs Brokers Council of Australia attended the IRG and IWGC meetings, it provided feedback separately. The Conference of Asia Pacific Express Carriers (CAPEC) also provided separate input.[30]

2.8 Customs conducted focus group sessions in the lead up to developing the Business Model. The IWGC expressed concern that the short organisational

[29] The IRG consisted of key trading community representatives, including the Customs Brokers Council of Australia (now known as the Customs Brokers and Forwarders Council of Australia, CBFCA), the Australian Small Business Association, Qantas and the Victorian Employers' Chamber of Commerce and Industry. The IWGC's membership included such bodies as the Australian Air Transport Association, Australian Chamber of Commerce and Industry and the Australian Shipping Federation.

[30] CAPEC members include the four air express courier companies: United Parcel Service (UPS); DHL Express; FedEx; and TNT.

timeframes for these sessions meant that they had difficulty in widely consulting all constituents. The working group was of the view that key issues such as data sourcing and the 'barrier/commercial' interface should be discussed under more realistic timeframes. In May 1999, the IWGC wrote to Customs outlining three main concerns with CMR progress: the need to avoid the duplication of data supply; accuracy of data; and issues regarding the 'barrier/commercial' release point.

Release of the draft Business Model

2.9 Customs released a draft Business Model to industry in August 1999 and embarked on an intensive five-week 'road-show' to discuss the model in national feedback sessions.[31] Key issues raised by participants related to onerous cargo reporting requirements, a strict sanction regime for non-compliance and concerns with the underbond movement process.[32]

2.10 The IWGC provided an alternative business model to Customs in November 1999. This proposed a greater focus on improving the performance of the import and export cargo supply chain and on avoiding reporting requirement duplications. The IWGC was concerned that many assumptions in the Business Model were flawed and expressed 'serious concern' at sanctions regarding cargo reporting. In response, Customs wrote that the Business Model represented 'to the greatest extent possible' the considered and balanced input of all stakeholders.[33] Customs also advised the IWGC that 'the proposed [IWGC] model did not meet the business needs of Government, in particular, that Customs has accurate and advanced data to identify high risk consignments before they arrive.'[34]

2.11 Customs engaged an independent firm to conduct a cost/benefit analysis of the Business Model from the perspective of industry. Finalised in October 1999, the study concluded that CMR's impact on industry clients' operations would be favourable, particularly for those who would become accredited clients.[35] However, it did not include an analysis of the cost impact of CMR for industry.

---

31 Over 1 100 industry participants attended 45 CMR information sessions nationwide.

32 Customs may give permission to move underbond cargo between approved premises. This cargo remains subject to Customs' control until it is cleared for home consumption.

33 Industry Working Group on Customs, *Position Paper—Cargo Management Re-Engineering,* 2000, Attachment No.14, p. 1.

34 ibid., Attachment No.19, p. 1.

35 PricewaterhouseCoopers, *Cost Benefit Analysis of Cargo Management Re-Engineering*, 1999, pp. 1-2.

Publication of the Business Model

2.12 Customs initially published the Business Model in March 2000 and it reflected the following four main conceptual elements:

- identification of high risk cargo prior to arrival through the receipt of accurate, timely information;
- intervention by exception;
- flexible declaration arrangements for accredited clients; and
- periodic entry and deferred duty payments.[36]

2.13 In May 2000, the IWGC, supported by the Customs Brokers Council of Australia, submitted a position paper raising concerns that the Business Model did not address any of the major concerns or formal proposals raised by industry.[37] The paper stated that import cargo reporting requirements were unrealistic. Industry preferred a concept of supplying data from the source; however, the Business Model required 27 data elements be supplied to Customs prior to vessel or aircraft arrival. Cascade cargo reporting[38] and outturn reporting[39] requirements were viewed as onerous complications to this reporting regime. Data requirements were perceived as being burdensome and difficult to supply in short timeframes. The Australian Shipping Federation also raised concerns regarding sea cargo reporting and underbond movements.

2.14 Customs updated the model and re-released it (internally) in December 2000. The model outlined the CMR project's objective to introduce new cargo management processes and systems to improve the effective delivery of services to Government, industry and the community. It also set out the project's scope, which was to:

- review all processes related to the report, control and clearance of imported and exported cargo; and

---

[36] Australian Customs Service, *Cargo Management Re-Engineering—Business Model*, Customs, Canberra, 2000, p. 1.

[37] Industry Working Group on Customs, op. cit., p. 3.

[38] Cascade reporting requires each cargo reporter to notify Customs of any other cargo reporters on whose behalf they have carried cargo or on-sold any space. This process continues until all cargo has been reported with consignee details to the lowest level house bill of lading or house air waybill.

[39] An outturn report is a comparison of cargo actually received against the corresponding cargo report to identify any surplus and shortages in cargo. Previously, outturn reports were provided by exception whereas the model required one for each cargo report submitted.

- implement the recommendations of the CMS report and high level concepts developed in consultation with Government and industry stakeholders.

2.15 The Business Model aimed to develop flexible processes that could be integrated with the business practices of different industry organisations. The model envisaged one integrated cargo management system, and identified a number of key areas, including the Accredited Client Program.[40] It promoted dealing with Government through an integrated approach and saw a single transaction as a means of reducing complications in cargo movement. The model included an IT Infrastructure Model, designed to provide operational support, and noted that a number of proposed initiatives would require legislative amendment before being implemented.

Conclusion

2.16 Customs put in place a number of strategies to involve and consult with industry. However, it did not have a large proportion of industry's 'buy-in' for the Business Model or CMR project. This was a potential risk to the successful implementation of the project. Industry was not actively involved in developing the business processes for the Business Model, or in influencing the objectives and scope of the CMR project. For example, throughout the development of the Business Model, industry raised concerns about a number of issues and these were never resolved to their satisfaction. In considering these issues, Customs advised that it had to balance industry's concerns with its border protection responsibilities. However, if some of these issues, particularly cascade reporting, data requirements and outturn reporting, had been more thoroughly investigated by Customs early in the project, many of the problems faced when the ICS Imports Release was introduced in October 2005 may have been minimised. Many industry stakeholders interviewed by the ANAO expressed the view that Customs did not understand their business processes or listen to the concerns they raised.

Business Process Review

2.17 Another element of the CMR project was a review of Customs' business processes and organisational arrangements. Customs undertook the Business Process Review during the second half of 2000. It concluded that business

[40] Major components of the Accredited Client Program were the speedy clearance of goods and the ability to pay duty on a periodic rather than a transactional basis for highly compliant clients. Treasury did not approve the Program due to the potential impact on the Budget.

processes should change to reflect both the regulatory philosophy that would underpin CMR and the business improvement opportunities that CMR would deliver.[41] It recommended that Customs be structured around the functions of: risk identification and analysis; intervention management; client management; and policy and legislation.[42] The Business Re-engineering Project was established in January 2001.

Business Re-engineering Project

2.18 The project took a 'whole of business' approach to organisational design, focusing on business processes rather than distinct divisional activities. It combined the Border and Commercial compliance functions and focused on Australia's border as a whole, rather than as separate border and commercial environments. The revised structure was designed to position Customs to manage the changes linked with the introduction of the ICS and associated legislation. Customs' transition to the new structure began on 1 October 2002.[43]

2.19 OBS managed the CMR project until it was phased out following the introduction of ICS Exports in October 2004.[44] Responsibilities for the CMR project were then split between the Cargo and Trade Division and the Information and Office Technology Division. This split in responsibilities meant that there was no longer a single business owner for the CMR project.

Legislative change

2.20 The Trade Modernisation Legislation (TML) package, which included three Acts[45], was intended to modernise the way in which Customs managed the movement of cargo, and to provide the legal basis for an electronic business environment. Provisions in the legislation required the ICS to be introduced within two years of the Act being passed.[46] The package established a new approach to managing compliance that recognised that the 'one size fits

---

41 Customs' regulatory philosophy provides guidance to enable an appropriate response to non-compliant behaviour.

42 Australian Customs Service, *Cargo Management Re-Engineering—Draft Business Process Review Report*, Customs, Canberra, 2000, pp. 3-4.

43 Australian Customs Service, *Annual Report 2002–03,* Customs, Canberra, pp. 31-32.

44 Australian Customs Service, *Annual Report 2004–05*, Customs, Canberra, p. 98.

45 The Customs Legislation Amendment and Repeal (International Trade Modernisation) Act 2001; the Import Processing Charges Act 2001; and the Customs Depot Licensing Charges Amendment Act 2001.

46 Those provisions relating to compliance, goods entered for export, and powers relating to goods not yet subject to Customs control began on 1 July 2002. Customs Legislation Amendment and Repeal (International Trade Modernisation) Act 2001, No.95, 2001, p. 2.

all' approach is not appropriate to many sectors dealing with Customs. Key changes introduced by the legislation included:

- mandatory electronic reporting;
- simplified processes for declaring imports via self-assessed clearance;
- new reporting measures for imported cargo;
- changes to the way exported cargo is reported and cleared;
- new requirements for the retention of commercial documents;
- changes to cost recovery and depot licensing arrangements;
- new monitoring powers for Customs, covering a broad class of premises and the power for examining goods for export; and
- a penalty administration scheme to encourage compliance.[47]

The close alignment of legislation and project development

2.21 The legislation specified the release dates for the ICS. To meet these implementation dates, very tight timeframes were imposed for the development of the ICS and CCF. The subsequent delays to the ICS delivery schedule necessitated three amendments to the legislation as outlined in Figure 1.2 (Chapter 1) and Appendix 2.

Ongoing impacts of legislative changes

2.22 Industry expressed concern about some of the changes introduced by the legislation. These concerns primarily centred on the need to report cargo within specific timeframes and their inability to meet these deadlines because of the problems associated with the ICS Imports Release. An initial six-month moratorium applied to cargo reporting penalties and this ended on 19 April 2006. Customs addressed Industry's concerns by advising that infringement notices will not be served where a person has made efforts to comply but has been unable to do so due to an identified Customs' system problem.[48]

---

[47] Australian Customs Service, *Introduction to the Customs Trade Modernisation Legislation,* Customs, Canberra, 2003, pp. 5, 92-126.

[48] Australian Customs Notice No. 2006/17, *Customs' Approach to Managing Cargo Reporting Compliance*, dated 24 March 2006.

Alignment of system design with legislation

2.23 Customs has identified a number of areas where the import and export processing provisions of the Customs Act do not align with the ICS. Identified areas of non-alignment are being recorded in an issues log and Customs is examining options to address these inconsistencies. Options include amending system processes to more closely align with the requirements of the legislation; or seeking amendments to the legislation to reflect the way the ICS operates. Customs advised that consideration is being given to whether:

- one major set of amendments should be pursued to address all known areas of non-alignment; or
- to address specific areas in the context of other amendments required to implement related policy initiatives; or
- on an ad hoc basis over time in omnibus Customs Legislation Amendment Acts.

2.24 The latter is the approach taken to date. For example, there have been several sets of amendments to the International Trade Modernisation legislation since its enactment.[49]

Implications for compliance

2.25 Customs advised that circumstances could arise where failure to comply with a hold placed on cargo in the ICS does not amount to a breach of the Customs Act. In these circumstances, there is little Customs can do in terms of issuing infringement notices or prosecuting for dealing with goods contrary to the ICS status. In identified circumstances where such inconsistencies can arise, internal policy instructions and manuals[50] outline the action to be taken by officers. As there are implications for Customs when trying to enforce compliance, the ANAO considers that Customs should determine its preferred option for addressing the inconsistencies between the legislation and the ICS as a matter of priority.

---

[49] For example, to more accurately reflect the way in which self assessed clearance declarations are processed, to clarify the voluntary disclosure defence available for some false and misleading statements and to clearly set out the transitional arrangements from the legacy systems to the ICS.

[50] For example, the Infringement Notice Scheme Officers Resource Manual.

Recommendation No.1

2.26 The ANAO recommends that Customs implements the necessary arrangements to align the import and export processing provisions of the *Customs Act 1901* with the Integrated Cargo System business rules and processes as a matter of priority.

Customs response

2.27 Agreed. Customs is considering options to improve the alignment between the import and export processing provisions of the *Customs Act 1901* and the Integrated Cargo System business rules and processes. If legislative change is considered to be a preferred option, Customs will seek approval to develop and introduce any necessary legislative amendments consistent with the Government's legislative priorities.

3. Project Management Framework

This chapter examines the project management framework that supported the development of the ICS and CCF. Project governance arrangements and transition planning are also discussed.

Introduction

3.1 The CMR project was to develop an integrated cargo system that would replace Customs' four existing transaction processing systems.[51] The ICS was to be developed in conjunction with the CCF. Together, these 'next generation' applications were to streamline cargo management, reduce costs for business and help Customs to identify high risk cargo.

3.2 EDS undertook the initial applications development work. In early 2002, Customs engaged the Computer Associates Consortium (the Consortium) to develop the ICS and IBM and SecureNet to develop the CCF.

3.3 The ANAO reviewed:

- Customs' management of the early years of the CMR project;
- the project management framework that supported the development and implementation of the CMR applications;
- project governance arrangements; and
- transition planning.

Early years of application development

3.4 In December 1997, Customs entered into an outsourcing contract, Customs' Information Services Agreement (CISA), to transfer its IT services to EDS. Under this contract, Customs requested EDS to undertake the development of the proposed CMR applications. The ANAO was unable to determine how Customs had assessed, as part of the IT outsourcing tender process, EDS' ability to undertake its applications development work as the tender evaluation reports and probity audit had been destroyed.[52]

---

[51] These were the Export Integration, COMPILE, Sea Cargo Automation and Air Cargo Automation systems.

[52] This was done in accordance with archival legislation.

3.5 Customs initially estimated the cargo management system to cost $30 million. It advised that this figure was calculated to assist in understanding its financial commitments during the CISA contract. The expected cost took into consideration the external build of the ICS software component. It excluded costs such as project management, training, implementation, communication, staffing and the CCF. Although Customs explained the underlying basis for this estimate, it could not provide details of how the estimate was determined or the cost of individual components.

The first business case

3.6 In March 2000, the CMR Project Board[53] considered a Project Initiation Document. Included in this suite of documents was a business case to justify Phase 3 of the CMR project. Phases 1 and 2 had delivered the re-engineered business model and set out the future business processes for cargo management (as discussed in Chapter 2). Phase 3 was to design, develop and test the IT systems to support the business model, develop Customs process documents and guidelines and provide structural proposals to management.

Project costs

3.7 The development of a full business case including detailed costs was not considered possible at the time. Customs could estimate its costs but EDS' costs for systems development could only be estimated in orders of magnitude pending the completion of business user requirements. The first stage (Stage 1) was to define user requirements; prepare a business case with cost and time estimates; and develop a project change management strategy. Customs' costs to achieve this were estimated to be $993 000 and EDS' costs were to be in the order of $340 000. Based on these estimated costs, the full Customs' costs (including employee, supplier and corporate overheads) associated with the project would, in an order of magnitude estimate, be $3.5 million.[54]

Expected benefits

3.8 The business case noted that the outcomes included an integrated cargo management system, business processes and rules to support the business model and migration and implementation strategies. The benefits of this phase of the project could not be quantified separately but each was seen to contribute to the overall benefits of CMR.

---

[53] Refer Appendix 2 for further details of the CMR Board.

[54] The total cost of Phases 1 and 2, including EDS' costs, was $2.3 million.

Investment appraisal

3.9 The investment appraisal was high level because a full appraisal needed properly defined costs. It was to be included with the cost estimate at the conclusion of Stage 1. The business case noted that it was difficult to compare costs for the work against benefits that would not be realised until CMR was finally implemented. Also, any cost/benefit analysis must take into consideration the need for Customs to re-host its infrastructure and modernise its cargo applications. If the project did not proceed, a major proportion of the planned CMR investment would need to be redirected to the re-hosting task.

3.10 The business case also included a number of high level business risks.[55] Table 3.1 outlines the major timing points for Phase 3.

Table 3.1

CMR project Phase 3 major timing points

Major Timing Points	Delivery Date
User Requirements	30 June 2000
Systems Migration Strategy	November 2000
Business Rules and User Specifications	Mid – December 2000
Business Migration Strategy and Implementation	Mid – December 2000
Project end date	August 2001

Source: Australian Customs Service.

3.11 In summary, the business case was an initial broad justification for developing the ICS. Key business risks (defined in broad terms), outcomes and delivery dates were included, but it did not include full costs—these were to be provided later. The expected benefits were not clearly defined. It was considered that these would not be realised until the implementation of CMR. Further, Customs had no strategy or measures to evaluate whether the project achieved its objectives.

Project deliverables

3.12 EDS delivered the Logical System Specifications (LSS)[56] for Release 1 of the ICS in August 2001. However, Customs did not receive an updated

[55] The risks included, for example, changes to Government and senior Customs personnel, changes in Customs' strategic direction and resource priorities and if the legislative package was not passed.

[56] Logical system specifications are based on user requirements and consist of technical system options and logical design. These result in the choice of a technical option for applications development as well as a map of system processes.

implementation schedule that reflected Release 1 LSS outcomes. This meant that it could not confidently plan its resources for the delivery of this release. Furthermore, Customs did not have a schedule for completion of the 'analyse' phase for the ICS. This phase was to analyse and model the total system, allowing for a function point count[57] to reduce the risk of re-work during delivery. EDS advised that it could not give a completion date until the fixed price for the 'analyse' phase was negotiated. At this time, Customs realised that an October 2001 delivery date for this phase would not be achieved.

3.13 Continuing negotiations with EDS and the lack of progress provided Customs with little confidence that the applications development component of the project would be delivered by early 2003. Customs was faced with the risk that the ICS would not be delivered in time to meet the legislated implementation date.

3.14 By October 2001, Customs had decided that, in order to deliver the ICS by early 2003, it would seek additional providers to assist in the next phase of the system's development. EDS would continue to manage the infrastructure, desktop and voice and data aspects of the project, with remaining analysis and development to be done by one or more third parties. This decision was reached amicably and did not change the existing contract between Customs and EDS. However, it required Customs to meet the redeployment and redundancy costs of some EDS staff employed on the ICS development.[58]

3.15 From 16 October 2001 EDS transferred full responsibility for the delivery of the CMR project to Customs and each party released the other from all liability and claims in respect of the project. This included the CCF component, which EDS had subcontracted to IBM, Baltimore and SecureNet.

Tender for CMR application development

3.16 After calling for tenders in November 2001, Customs began negotiations with the Consortium for the ICS development contract. The tender proposed that Customs would have responsibility for the co-ordination of the ICS with other related projects, including the CCF. The contract was finalised and signed on 12 February 2002.

---

[57] A function point count is a method of understanding the size of a software project. Function point analysis can be used to track and monitor scope creep. It was used by Customs as a way of determining the cost of the ICS.

[58] Costs were estimated to be $700 000 but Customs expected to offset these with the savings in application development work provided by third parties.

3.17 Customs did not tender for the CCF as EDS had subcontracted the development of the application. Customs formalised these existing arrangements in early 2002. Contracts were established in March 2002 with SecureNet[59] for the delivery of a secure perimeter for the CCF and the provision of Public Key Infrastructure technology. In May 2002, IBM was contracted to develop the CCF.

The revised business case

3.18 In January 2003, almost a year after engaging the Consortium, Customs developed a revised business case to provide a more accurate estimation of project costs and timing. This business case identified actual costs already incurred ($906 429) and provided a cost estimate for the next stage. This stage was to develop the business rules to support the user requirements and to continue the change management strategy ($4.2 million). The costs showed an expected increase of $1.6 million on the original business case cost estimates. This increase was based on the more complex and detailed nature of the tasks associated with business rules and the release of the ICS. The major timing points were revised and are outlined in Table 3.2.

Table 3.2

Revised CMR project Phase 3 major timing points

Major Timing Points	Delivery Date
User Requirements	August 2000
Business and Systems Migration Strategy	March 2001
Business Rules and Associated Process and Data Models	July 2001
Project Implementation	July 2001–December 2002

Source: Australian Customs Service, *Revised Business Case*, 6 January 2003.

3.19 The revised business case did not include full project costs. A further review was to be undertaken once the business rules (Stage 2) had been developed. Although it stated that the costs of the project would be separately identified for Customs and EDS, no costs were included for EDS. Furthermore, the business case contained no reference to any contractual costs in relation to the Consortium and other contractors who were engaged in early 2002.

3.20 There was no evidence of a comprehensive re-evaluation of risks or benefits associated with the project. Only one additional risk was identified.

[59] SecureNet and Baltimore merged to become SecureNet, which is now known as Cybertrust.

However, there had been considerable change surrounding this project. In the intervening three year period new contractors were engaged and the delivery timeframes revised. There was also no revision to the investment appraisal.

The decision to fund the CMR project internally

3.21 As previously noted, the initial cost estimate for CMR was approximately $30 million. On the basis of this estimate Customs made the decision to fund the project internally. However, Customs has been unable to provide documentation to support this key decision. Customs advised that, at the time of commencing the project, it considered it would be capable of internally funding the project with the funds coming from the considerable cash reserves it held at the time. The decision to fund the project internally also meant that no New Policy Proposal or submission was prepared and submitted and, as a result, there was no formal consideration or decision by Cabinet in relation to the CMR project until 2003.

3.22 The actual development costs increased significantly over the life of the project. Customs continued to use existing funds and reserves and attempted to generate savings in order to continue funding the project. Customs did not seek additional funding from Government even though the ongoing funding of CMR eroded Customs' available cash reserves and put pressure on operating resources. As previously noted, Customs subsequently received a conditional equity injection[60] and its financial position was reviewed by the Department of Finance and Administration to assist with Budget deliberations. With the benefit of hindsight, Customs acknowledges that requesting specific funding for the project would have been a better option.

Conclusion

3.23 The ANAO reviewed the original and revised business cases to determine whether they adequately identified costs, benefits, risks, deliverables and timelines and if an evaluation methodology was included. These were considered to be the basic elements needed to enable Customs' management to make an informed decision about the CMR project.

3.24 No consolidated financial business case or detailed cost estimates were prepared and signed off at the commencement of the CMR project. The business cases only covered Phase 3 of the project. The original case did not

[60] Equity injections are provided to agencies to, for example, enable investment in new capacity to produce departmental outputs when normal cash flow is insufficient.

refer to the $30 million cost estimate and the revised case did not include any costs apart from Customs' own operating costs. There was also no identified source of funding in either business case. Although a number of business risks were identified, these were at a reasonably high level and in the ANAO's view did not represent a comprehensive evaluation of the project's risks. The risks were also not re-evaluated when preparing the revised business case three years later.

3.25 A proper assessment of Customs' return on its investment or expected benefits was never completed and there was no strategy for measuring the realisation of any benefits. Also, there was no strategy for determining whether the project had achieved its overall objectives. Customs could not have determined the project was both affordable and achievable based on the initial and revised business cases, given the size and complexity of the CMR project. The decision not to seek specific funding for the project had a serious impact on Customs' operating resources as the project progressed.

ICS project management framework

3.26 Customs and the Consortium agreed to an application development deadline that would enable Customs to meet the ICS implementation date of July 2004. The Consortium produced a Project Charter, which Customs approved on 27 March 2002. The Charter provided a framework for managing the development of the ICS.

Project Charter

3.27 The Project Charter outlined the scope of the project, deliverables and responsibilities.[61] It documented how the Consortium would define, monitor, manage and quality assure the project stages and deliverables and provided a schedule management plan to define project milestones. The Consortium was responsible for managing the delivery of project outcomes within the timeframes stipulated in the Charter. The final delivery date of the ICS product was 30 April 2003. In attempting to meet the schedule, the Consortium imposed a strict project management discipline. This included a requirement that Customs turnaround comments on Detailed Design Specifications and Detailed Business Analyses within three days for interim chapter level reviews.

[61] The Consortium's key responsibility was to complete the ICS project including: detailed business analysis; design; build; testing; and implementation of the ICS. Computer Associates, *Integrated Cargo System Application Development: Project Charter v1.0*, 27 March 2002, p.9.

Customs acknowledges that the short period for review adversely affected the quality of its input.

3.28 By September 2002, the Consortium recognised that there would be difficulties in meeting the April 2003 delivery date. As a result, Customs and the Consortium negotiated a variation to the contract that amended the deliverables for the project. The variation was signed on 5 March 2003 and, as part of the variation, the Project Charter was revised.[62]

Revised Project Charter

3.29 The revised Project Charter was accepted by Customs on 21 August 2003. The most significant change to the Charter was the final delivery date. The completion date for the final release was now 19 December 2003.[63] However, this delivery date was renegotiated during the development of the application for a variety of reasons, including, the agreed inclusion of change requests, hardware problems and product testing.

3.30 In line with the requirements of the Charter, the Consortium produced a post project assessment for each release that outlined the timeframes for agreed and actual completion of user acceptance testing (UAT). Customs did not complete its own post project assessments; however, it did provide comments for inclusion in the Consortium's assessments. Customs noted that the post project assessments were written solely from the Consortium's perspective and, in relation to a number of issues, Customs had differing views. Customs indicated that its acceptance of the reports did not constitute agreement with the Consortium's views. Overall, Customs considered the project was well managed by the Consortium and schedule slippage was limited.

3.31 The ANAO considers that the Charter provided an appropriate basis for the effective management of the project by the Consortium. The scope of the project, deliverables and timelines were clearly outlined as were roles and responsibilities. Variation to the original requirements were negotiated and agreed to with Customs. All deliverables were signed off by Customs.

---

62 Full details of this contract variation are discussed in paragraphs 4.9 to 4.12.

63 This date was subject to product testing, user acceptance testing, production ready and the warranty milestones being completed.

Customs' project management framework

3.32 The CMR project commenced under the PRINCE2 project management methodology.[64] However this methodology was abandoned very early in the project, because Customs considered that its project management knowledge and experience base was too immature for this methodology to be implemented successfully. Customs decided its project management methodology should be based on simple processes and controls, and consequently the ICS project adopted:

- the principles defined by the Project Management Body of Knowledge[65];
- guidelines developed by Customs' Information Technology (IT) Branch; and
- project governance guidelines endorsed by the CMR Steering Committee.

3.33 A program management strategy identified the plans and strategies that Customs needed to implement to maintain control over the ICS project. The plans were progressively developed and finalised in January 2003, almost 12 months after the original contract was signed and only three months before the scheduled final delivery date. Customs advised that it deemed some of the plans unnecessary, because other processes sufficiently satisfied the requirements.

3.34 The ANAO evaluated Customs' development and implementation of its project management plans.[66] Although Customs did not develop a Financial Management Plan; the Communications, Risk Management, Procurement and Change Management Plans were all implemented and supported the management of the project. The remaining plans were developed but were not always fully implemented. For example, Customs applied considerable effort to developing an integrated, common CMR schedule for the schedule

---

64 PRINCE2 is a process-based approach for project management providing an easily tailored and scaleable method for the management of all types of projects. Office of Government Commerce, *Introduction to PRINCE2* [Internet]. Office of Government Commerce, United Kingdom, 2003, available from <www.ogc.gov.uk/prince2/about_p2/about_intro.htm> [accessed 13 March 2006].

65 The Project Management Body of Knowledge is an inclusive term that describes the sum of knowledge within the profession of project management. W Duncan, *A Guide to the Project Management Body of Knowledge*, Project Management Institute, USA, 1996, p.9.

66 This included the following: Communications Plan; Schedule Management Plan; Financial Management Strategy; Risk Management Strategy; Quality Management Plan; Procurement Management Plan; Information Management Plan; Change Management Plan; and Interface Management Plan.

management plan. However, this could not be completed due to the complexity of the task and the fluidity of changes across the sub-projects. Also, project quality reviews were not completed because Customs considered acceptance processes were being carried out through the sign-off arrangements already in place.

Conclusion

3.35 The ANAO considers that the Project Charter developed by the Consortium provided a reasonable framework for managing the development of the ICS application. In addition, the plans Customs developed and implemented under its program management strategy supported this framework.

CCF project management framework

3.36 The Office of Business Systems (OBS) was the original manager of the CCF project and work commenced on Release 1 in February 2002. Customs was unable to provide a business case for the CCF project. In July 2002, the CCF Steering Committee approved a Project Charter to provide a project management framework for CCF Release 1.[67] It was to be updated to include deliverables and schedules reflecting future releases. However, Customs was only able to provide the Charter for Release 1. Customs advised that, although the agreed CCF Charter was not implemented, project management practices were in place for the CCF project.

3.37 In December 2002, IBM presented the CCF Steering Committee with options and recommendations for ensuring the delivery of the CCF. The options paper was prepared as a result of significant problems following the development of the CCF Release 1 phase. IBM had also developed a better understanding of Customs' requirements and the need to provide, develop and support multiple instances of CCF for different purposes.[68]

3.38 In January 2003, the IT Branch and CMR Transition Branch assumed joint responsibility for the CCF.[69] On taking over the project, the IT Branch advised the CCF Steering Committee that there was:

---

[67] The Charter described the scope of the project and documented how a Project Management Methodology (and its associated templates) would be adapted to define, monitor, manage and quality assure the CCF project and its deliverables.

[68] These were to include production, industry test, development, emergency fix and staging.

[69] The IT Branch was responsible for technical and service delivery issues and the CMR Transition Branch was responsible for internal and external transition issues.

- no endorsed project management plan. It noted that, for a project of the size, value and complexity of the CCF, mature and well developed plans were required[70];
- a lack of clarity surrounding the project's current and future financial position. Current activity operated under a time and materials arrangement that was not budgeted for and there were no contracts in place for the current set of deliverables; and
- no clear input from industry stakeholders.

3.39 In response to the concerns surrounding the project, a paper was prepared outlining the options available for continuing the development of the CCF.[71] The paper made a number of recommendations, including that Customs undertake an architectural review of the CCF to ensure that the architecture was fit for purpose and an efficient use of Commonwealth resources. A second review was also initiated by the IT Branch to cover project management, risk management, project monitoring, measuring and reporting, and project governance arrangements.

Reviews of CCF Project

The architectural review

3.40 The architectural review of the CCF was completed in May 2003 and found that:

- the CCF project lacked overall requirements, policy and architectural blueprints;
- the production and maintenance of requirements documentation at all levels of the project was not satisfactory;
- there was no evidence of any project quality assurance checks and the configurations management plan was not adequately monitored; and
- there was insufficient implementation of a comprehensive risk management framework.[72]

---

[70] This would include a Risk Management Plan, Stakeholder Analysis, Communications Plan, Financial Management Plan and Budget Reporting Arrangements, Governance Arrangements and Quality Plan.

[71] The options paper was classified 'Customs-In-Confidence' and circulated to Customs representatives out of session.

[72] 90 East, *A Report on the Technical Architecture Review of the Customs Connect Facility*, prepared for the Australian Customs Service, May 2003, pp. 2-3.

3.41 The review also found that the schedule management plan provided little scope for Customs to maintain any significant level of control over the schedule as it was dependant on sub-project schedules. In addition, the lack of an integrated risk management plan compounded the difficulty for Customs to manage the project schedule.[73] The review assessed the CCF against Commonwealth requirements and the report noted that:

> Based on this lack of fundamental documentation it is considered highly unlikely the design would be suitable for submission to [Defence Signals Directorate] for Gateway Certification. Also, it would be difficult for [Customs] to make an informed assessment internally of the ability of the gateway to satisfy the [Protective Security Manual] Ministerial responsibility for securing of their systems.[74]

A number of recommendations were put forward to address these areas of concern.

Project management review

3.42 The project management review was also completed in May 2003.[75] It identified many of the same issues as the architectural review and made similar recommendations. The key findings were that, because of critical gaps in baseline documentation[76], it was not possible to:

- establish a meaningful picture of the CCF's status;
- make optimal trade-offs between the scope of the remaining project, project cost and achievement of target milestones;
- form reliable views about the conduct of the project; and
- make effective decisions on key issues.[77]

3.43 The review recommended that Customs: revise the project business plan; establish a tracking/reporting mechanism; and refine the project governance model.

---

73 ibid., p. 44.

74 ibid., p. 29.

75 Customs was unable to locate the final report but provided the ANAO with an Issues Paper that summarised the main findings.

76 The most significant of these gaps were in the following areas: the project plan; tracking and reporting; governance; and decision-making.

77 Sigma Management Science, *Customs CCF Issues Paper*, 19 May 2003, p. 1.

3.44 Customs advised that these reviews resulted in changes to improve the management and governance arrangements for the project. The CCF Steering Committee also began monitoring the status of project management documentation from August 2003. The report to this meeting indicated that risk and issue registers had been commenced and would be maintained, a number of plans[78] were being developed and an IT Security Threat and Risk Assessment had been completed. This documentation was particularly important for Customs to receive Gateway Certification.[79]

Gateway certification

3.45 To achieve Defence Signals Directorate (DSD) certification, Customs had to address the project management requirements recommended in the CCF reviews. The online gatekeeper strategy outlines the requirements for obtaining DSD certification. Customs was assessed for Gateway Certification during January and February 2005. A preliminary report was prepared in March 2005 outlining a number of recommendations that had to be addressed before certification was achieved. Customs received Provisional Certification in September 2005 and Full Certification in September 2006.

Conclusion

3.46 The reviews initiated by the IT Branch identified significant problems with the CCF project and resulted in changes to improve the governance and management arrangements for the project. It was difficult for the ANAO to assess the project management framework that supported the development of the CCF as Customs was unable to provide a CCF business case and the CCF Project Charter was not implemented.

CMR project governance arrangements

3.47 The ANAO reviewed the governance arrangements in place for both the ICS and CCF projects.[80] Customs established a series of internal boards and

---

78 Plans included: Communication; Schedule Management; Environment Management; Information Management; Financial Management; Configuration Management; and Quality.

79 The Gateway Certification process aims to provide agencies, or a Service Provider to Australian Government, with an independent assessment that their gateway has been configured and managed to Australian Government standards and that appropriate safeguards are implemented and operate effectively. This assurance provides clients using the gateway services with a reasonable level of trust in the service provided.

80 This included reviewing the meeting minutes of the various boards and committees and the reports prepared for the groups.

committees to oversee the CMR project. Appendix 3 outlines these forums, their purpose and how often they met.

3.48 The ANAO considers that Customs established an appropriate governance framework at both the Executive and operational level. Arrangements promoted broad discussion and awareness of key issues, supported by regular progress reports within each project and across the two projects. Customs' Executives were informed of the project's status through the steering committee meetings, Executive Group meetings, Deputy Chief Executive Officer briefings and reports to the Audit Committee. The membership of the steering committees (and the subsequent CMR Management Board) was similar, with both including most of Customs' senior managers.

Monitoring of project risks

3.49 The reports prepared for a number of these meetings consistently rated the risks associated with the ICS (and particularly the Imports Release) as 'extreme' or 'high'. The ANAO recognises that it is probable that project risks and mitigation strategies were discussed in the various meetings as risks were identified at the project management level and recorded in risks registers. However, this was not obvious from the minutes reviewed by the ANAO. Given the risks associated with the development of the CMR applications and subsequent implementation, the ANAO would have expected project risks to be a regular item on each meeting agenda and discussions and/or action to be taken recorded in the minutes.

Monitoring of project costs

3.50 There was no project budget or financial management plan prepared for the CMR project. Customs advised that funding for the project was allocated to the relevant Divisions[81] as part of its National Resource Allocation process.[82] Customs uses a multi-layered approach to financial reporting. High level reports are provided to its Executive and more detailed reports to the Divisions and Branches.

---

[81] Customs advised that, initially, funding for the project was provided to OBS. When the Division was disbanded, funding was allocated to the Applications Development and Cargo Systems Branches as necessary.

[82] This is Customs' annual resource allocation process to assess funding allocations in the context of workload, risk assessment and performance targets.

3.51 CMR costs, prior to 2004, were reported at a relatively high level in the Executive Management Reports, showing only expenditure against budget for employee, supplier and capital costs. In early 2004, Customs conducted a comprehensive analysis of the cost of the project for the Department of Finance and Administration's review of its financial position (discussed in paragraph 3.22). This detailed the total cost of the project from an operating and capital perspective, against both the ICS and CCF. Customs has continued to update this data regularly. CMR reporting was also enhanced to include information on actual versus budgeted expenditure both operating and capital, for the ICS and CCF.[83] Reporting of expenditure against major suppliers was incorporated into the report in September 2004.

3.52 Given the number of contracts and the costs associated with variations to these contracts, the ANAO would have expected the ongoing monitoring of costs to be an integral part of the project's governance arrangements. However, the minutes of meetings did not reflect discussions surrounding project costs. The ANAO acknowledges that, from 2004–05, financial reporting in relation to the CMR project was more comprehensive. Costs were reported and monitored annually but not against an overall project budget or considered within a project management context.

External reporting

3.53 Following the Financial Health Review in November 2004, Customs was required to report the progress of the CMR project to the Department of Prime Minister and Cabinet. These monthly reports were provided from May until October 2005 and gave status information for issues such as ICS Exports system performance, ICS Imports system development and incident management. They tracked CMR expenditure for the financial year against a 'phased' budget[84], which covered the operating and capital acquisition costs for the ICS and CCF.

---

[83] As part of its internal budgeting processes, Customs prepared four-year forecasts of expenditure requirements associated with the CMR project. This forecast was developed for the years 2004–05 to 2007–08.

[84] The budget was 'phased' because the lump sum available for the project was evenly distributed across the 12 months of the year.

Transition planning

3.54 In July 2003, Customs developed the Cargo Management Re-engineering Transition (CMRT) Management Plan for transitioning the CMR project. The Plan consists of the following standalone documents:

- Plan governance and high level schedule document—provides an overarching link between all aspects of the CMRT Management Plan;
- Roll out strategy—to ensure technical readiness for transition;
- External communication strategy; and
- Project management framework.

3.55 The ANAO considers that the principles behind the plan were sound and provided a framework within Customs for transitioning to CMR. Roles and responsibilities and appropriate governance arrangements were clearly articulated. However, the plan was not updated to reflect the changes to project deliverables and release dates, and could not be used as the basis for developing an implementation strategy.

3.56 Customs did not prepare an implementation strategy to cover the introduction of the ICS Imports Release. Given the size and complexity of this release and the changes in business processes, the ANAO considers that this should have been an important component for successful implementation. By developing such a strategy Customs would have been able to:

- determine its fall back position should the system fail or performance be degraded;
- assess the risks associated with the implementation, and the potential impact of having both a considerable number of incidents outstanding and workarounds in place;
- gain assurance that its support arrangements would be adequate;
- provide assurance that contingency arrangements to support the introduction of the new system were adequate; and
- assess whether industry was also ready for the introduction of the new system.

3.57 Customs may have considered these and other factors relating to the introduction of the ICS Imports phase. However, they were not incorporated into a consolidated implementation strategy that was reviewed and agreed to

by all parties involved. Customs was faced with these and many other issues in the days before going live and on 12 October 2005. An example is the last minute decision to allow the COMPILE system to run in parallel with the ICS. The lack of readiness also meant that many decisions immediately following the implementation were made in a 'crisis' environment.

3.58 Customs did develop a Business Continuity Plan. However, the plan was based on an ICS outage greater than two hours (or a series of equivalent minor outages) only. It did not address, for example, partial system failure, functionality deficiencies or poor system performance. These were some of the issues that Customs faced when the ICS Imports Release was implemented in October 2005.[85]

3.59 In addition, a Transition Model was developed to cover how cargo would be reported during the crossover period between the legacy systems and the ICS. Information sheets outlined when to commence reporting cargo in the ICS. Internal technical plans were also prepared for moving the ICS imports component to industry test and production environments.

Communication strategy for ICS development

3.60 In June 2002, Customs developed a Communication Management Strategy for ICS Development and, in July 2003, published the CMR Transition External Communication Strategy. These documents formed Customs' communication strategy for the CMR project, with the aim of keeping Customs staff and other stakeholders informed of CMR progress.

3.61 Customs devoted considerable resources to making sure that industry was aware of and understood the changes associated with the introduction of the ICS. Industry, however, advised the ANAO that they felt the training/information sessions should have been more 'hands on', with greater emphasis on the functionality of the ICS and what it would mean for them. Furthermore, industry advised that the Customs Interactive (CI) training was not adequately designed to address different target audiences. This was despite Customs providing a CI simulation compact disk to over 10 000 people.[86] Customs advised that it was of the view that very few ICS users would actually need to use the CI facility as most transactions are processed

[85] The Imports Business Continuity Plan is being reviewed and this is discussed in more detail in paragraphs 8.10 to 8.12.

[86] This compact disk included simulation on how to use CI for exports, imports and reporting. A simulated registration facility was also included.

using electronic data interchange (EDI). It was only the circumstances surrounding the implementation of the ICS that forced them to use the CI facility.

3.62 Although the various training packages were updated as necessary, no formal evaluation of the communications strategy was ever undertaken. Such a review could have highlighted industry's concerns and given Customs the opportunity to more effectively target its communication and training strategy.[87]

Conclusion

3.63 The CMR project was complex, involved many stakeholders and spanned almost 10 years. It was a considerable undertaking for any organisation. The project costs were far greater than initial cost estimates and the actual implementation of the ICS and CCF was several years later than originally planned. It was a project driven by legislative timeframes and these were extended several times.

3.64 Customs did not prepare a proper business case for either the ICS or CCF or a detailed financial plan for the project overall, making it extremely difficult to properly monitor project costs. There were no clearly defined or quantified benefits expected from the project or a strategy for evaluating the success or otherwise of the project. Customs did not develop an implementation strategy or plan for the introduction of the ICS Imports Release. In the ANAO's view, these should have been developed well in advance of the implementation and been agreed to by all parties involved. This would have enabled Customs to be better prepared for the implementation.

3.65 The ICS Project Charter and Customs' program management strategy helped to ensure that the ICS development was well managed. However, reviews of the CCF project completed in early 2003 identified serious management issues which raises concerns about the effectiveness of the CMR Board and CCF Steering Committee's oversight of the project.

3.66 A number of steering committees and/or boards provided Executive oversight of the project and were informed by regular reports. However, the minutes of these meetings do not show that project costs or risks were regularly discussed. When risks were raised (in reports and briefings), the ANAO was unable to determine what action was taken to address them.

---

87 Training strategies are also discussed in paragraphs 8.31 to 8.33.

3.67 Customs assessed whether the CMR project would meet the legislated implementation date in late 2001 and initiated reviews of the CCF project. However, there were no formal ongoing reviews of the CMR project. This would have given Customs the opportunity 'to take stock' at critical stages of the project and to re-evaluate for example, if the overall project was delivering users' requirements and meeting objectives, if timelines were realistic and achievable and if the project was returning value for money.

3.68 Customs has been unable to provide a number of documents relating to this project and many documents provided were unsigned and undated.[88] Customs has acknowledged that there were deficiencies in its records management practices and has recently initiated a records and information management project to address these.[89]

Looking to the future

3.69 Recognising the difficulties facing agencies undertaking large ICT projects, the Government recently introduced its *Responsive Government* policy[90], including the ICT Investment Framework and the Gateway Review Process.[91] This is intended to provide a more robust project management and evaluation framework. It is still incumbent on agencies, however, to put in place the management structures, systems and processes necessary to effectively manage these projects. As these initiatives apply to new projects, the ANAO considers it would be worthwhile for Customs to review its major ongoing projects to ensure that they are supported by a sound project management framework.

---

88 For example, the CCF business case, signed copies of contracts, the final report for the review of the CCF, and documentation surrounding initial cost estimates.

89 The Project will introduce an Electronic Document and Records Management System to enable a standardised approach to storing, sharing and retrieving corporate documents within Customs that complies with the *Archives Act 1983* and other Commonwealth governance guidelines.

90 The *Responsive Government - a New Service Agenda* policy was introduced in March 2006 and outlines the Government's aim of effectively utilising ICT to assist in providing better service delivery, improving efficiency and reducing costs.

91 The Australian Government has introduced the Gateway Review Process for projects assessed as being of medium or high risk and over specific financial thresholds. Gateway is a project assurance methodology that involves short, intensive reviews at critical points in the project's lifecycle by an independent review team.

Recommendation No.2

3.70 The ANAO recommends that Customs review its major ongoing projects to gain assurance that they are supported by a sound project management framework.

Customs response

3.71 Agreed. Customs has implemented revised governance arrangements covering Integrated Cargo System related projects under a new Trade Facilitation Program. These arrangements are consistent with recognised best practice project management frameworks.

3.72 Customs will review other major projects to ensure that they also are being managed appropriately. Drawing on the approach implemented for the Trade Facilitation Program, Customs is moving to establish a Program Management Office as a Centre of Expertise to support project and program management in Customs and to provide independent assurance to executives.

4. Managing the CMR Contracts

This chapter examines Customs' management of the major contracts associated with the CMR project.

Introduction

4.1 The central focus of contract management is ensuring that goods or services to be delivered under the contract meet the time, cost, quantity and/or quality standards specified in the contract. There should be procedures in place to manage:

- procurement of services and negotiation of contracts;
- payments against deliverables;
- variations to the contract; and
- reporting of progress against milestones.

4.2 The payments made against all CMR contracts totalled $141 million.[92] The ANAO reviewed the contracts associated with the four major contractors involved in developing the CMR applications. Customs advised that payments made against these contracts amounted to $136 million[93] and included:

- Computer Associates Consortium's (the Consortium's) ICS contracts for Application Development, Post Warranty Support and Support and Maintenance;
- IBM Global Services CCF contracts for Professional Services, Shared Security Service and Continuing Development Services;
- SecureNet (now Cybertrust[94]) CCF contracts for Perimeter Security and Public Key Infrastructure; and
- CPT Global contract for Stress and Volume Testing.

---

92 This does not include the cost of any work undertaken by EDS between December 1997 and October 2001 (when EDS was released from its obligation to deliver the ICS). Customs advised that the method of recording EDS payments makes it very difficult to determine costs incurred specifically for CMR as these were incorporated into the total expenses of Customs' Information Services Agreement.

93 All contract values referred to in this Chapter are inclusive of Goods and Services Tax. The ANAO has not audited the contract payment amounts.

94 Cybertrust has been formally known as: eSign; Baltimore; SecureNet; and Betrusted.

4.3 Customs' contract management framework is supported by its Chief Executive's Instructions (CEIs), the Commonwealth Procurement Guidelines (CPGs) and the Financial Management and Accountability (FMA) Regulations. For the contracts reviewed, the ANAO assessed whether: a business case had been developed; an appropriate method of procurement was used; and the costs had appropriate approval.

4.4 The ANAO also reviewed the process for accepting deliverables and the method for making payment against milestones. The ICS Project Charter outlined the project deliverables for the Application Development contract and the processes to be followed for acceptance. The project manager signed off on each deliverable. For other contracts, deliverables were signed off by the project manager on completion of a statement of work under a time and materials arrangement.

ICS development, warranty and support contracts

4.5 The Consortium was responsible for ICS development, post warranty support, and support and maintenance. Table 4.1 compares the original value of these contracts (before variations) to the payments made against each contract (including any variations to the contract) as at 30 June 2006.

Table 4.1

Comparison of original ICS contract values (before variations) to payments made against each contract (including variations)

ICS contract	Date original contract signed	No. of variations	Original value	Payment amount	Difference
Application Development	12 Feb 2002	23	$29 700 000	$56 498 859	$26 798 859
Post Warranty Support	8 Aug 2003	Nil	$1 842 500	$1 842 502	$2
Support and Maintenance(1)	11 Feb 2002	5(2)	$2 200 000	$24 188 890	$21 988 890
TOTAL		**28**	**$33 742 500**	**$82 530 251**	**$48 787 751**

Note 1: The Support and Maintenance contract is ongoing until 30 June 2007, with a remaining contract value of $6 million.

Note 2: The original contract was subsumed and the ANAO has included the revised contract as one of the five variations for the purpose of this audit.

Source: ANAO analysis of Customs' documentation

4.6 As at 30 June 2006, total contract payments to the Consortium were $82.5 million. This means that Customs has paid $50.6 million more than the original fixed price contract.[95]

ICS Application Development contract

4.7 The contract payments for the original ICS Application Development contract were $2.97 million (10 per cent) on contract signing and Customs' sign off of the ICS Project Charter. The remainder of the contract payments were apportioned between the three releases. Table 4.2 outlines the ICS Release payment schedule.

Table 4.2

Payment schedule for each ICS Release under the original contract

	Release 1 Advanced Cargo Profiling	Release 2 Exports	Release 3 Imports
Value	$10 395 000	$8 910 000	$7 425 000
Payment as percentage of total contract	35%	30%	25%
Proportionate size of release(1)	5%	25%	60%

Note 1: The ANAO has not audited these figures as Customs was unable to provide raw data on the size of releases. The ANAO recognises that the proportionate sizes combine to only 90 per cent. The remaining 10 per cent is assumed to have been for the contract signing or for work undertaken across all three releases.

Source: ICS application development contract and Australian Customs Service, *Contractual Management Issues Arising as a Consequence of the Extended R3 Delivery Timeframe*, October 2002

4.8 The payment schedule was heavily skewed towards Release 1, although the other two releases were more complex and involved significantly more work. Release 3, which made up 60 per cent of the development work, represented 25 per cent of the contract value. Customs and the Consortium also agreed, in March 2002 (one month after the contract was signed), that the Advanced Cargo Profiling component would not be delivered as part of Release 1.

Contract variation – Release 3 Extension

4.9 In late 2002, the Consortium advised Customs that an extension to Release 3 was necessary because at the time of the Request for Tender:

[95] The original fixed price contract was for $29.7 million plus an additional $2.2 million fixed price contract for support and maintenance services. Originally there was no provision for Post Warranty Support.

- user requirements were incomplete and, in some cases, defined at too high a level;
- user requirements were not representative of the size and complexity of some components of the work; and
- inter-relationships between functional requirements were not clear.[96]

4.10 In considering whether or not to proceed with this variation, Customs acknowledged that:

- the requirements lacked adequate detail to fully scope the application development task for the import functionality (Release 3);
- the Consortium's performance in delivering a quality Release 1 and Release 2 product to date had been good; and
- a change in provider for Release 3 would be costly and would risk project quality and schedule.

4.11 Customs assessed the proposal from a number of perspectives and determined the cost of the Release 3 Extension to be $17 million (stripped of commercial margins).[97] It considered that the Consortium should bear a proportion of the proposed Release 3 Extension price. On 5 March 2003, the variation for the Release 3 was signed for $15.4 million.

4.12 As part of the variation, the Consortium revised the ICS Project Charter. The Charter amended the contract deliverables and adjusted the project schedule to complete the build phase by 19 December 2003.[98] The contract variation maintained payments based on milestones but was adjusted to shift the focus onto Release 3. The $2.97 million allocated to contract signing and the Charter remained. However, an additional $5.16 million was assigned to project acceptance. Table 4.3 outlines the ICS Release payment schedule under the contract variation.

[96] Functional requirements were provided in the request for tender and identified the functionality to be delivered.

[97] Customs advised that this was exclusive of Goods and Services Tax.

[98] However, user acceptance testing and product testing were to be undertaken after this date.

Table 4.3

Payment schedule for each ICS Release under the contract variation

	Release 1a Industry Trial	Release 2 Exports	Release 3 Imports
Value	$9 875 250	$8 464 500	$18 631 250
Payment as percentage of total contract	21.9%	18.8%	41.3%
Proportionate size of Release[(1)]	11.9%	33.9%	54.2%

Note 1: The proportionate size of each release was calculated based on Customs' estimate of the number of Detailed Business Analysis pages (as at 26 February 2003).

Source: ICS Application Development contract – Release 3 Extension and Australian Customs Service (internal document) *Integrated Cargo System (ICS) Application Development – Release 3*, dated 26 February 2003

4.13 Customs advised that it made payments to the Consortium valued at $4.2 million in 2001–02 and $24.2 million in 2002–03. This means that by 30 June 2003, Customs had paid the Consortium a total of $28.4 million. This was 62 per cent of the total contract price at that time (i.e. $45.8 million).[99]

Change requests

4.14 Change requests were completed under a time and materials clause in the original contract. The cost associated with these changes was $5.7 million.[100] In December 2003, Customs and the Consortium realised that a substantial number of change requests could not be implemented under these contract arrangements. A letter of engagement was negotiated to vary the contract to accommodate these change requests. This resulted in a specific version of the ICS that only implemented outstanding changes (this was known as Version 5).[101] The cost associated with this contract variation was $1.43 million.

4.15 A high proportion of the additional contract cost ($22.5 million) was due to the need for changes to the user requirements, namely: additional person days for minor changes; Release 3 Extension; Version 5; and the time and materials costs associated with major change requests.

---

[99] Contracts in place at 30 June 2003 included the original contract, the Release 3 extension, and two letters of engagement (valued at $460 000 and $240 000 respectively).

[100] This included all major changes and any minor changes completed after Customs had exhausted its initial minor change allocation of 500 person working days in the original contract.

[101] Release 3 was split into Versions 3 and 4. Version 3 included the Cargo Risk Assessment system and Import Cargo Reporting and Version 4 covered Import Declarations. Version 5 was approved change requests that were unable to be completed for Versions 3 and 4.

ICS Post Warranty Support contract

4.16 The Consortium provided a three-month warranty for each version, from the date the product was accepted by Customs. Under contractual arrangements, only new functionality and changed functionality from a previous version were warranted. Any unchanged code from the previous version was not included in the warranty. Hence each version was only partly warranted. The warranty support period ended on 29 July 2004. In these circumstances, Customs never fully benefited from the warranty periods as the various versions of the system were not implemented before each warranty period expired.

4.17 The existing contracts for ICS application development and ICS application support and maintenance resulted in a gap between warranty expiring for Release 1a, Release 2 and Version 3 and the commencement of the Support and Maintenance contract.[102] Customs considered the situation presented significant risks and it was decided the gap would be covered by a new contract for Post Warranty Support. Customs requested proposals from EDS and the Consortium to provide this support. The Consortium was selected because of their advanced level of knowledge of the ICS application and overall value for money.[103] The Post Warranty Support contract was for a fixed price of $1.84 million. Customs followed the appropriate procurement and approval processes.

ICS Support and Maintenance contract

4.18 As part of the ICS application development tender, the Consortium was required to provide support and maintenance. The contract was originally fixed price and valued at $2.2 million. It covered the 12 month period from the expiry of the ICS warranty. Delays in system development resulted in this contract being superseded by a revised contract under a time and materials arrangement that was capped at $10.12 million. This contract covered the 12 month period from 1 July 2004 to 30 June 2005. However, the contract was subsequently varied to further accommodate delays in the implementation of the ICS. These variations took the Support and Maintenance contract to a total value of $22.9 million and extended it to 30 June 2006.

---

[102] The Support and Maintenance contract is further discussed in paragraphs 4.18 to 4.20.

[103] Australian Customs Service, *Evaluation of Proposals for Post Warranty Support for the ICS Application*, Customs, Canberra, 19 August 2003, pp.5, 14 and 18.

4.19 In May 2006, Customs negotiated a further variation to the Support and Maintenance contract. This variation was valued at $7.7 million and covered the period 1 July 2006 to 30 June 2007. In addition, in June 2006, Customs realised that it had overspent the amount specified in the contract during 2004–05 by $2.7 million and required a retrospective variation to cover this amount. Customs advised that this overspend was a result of its failure to state the upper limit in the contract, and an oversight in monitoring expenditure. As part of this variation, Customs also increased the contract by $500 000 for the 2006–07 arrangements to integrate a number of small applications into the ICS. The Support and Maintenance contract is ongoing until 30 June 2007 and has a total value of $31.6 million.

4.20 The support and maintenance arrangements also contributed to the substantial additional costs. Customs realised that the original contract did not include the implementation services and ongoing development activities it required. In addition to this, the delays in the project necessitated four contract extensions and variations to the Support and Maintenance contract.

Conclusion

4.21 Customs established three contracts with the Consortium and made 28 variations to these contracts. All three contracts and 21 of the variations were valued at over $100 000 and therefore required supporting documentation. The ANAO found that there were 14 instances where Customs was unable to provide either a business case, method of procurement or approval details. These variations had a collective contracted value of over $4.5 million.

CCF services contracts

4.22 Contracts for products and services relating to the CCF were negotiated with IBM and SecureNet (now Cybertrust). IBM contracts related to: Professional Services; CCF Release 1.2; Customs Interactive; Shared Security Services; and Continuing Development services. SecureNet contracts related to: Perimeter Security Services and Public Key Infrastructure. Table 4.4 outlines the original value of the CCF contracts (before variation) compared to the payments made against each contract (including any variations) as at 30 June 2006.

Table 4.4

Comparison of original CCF contract values (before variations) to payments made against each contract (including variations)

CCF contract	Date original contract signed	No. of variations	Original value	Payment amount	Difference
Professional Services	1 May 2002	13	$2 998 564	$10 830 059	$7 831 495
Release 1.2	9 May 2003	Nil	$2 042 383	$2 042 383	$0
Shared Security Service	1 Oct 2002	Nil	$2 860 000	$2 860 000	$0
Continuing Development Services[1]	1 Aug 2003	7	$8 611 179	$18 081 788	$9 470 609
Perimeter Security Project	10 Oct 2002	Nil	$1 086 085	$1 107 753	$21 668
Original Public Key Infrastructure	Mar 2002	Nil	$0	$0	$0
Revised Public Key Infrastructure[2]	10 Oct 2002	11	$2 349 463	$9 690 472	$7 341 009
TOTAL		**31**	**$19 947 674**	**$44 612 455**	**$24 664 781**

Note 1: The Continuing Development Services contract is ongoing until 30 June 2007 with a remaining value of $4 928 550.

Note 2: The Public Key Infrastructure contract is ongoing until 30 June 2007 with a remaining value of $1 451 093

Source: ANAO analysis of Customs' documentation

Contract documentation

4.23 Customs advised that it was unable to provide complete documentation to support the CCF contracts including:

- a signed copy of the IBM Professional Services contract;
- approved contract variations under Change Orders No. 1 and No. 12; and
- a complete copy of the contract for CCF Release 1.2.

4.24 Some Change Orders were also incorrectly numbered and Customs suggested that these numbers may have been used inadvertently for an unrelated contract. In addition, Customs was only able to provide supporting documentation (such as a business case, method of procurement and approval authority) for the IBM Continuing Development Services contract and some variations to SecureNet Public Key Infrastructure contract.

CCF Professional Services contract

4.25 The Professional Services contract was dated 1 May 2002 and separated into two parts: Part 1 involved the development and deployment of the CCF; and Part 2 provided analysis and design services. Part 1 was fixed price and valued at $2.353 million, Part 2 was on a time and materials basis with an estimated budget of $645 640. As the CCF project evolved, 13 variations were made to Part 2 of this contract, primarily extending the duration of the contract to 30 September 2003 and taking the total value of the contract to $10.8 million. The CCF Release 1.2 was also initially being developed under this contract. Customs was unable to provide any supporting documentation relating to this contract and its variations.

CCF Release 1.2

4.26 The CCF Release 1.2 payment schedule assigned $1.02 million (50 per cent) of the value of the contract to be paid on contract signing, and the remaining 50 per cent to be paid on software acceptance sign-off (11 days later). Customs advised that work for the scoping, design and development of CCF Release 1.2 commenced under change orders to the CCF Professional Services contract (Part 2).[104] The design and development change order was then superseded by the CCF Release 1.2 contract. As work had already commenced under this change order, full payment was to be made 11 days after the contract was signed. Customs was unable to provide any documentation supporting the decision to use a new contract in lieu of the change orders to the existing Professional Services contract or approval of this expenditure.

CCF Continuing Development Services contract

4.27 Following the delivery of the CCF Release 1.2 into production in June 2003, Customs required services for future enhancements and additional functionality. This contract was signed on 1 August 2003 and was based on time and materials and estimated to be valued at $8.4 million. An additional $200 000 was allocated for optional resources. The contract was anticipated to be completed by 30 June 2004.

4.28 Customs provided a retrospective method of procurement and approval authority. Although the procurement was approved, Customs'

[104] Scoping was undertaken and completed under Change Order No. 5. The design and development for CCF Release 1.2 began under Change Order No. 8.

National Contracting and Procurement Unit noted that no documentation supporting the procurement had been provided to the business area. In addition, the contract was prepared and executed without the involvement of the National Contracting and Procurement Unit or the approval of the Financial Services Branch. There were a total of seven contract variations. The contract was extended by four years and is ongoing until 30 June 2007. Payments against this contract totalled $18.1 million as at 30 June 2006.

CCF Public Key Infrastructure

4.29 The CCF is required to meet government and industry security requirements. In March 2002, SecureNet was engaged to provide systems integration and consultation services in relation to Public Key Infrastructure. This contract was on a time and materials basis and did not include a capped value. Customs was unable to provide documentation to support the procurement process and approval of this contract. In October 2002, a revised contract was signed to subsume this contract.

Revised contract

4.30 The revised contract included a fixed price component of $1.576 million for system integration services and a time and materials component of $773 300 for consulting services. The statement of work attached to the contract acknowledged that some elements of the CCF design were still incomplete and it was possible that some of the assumptions would prove invalid. There were 11 variations to the revised contract and Customs was unable to provide supporting documentation for the revised contract and six of these variations.

Conclusion

4.31 There were a total of 31 variations across seven CCF contracts. Customs advised that, as at 30 June 2006, total contract payments to IBM and Cybertrust (formerly SecureNet) were $44.6 million and there are two contracts that remain ongoing, with a combined value of $6.4 million.[105] Customs was unable to provide supporting documentation or approval authority for the majority of CCF contracts and variations.

[105] These include the IBM Continuing Development Services (valued at $4.9 million) and the SecureNet Public Key Infrastructure (valued at $1.5 million) contracts.

Stress and Volume Testing contract

4.32 In early 2003 CPT Global was engaged to undertake a technical architecture review to confirm the scope of capacity planning, testing and tuning activities for CMR applications and to develop a detailed project plan. Customs, in response to this report, decided to accept a time and materials arrangement with CPT Global for the performance of stress and volume testing for a period of 12 months. This contract was varied three times and extended to 28 February 2005. At the completion of this contract, Customs negotiated a new contract for further stress and volume testing. The current contract has also had three amendments. The ANAO found that all contracts and variations had appropriate approval, although the original contract approval was retrospective. Table 4.5 compares the original value of these contracts (before variations) to the payments made against each contract (including any contract variations) as at 30 June 2006.

Table 4.5

Comparison of original Stress and Volume Testing contract values (before variation) to payments made against each contract (including variations)

Contract	Date original contract signed	No. of variations	Original value	Payment amount	Difference
Technical Assessment	18 Jun 2003	Nil	$48 500	$48 500	$0
Original Stress and Volume Testing	8 Oct 2003	3	$2 520 000	$3 987 222	$1 467 222
Current Stress and Volume Testing(1)	21 Apr 2005	3	$2 865 937	$4 379 458	$1 513 521
TOTAL		**6**	**$5 434 437**	**$8 415 180**	**$2 980 743**

Note 1: The current Stress and Volume Testing contract is ongoing to 30 June 2007 with a remaining value of $4 928 550.

Source: ANAO analysis of Customs documentation

4.33 Customs advised that, as at 30 June 2006, payments to CPT Global were valued at $8.4 million. Customs has paid over $5.8 million more than the initial estimate for stress and volume services.

Customs' review of procurement processes

4.34 Customs advised that it began reviewing its procurement processes in 2003. The review considered the National Contracting and Procurement Unit's business processes; CEIs; and systems and reporting functions. As a result of

this review, the Unit was restructured and changes were progressively implemented to improve procurement processes. Following the introduction of revised CPGs in 2005, Customs' Internal Audit evaluated its compliance with these new guidelines. The audit reviewed 25 contracts[106] and found that these had complied with the new Commonwealth requirements and Customs' revised business processes.

Conclusion

4.35 There were many contracts and numerous variations and extensions to the CMR project contracts. The contracts reviewed by the ANAO more than doubled (that is, from the original value of $59 million to payments totalling $136 million). There were 13 contracts and 65 variations to these contracts. Customs was unable to provide any documentation outlining the method of procurement or approval for the expenditure of public money in 39 instances (61 per cent).[107] These included six contracts and 33 contract variations, with a combined contracted value of $29.9 million. Customs could not demonstrate in these instances that it met its own CEIs, the CPGs and the financial management framework in establishing and varying these contracts.

4.36 The ANAO considers that Customs did not have adequate arrangements in place to monitor and manage the CMR project contracts, particularly during the early phase of the project. The audit has highlighted a lack of compliance with both the Commonwealth and Customs' own requirements. The ANAO recognises that Customs has taken steps to improve its procurement management processes. That said, the ANAO considers there would be value in Customs reviewing the contract management arrangements for major ongoing projects to ensure compliance with its CEIs, the CPGs and FMA Regulations.

Recommendation No.3

4.37 The ANAO recommends that Customs review its contract management arrangements for major ongoing projects to ensure compliance with:

- Chief Executive's Instructions;
- Commonwealth Procurement Guidelines; and
- Financial Management and Accountability Regulations.

---

[106] This sample only included one contract relating to the CMR project.

[107] One contract and 13 variations were valued at less than $100 000 and therefore did not require formal approval from the Chief Finance Officer, Deputy Chief Executive Officer or Chief Executive Officer.

Customs response

4.38 Agreed. Customs' initiated internal and external audit reviews of Customs' procurement management practices indicate a high level of compliance with procurement related obligations.

4.39 The Chief Executive's Instructions relating to contract management have been revised. Customs will continue to review its Chief Executive's Instructions relating to contract management to ensure the issues of concern raised in the ANAO review are addressed. Adherence to the Chief Executive's Instructions will be monitored across the organisation.

4.40 All major contracts entered into by Customs have contract and performance management arrangements established within the contract and personnel assigned to contract management roles.

5. CMR System Development

This chapter examines Customs' development and testing of the IT solution for the CMR project. It also considers IT supporting processes, such as change and release management, problem and incident management and discusses the ANAO's findings following data integrity and security controls testing.

Introduction

5.1 Application and system development for the CMR project included three major components:

- the analysis, design, development and implementation of the ICS;
- the analysis, design, development and implementation of the CCF; and
- re-development of a number of existing applications and interfaces.[108]

5.2 The ANAO reviewed the development of the CMR applications, including requirements management, change management, problem and incident management, testing processes and application security for the ICS and CCF. The ANAO also undertook data integrity testing.[109]

Integrated Cargo System

5.3 The ICS is a large and complex tiered mainframe and midrange application.[110] The application has over 30 interfaces to internal and external applications, including the Australian Taxation Office (ATO), Australian Bureau of Statistics (ABS) and Australian Quarantine and Inspection Service (AQIS). It was designed to integrate cargo management functions and support new business processes. The ICS has the following six main areas of functionality:

- centralised management of clients;
- profiles and alerts;

---

[108] These included the: Tariff and Precedents Information Network (TAPIN); Tariff Concession System (TARCON); and Customs' financial management system (QSP). These were significantly re-developed during the period 2001 to 2005. However, the CMR project scope did not include changes to the functionality of such applications, except to develop interfaces to/from the applications and the ICS.

[109] The Australian and New Zealand Standard AS/NZS 7799.2.2003, Information Management defines data integrity as 'safeguarding the accuracy and completeness of information and processing methods'.

[110] A multi-tiered application creates a flexible and re-usable application. Using tiers, developers only have to modify or add to a specific layer rather than rewriting the code for the whole application.

- processing of import transactions;
- processing of export transactions;
- monitoring of transhipments and temporary cargo imports; and
- reporting.

Customs Connect Facility

5.4 A key component in the implementation of the ICS was the technical infrastructure provided by the CCF. The CCF was designed to provide a secure communications gateway and includes:

- an electronic data interchange (EDI) delivery channel that receives most of Customs' ICS data in the form of messages or reports;
- the Customs Interactive (CI), which allows external and internal clients to interact online with the ICS; and
- a Shared Security Service facility, which can be called by the ICS to authorise access to the ICS for both internal and external users.[111]

5.5 Clients can now access Customs via the Internet, replacing the need for expensive EDI gateways and dedicated data communication lines. This allows clients greater flexibility in choosing their communication solutions to access Customs' systems.

CMR requirements

5.6 The business requirements for any proposed new or modified system should be clearly defined before the project is approved. The process of analysing, developing and managing the implementation of user requirements is important if the system is to be well received by users. Studies have confirmed that requirements that are 'inaccurate, incomplete and mismanaged [are] the number one reason for software project failure'.[112]

Development of requirements

5.7 The ICS and CCF requirements were based on the CMR Business Model. EDS and Customs developed the ICS and CCF business requirements

---

[111] Australian Customs Service, *Enterprise IT Architecture: IT Policy*, Version 2.8, November 2005, p. 61.

[112] Borland, *Borland Addresses the Leading Cause of Software Project Failure with New Requirements Definition and Management Solution* [Internet]. Borland, USA, 17 April 2006, available from <http://www.borland.com/us/company/news/press_releases/2006/04_17_06_borland_addresses_the_leading_cause.html> [accessed 19 October 2006].

in 2000. However, the actual development of the applications did not commence until Customs engaged the Consortium and formalised contractual arrangements with SecureNet and IBM in early 2002.

5.8 The development of the ICS application was based on a number of high level user and technical requirements. There were 14 high level requirements as well as documented system performance requirements. In addition Customs developed requirements to consolidate two separate Customs systems, the Client Registration System and the Coded Owner Supplier System.

5.9 Other functionality required included the development of a Corporate Research Environment, which would enable Customs' users to run queries across data provided from the ICS and other cargo and trade systems, such as EXAMS.[113] The Consortium was not required to develop this capability and, although some functionality was developed prior to October 2005, it is not yet complete.

5.10 In developing the requirements, Customs ran a number of workshops with industry to communicate the impact of process and system changes. However, it is not clear to what extent Customs relied on these sessions to evaluate, prioritise or reassess that the proposed system would meet industry's needs. The requirements do not include specific requirements for 'external' parties such as industry. The focus was on Customs' business requirements.

5.11 With respect to the CCF component Customs updated the user requirements a number of times during 2000 and 2001. These stated that the CCF was to be a secure electronic 'entry point' providing flexible access to the future Customs cargo management environment. The CCF was to provide a central point of access to the ICS for internal users, external clients and Government agencies and to provide payment facilities.

Customs' management of requirements

5.12 Customs negotiated its contract with the Consortium based on the user requirements developed by Customs and EDS. These requirements were not reviewed prior to calling for tenders in late 2001. In late 2002, the Consortium advised Customs that an extension to the Imports Release was necessary because user requirements were incomplete and did not represent the size and

[113] The Examination Data Management (EXAMS) system is Customs' application for recording the inspection and risk management of cargo.

complexity of some components of the work. Customs acknowledged that the requirements lacked sufficient detail to fully scope the imports functionality.

5.13 The initial development and costing of the user requirements by EDS was based on a 'function point analysis'.[114] In November 2000, EDS provided Customs with the details of the function point count for specific ICS components. There were approximately 14 000 function points[115], of which 30 per cent related to Import Cargo Reports and Import Declarations. In November 2005, the function point count was assumed to be 24 000 when evaluating the level of software coding effort. However, Customs was unable to provide an analysis or breakdown of the function points, the impact of the changes associated with the Imports Release or whether this revision included the CCF.

5.14 The ANAO found that Customs did not use a consistent approach throughout the project for managing and monitoring the delivery of user requirements. The ANAO is aware that Customs used matrices early in the project to track change requests against high level requirements. However, such matrices did not record the business acceptance of functionality and were not consistently used throughout the project.

5.15 The ANAO found that most of the capability specified in the requirements documentation was implemented by October 2005. However, the ICS continues to undergo significant system enhancement and modification. Customs informed the ANAO that there are scheduled system releases for at least 24 months post-October 2005. These are to address:

- problems experienced during the Imports Release implementation and the practical application of some user requirements, particularly in the sea cargo environment;
- changes to requirements; and
- functionality that was not delivered at the time of the Imports implementation.

---

[114] Function point analysis in a method for assessing the size and potential cost of software development.

[115] The EDS function point analysis stated that there were over 10 500 function points based on the user requirements for the ICS. In addition, there were approximately 3 500 additional function points that related to risk profile and system and data maintenance functions. The function point count did not include CCF development.

CMR application change management

5.16 Change management is the process of implementing changes that occur during the life of a system or application. A change request was required for any proposed change to the scope, cost, schedule, or any project product of the ICS and CCF. The ICS and CCF Change Control Boards approved minor changes.[116] Major changes required a Change Request Impact Evaluation Form and were approved by the ICS or CCF Steering Committees.[117]

ICS change management

5.17 The change management process used during the development of the ICS was intended to manage contract scope changes, as well as changes to requirements and analysis and design documentation. Change requests were recorded on the ICS Change Request Register until August 2004.[118] There were a total of 1 018 change requests submitted, which resulted in 1 237 changes across the different versions. There were instances where one change would apply to multiple versions or releases, demonstrating the complexity of managing changes whilst simultaneously developing and managing multiple application releases.

5.18 The ANAO reviewed a small random sample of ICS change requests and found that in all cases the change management process was complied with. In addition, all major change requests were reviewed. There were four instances where a Change Request Impact Evaluation Form was not provided by Customs.

5.19 The ICS was evolving rapidly and when user requirements were no longer relevant, or could not be delivered, a change request was submitted. This had a ripple effect as requested changes could impact other areas of the CMR development program, which often resulted in the need for further change requests. As previously noted, Customs varied the ICS Application Development contract to specifically address the development and implementation of outstanding change requests. Under this arrangement there were 455 change requests implemented as a specific version of the ICS (known

[116] A minor change is defined as a change where the total work effort (including scope, design, build, test, document and manage) is 10 person working days or less.

[117] A major change is where the total work effort requires more than 10 person working days.

[118] From 1 August 2004 change requests were recorded in Customs' change management tool, the Unicentre Service Desk.

as Version 5). The management of application changes for later versions[119] was undertaken as a part of Customs' normal operational change management process.[120]

5.20 Customs decided to use a fixed price contract with the Consortium to reduce the risk of cost overrun. The ANAO understands the basis for this decision as fixed price contracts tend to be more suitable where requirements are well defined and risks can be more readily assessed by providers. However, Customs overestimated its business areas' understanding of the requirements upon which the design and development of the system were based. This resulted in Customs paying significantly more for changes to the user requirements to enable it to meet its implementation deadline.

CCF change management

5.21 Change requests for the CCF were managed under the same process as the ICS. There was a total of 210 external and 141 internal CCF change requests.[121] The ANAO assessed a small random sample of CCF change requests and found that Customs complied with the change management process for the two requests where all supporting documentation was available. For the remaining three requests reviewed, it was difficult to determine whether the changes were approved as Customs could not provide the minutes of the relevant Change Control Board meetings.

Conclusion

5.22 The ANAO considers that the user requirements developed for the CMR applications were not well defined and that Customs did not demonstrate a structured approach to managing the user requirements. This resulted in a high number of changes to user requirements and proposed system functionality being requested during the period of development, at considerable additional cost for Customs. In addition, at the time of the Imports Release there were a number of functional requirements that were either not delivered or not functioning in accordance with external user and Customs' business expectations. The ICS application continues to undergo significant system enhancement and modification.

---

[119] Later versions were Versions 6 and 7. Version 6 was implemented into production on 6 November 2005 and included the first major release of ICS code after Imports go live. Version 7 included 10 major releases and, as at August 2006, was in production.

[120] Customs' normal operational change management is discussed in paragraphs 5.70 to 5.72.

[121] External changes related to functional and architectural level requirements. Internal changes dealt with the technology to deliver the business requirements.

CMR application testing

5.23 Application testing is a way of verifying that an application has been developed in accordance with the needs of users and the business, and that it meets with design specifications. Test results are also an indicator of project performance. The number of products or releases that are rejected from product testing or user acceptance testing (UAT) provides valuable information on the position of the IT project to meet user and business requirements and to help avoid cost or time overruns. The ANAO reviewed the testing strategies adopted for the ICS and CCF and their results.

ICS product testing

5.24 The test cases used for product testing were based on the ICS technical specifications that were developed during the design phase of the project. The Consortium was required under the contract to deliver product test plans, test scripts and test reports. For the development to proceed past product testing, each release had to meet the following four 'exit criteria' agreed to by Customs and the Consortium:

- three 10-day test cycles be completed;
- all test cases with high or medium criticality[122] be executed at least once;
- incident resolution service levels were achieved; and
- the ICS Test Manager delivered the accepted test report to the Consortium.

5.25 Table 5.1 outlines a summary of the product test results for ICS Release 1a to Version 4.

[122] Test cases were assigned a criticality of high, medium or low in relation to the business function that was being tested. For example, a test case considered to have a high criticality meant that the function being tested supported a critical or key business function and there would be severe impact to the business operations if the function did not perform as expected.

Table 5.1

Summary of product test results (Release 1a to Version 4)

Release/ Version	Test period	Total test cases	Pass	Fail	Not run	No. of incidents reported	No. of incidents unresolved at end of test cycle
Release 1a	Sept - Oct 2002	745	468	277	0	878	84
Release 2	Mar - Apr 2003	1 115	642	358	115	1 000	86
Version 3	Jul - Aug 2003	2 177	1 497	574	106	1 332	100
Version 4	Jan - Feb 2004	2 959	1 813	671	475	2 023	170

Source: ANAO analysis of Customs' documentation

5.26 Although some problems were encountered, the ANAO considers that Customs' management and reporting of product testing during the development of the ICS was adequate. The product testing phases for the releases had appropriate management controls surrounding testing. However, there was a high number of incidents that could not be resolved and these were added to the next product release. There was also a high number of change requests issued to address and refine the design or requirements documentation for the ICS. This indicates that Customs and the Consortium continued to refine their understanding of the ICS functional requirements.

5.27 Customs adopted a different approach to product testing for Versions 5 to 7. This approach was not time critical and allowed multiple sub-releases to be produced and tested. This improved the quality of the code being delivered into the industry test and production environments.

ICS user acceptance testing

5.28 UAT is the process whereby the business area verifies that an IT system meets its requirements to a level sufficient to implement the system. The contract with the Consortium did not require code delivered into UAT to meet pre-defined system performance or response times. Therefore response time was not a consideration when determining if the product was acceptable to meet contract requirements. The contract required that a milestone payment would be triggered to the Consortium upon successful UAT.

5.29 Customs relied on a traceability matrix that tracked deliverables against contract requirements. A progress payment was made on the delivery of software for UAT. Customs also purchased a commercial product to record

requirements against code test cases and to provide assurance to Customs that the code had been delivered and tested by the Consortium prior to payment. Customs did not use a traceability matrix for UAT, but relied upon its business knowledge to ensure that all requirements were tested. This meant that Customs was not always able to verify that delivered products had been assessed against user and business expectations.

5.30 The Consortium's fixed price contract allowed 20 days UAT for each release. This tight timeframe was adopted to meet the then legislated implementation date (13 months from the start of the contract). The ANAO reviewed UAT Summary Reports for Release 1a to Version 4. Test results showed that the modules and code being delivered into the UAT environment were, on the whole, of a poor quality. This reduced the effectiveness of the approach to UAT and impacted on the overall quality and schedule of the ICS implementation.

5.31 Customs conditionally accepted a number of software releases. Release 2 (Exports) was conditionally accepted with 56 outstanding defects, including 17 Severity 1 defects.[123] Version 3, which included preliminary Imports functionality, was also conditionally accepted with nine Severity 1 defects. Customs did not consider that this Version was complete because the Consortium had not delivered import reporting requirements.

5.32 In contrast, Versions 5, 6 and 7 had a number of sub-releases. That is, system enhancements or modifications were incrementally developed, tested and then migrated into the production environment. This allowed a greater flexibility in planning for test periods and enabled the development of subsequent sub-releases to occur at the same time that testing was being undertaken. The quality of UAT for Versions 5 to 7 improved remarkably, with fewer tests failing.

CCF testing

5.33 Customs documented its approach to testing the CCF in a Master Test Plan. This plan included the testing objectives, deliverables, acceptance criteria and the scope and strategies that were to be undertaken. The approach proposed for testing of the CCF was not consistent with the types of testing undertaken at different stages. For example, the Release 1.2 Test Plan stated that testing would be undertaken at a number of different levels, including

[123] During development, defects were prioritised as either a Severity 1 (significant impact and was to be remedied before acceptance) or Severity 2 or 3 (moderate to low impact).

unit test, system test, product test[124] and UAT. However, product testing was not undertaken and decisions involving changes to test plans for the various releases were not documented.

5.34 The ANAO acknowledges that testing strategies and plans are 'living' documents, and proposed approaches to testing are likely to change as the project progresses. However, changes to such strategies should be approved and updated. This maintains the effectiveness of the testing cycles and provides visibility over changes to system design, requirements and implementation timeframes.

System testing

5.35 The ANAO reviewed Customs' approach to system testing for the CCF implementation. The analysis showed that, overall, the testing of key CCF functionality was satisfactory.[125] The ANAO found that Releases 1 and 1.4 of the CCF had a large number of defects that were not closed at the conclusion of testing. Later Releases reported fewer failures and results indicated that, overall, system testing was performed satisfactorily.

User acceptance testing

5.36 CCF UAT was intended to include both functional and technical testing. UAT was only undertaken for Releases 1, 1.2 and 1.3.1 and reports indicated that technical testing was not carried out as originally planned.[126] Technical testing had to provide assurance that the CCF environment would be supportable in a 'production-like state'. Release 1 was accepted on the condition that technical testing was performed to confirm the stability of the environment. However, this was not undertaken prior to UAT for Release 1.2.

5.37 In lieu of running specific tests against agreed test outcomes and exit criteria, Customs engaged a number of external consultants to undertake independent reviews. For example, Ernst and Young undertook security certification and controls testing; and CPT Global undertook performance and stress and volume testing.

5.38 The reviews identified a number of issues and security weaknesses in the CCF environment. The ANAO considers that Customs has adequately

---

[124] Product testing was the term used for system integration testing for the purposes of the CCF implementation.

[125] Testing included Shared Security Service, EDI, Message Transformation and environmental changes.

[126] Technical testing was to include: backup and recovery; contingency; installation; operational; performance; security; penetration; and stress and volume testing.

addressed these security control risks. In addition, the ANAO evaluated access controls and concluded that the Public Key Infrastructure (PKI)[127] was operating effectively at the time of the audit.[128]

Customs Interactive testing—scalability testing

5.39 Until July 2005, testing focused on performance and scalability surrounding CI functionality, including:

- external and internal login processing;
- Self-Registration and PKI Certificate Maintenance;
- management of messaging transactions; and
- the ICS web application.

5.40 The results of this testing provided Customs with information on areas of system performance that needed tuning in order to meet projected system performance requirements and service levels. Customs concluded that although some tuning exercises were identified, on the whole, the performance of the CCF environment to support the ICS implementation was adequate. In addition, testing showed that, in some cases, the CCF infrastructure would be capable of supporting transaction volumes greater than the predicted requirement. [129]

5.41 Although the CCF testing was not always completed as planned, Customs adequately addressed security and control risks in the CCF environment by using external parties to undertake a number of reviews. The extensive performance testing undertaken meant that Customs was able to respond quickly to the issues that arose during the implementation of ICS Imports (for example, the high number of concurrent CI users).

System integration

5.42 The CCF and ICS systems were developed and tested separately under the arrangements put in place when the Consortium was engaged in early 2002. Customs developed an integrated UAT environment in late 2002 and an integrated production test environment in March 2003. These allowed

---

[127] PKI is an arrangement that provides for trusted third-party vetting, usually a Certificate Authority (CA) of user identities.

[128] This review was undertaken as a part of the testing the client registration controls in May 2006.

[129] Australian Customs Service, *CI Scalability Test Plan*, Version 0.8, Customs, Canberra, 25 July 2005, p. 5.

integrated testing of the ICS and CCF functionality. The ANAO's analysis of the integration testing results showed that there were significant quality problems with the ICS software code delivered for integration testing. This impacted on the quality of the code that was being delivered into the industry test environment and reduced the effectiveness of integration testing by external software developers.

Conclusion

5.43 The CMR project did not have a defined testing methodology and testing was not always executed in accordance with test plans. In addition, the majority of ICS releases experienced a high number of defects and change requests at the conclusion of acceptance testing. In general, insufficient time was allowed for testing of earlier releases of the CCF and ICS. The ANAO considers that the quality of testing and management of the testing process improved significantly for Versions 5 to 7 of the ICS, and that it was apparent that Customs had built on 'lessons learnt' from previous releases.

5.44 The ANAO considers that Customs could improve its testing process by adopting a standardised approach to the testing and implementation of application projects and system modifications. The testing methodology should include a clear and structured approach for determining whether business requirements are satisfied.

Recommendation No.4

5.45 The ANAO recommends that Customs develop, as a part of its software development lifecycle, a standardised approach to the testing and implementation of application projects and system modifications. This approach should require that:

- standards are established prior to the approval of the test project plan; and
- testing be undertaken in accordance with the project test plan.

Customs response

5.46 Agreed. As acknowledged in the report, significant improvements in the application testing approach have been made. Customs has developed and documented a standardised approach to the testing, quality management and implementation of application projects and system modifications. Through this approach, testing is required to comply with Full Life Cycle Testing principles,

standards, procedures and methods, and to be managed, monitored and improved to provide optimal service. Testing is undertaken across the full product lifecycle to ensure early detection of problems, errors and risks. Formal management, monitoring, measurement, evaluation and reporting of testing activities are also included.

5.47 The standardised approach is being progressively implemented across Customs with application development for the Integrated Cargo System the first to have adopted the approach.

Stress and volume testing

5.48 Stress and volume testing involves an increasingly severe progression of tests that incorporate different combinations of system events. The objective is to ensure that the system can cope with large volumes of data and to assess the system's performance when its resources are overloaded. Stress and volume testing was to show how the ICS handled the expected number of concurrent users and to ensure that the system performed to specification for response times, network traffic, server loads and simultaneous transactions.

5.49 From April 2004, Customs' stress and volume team produced '*Monthly CMR Capacity Review*' reports. These reflected the outcome of testing and reported on: mainframe performance; projected capacity requirements or issues; CPU utilisation; and capacity projections. The reviews were also produced post Exports and Imports implementation to provide information to management on the performance of the system in production. The capacity projections detailed in these reports included analysis of: actual system usage and system performance; system changes to the IT environment; and monitoring of profile testing and estimates.

Exports testing

5.50 Stress and volume testing for the ICS Exports Release commenced in December 2003, and the exports module was implemented in October 2004. The ANAO reviewed Customs' approach to Exports stress and volume testing and the results contained in the monthly capacity reports. In the ANAO's view, stress and volume testing for this release was satisfactory. As a result, the ICS Exports Release was relatively stable when it was implemented in October 2004.

Imports testing

5.51 In December 2004 and February 2005, Customs analysed the transaction volumes and profiles of the legacy cargo systems. It also carried out extensive consultation with internal and external subject matter experts, a survey of clients and an analysis of production export data. This analysis formed the basis for the stress and volume testing that was performed in 2005 and estimated the likely performance targets for production implementation.

5.52 Customs recognised in December 2004 that it needed to change its approach to Imports testing to consider the CI environment. Also, due to the complexity of messaging and functionality, it would be difficult to estimate performance targets.[130] As a result, the test program required ongoing capacity reviews. These reported on the results of monthly testing and showed how Customs was adjusting the environment to accommodate performance requirements as they became evident.

Capacity of the mainframe

5.53 Through stress and volume testing Customs identified in December 2004 that it needed to upgrade the capacity of the IBM mainframe. This was undertaken in January 2005. By April 2005, Customs had recognised that a further increase would be needed. In early July, the mainframe was upgraded and Customs and EDS agreed that, if necessary, the mainframe could be increased at short notice. Two days after the implementation of ICS Imports, Customs again increased its mainframe capacity.

Conclusion

5.54 Stress and volume testing for the Imports implementation faced difficulties in estimating performance and capacity requirements due to the complexity of the system. Customs planned and undertook prolonged and extensive testing of the capability of the ICS and CCF applications to meet projected workloads in 'normal operations'. This provided Customs with the ability to quickly and efficiently upgrade the mainframe capacity and to tune the applications to ensure that the mainframe and CCF environments met business requirements during the Imports implementation. Customs has advised that it continues to monitor and tune production performance for Imports and Exports functionality so that it can meet business service levels.

---

[130] Australian Customs Service, *Cargo Management Reengineering October 2005 Customs Interactive Situation Report (Draft)*, Customs, Canberra, 13 June 2006, pp. 14-15.

Business simulation testing

5.55 Customs undertook business simulation testing for both the ICS Exports and Imports Releases. This was to:

- test end-to-end functionality involving participants from different industry sectors; and
- determine the status of industry preparedness before implementation.

5.56 Customs established a separate application environment, known as the industry test environment. Its purpose was to provide a facility for external software developers to undertake integration testing in readiness for implementation. The test environment did not always replicate the production environment. As a result industry was unable to undertake adequate testing.

5.57 The Exports testing environment allowed industry approximately 13 months to test software applications before going live (August 2003 to September 2004). The implementation of the Exports Release was relatively successful. However, it is important to note that the exports component is considerably less complex than the Imports Release and has fewer industry participants.

5.58 Business simulation testing for the Imports implementation commenced in May 2005 and industry participants were consulted on suitable scenarios for testing.[131] The initial simulation testing undertaken by Customs was between July and September 2005. By August 2005, Customs had completed testing of high volume simulations for submitting air cargo reports. However, Customs reported that testing of complex air and sea scenarios could not be completed because the end-to-end supply chain was not available to test. Industry participants such as Container Terminal Operators, depot operators and software providers were needed to host these simulations.

5.59 There was insufficient time for industry (and Customs) to successfully complete the planned business simulation testing prior to implementation. The outcome of the simulations indicated that Customs' clients needed to better understand the data standards required for the voyage and ocean bill of lading numbers if the transactions were to be matched in the ICS. Results also showed that some industry participants and external software developers could not integrate with the ICS.

[131] Scenarios covered both air and sea cargo and import declaration reporting.

5.60 Industry testing was contingent on a stable test environment. Although a production version was available from December 2004, Customs continued to make changes to improve the quality of the system until one week prior to the system going live. By contrast, the Exports implementation allowed a longer coordinated period to test a considerably less complex implementation.

Management of IT problems and incidents for ICS Imports

5.61 Problem and incident management is an essential IT process for identifying, documenting and responding to adverse information system events.[132] An effective problem and incident management process records the issues that affect system performance or usability, and provides information on the resolution and timeframe required to resolve these problems.

5.62 Customs' problem management database is the Unicentre Service Desk (USD). The USD facilitates the recording, assigning and escalation of problems with Customs IT systems. It also records incidents and changes, giving Customs the ability to track user problems and change requests.

Status of incidents prior to implementation

5.63 At a Ministerial Roundtable meeting on 5 July 2005[133], the software developers and other industry representatives detailed three 'showstoppers'[134] which could potentially prevent the movement of cargo and therefore impact on the implementation of ICS Imports: cargo repositioning; air part-shipments; and transhipments. It was agreed at this meeting that implementation on 12 October 2005 was dependent on the resolution of these issues and this became the focus of the development activity and subsequent software developer meetings.

5.64 In the period prior to the imports implementation, Customs reported monthly to management details of incidents and the resolution of incidents. In September 2005, while Customs was working to resolve issues in a weekly period, UAT was identifying as many issues as could be resolved using system

---

[132] Problem and incident management is technically defined by industry standards. A 'problem' is an unknown cause of one or more incidents. An 'incident' is an operational event that is not part of the standard operation of an IT service.

[133] Because of the problems being experienced with the CMR project the Minister for Justice and Customs had convened a number of roundtable discussions so that he could listen to industry's concerns. The first meeting was held in January 2004.

[134] Showstoppers are defined to be those incidents that, if not fixed, would preclude the movement of cargo.

changes/fixes.[135] Customs' management was informed at the end of September that there were:

- 154 open high priority incidents. Of the open incidents, 104 were in various stages of testing with 36 scheduled to be released to industry test and production by 5 October 2005; and
- 78 high priority incidents still in development and system testing. These incidents would not have fixes deployed by 5 October 2005. Customs stated that none of these were assessed as 'showstoppers'.

On 10 October 2005, Cargo Systems Support also reported that there were major risks with the implementation of the transhipment functionality.

Problems and incidents during implementation of ICS Imports

5.65 The ANAO identified a number of issues with Customs' management of problems and incidents during the implementation period. These included:

- there were no written procedures for recording and classifying an application 'problem'. This resulted in duplicate and inconsistent recording of problems and incidents;
- incidents were prioritised inconsistently;
- the recording of data changes was not generally linked to an incident or problem;
- there were several sources for recording and analysing problems and incidents, external to the USD system, for example in spreadsheets; and
- Customs did not consistently use the problem management capability of USD to group similar incidents with a problem or to ensure that causes of incidents were reviewed and resolved in the system.

Problems and incidents post-implementation of ICS Imports

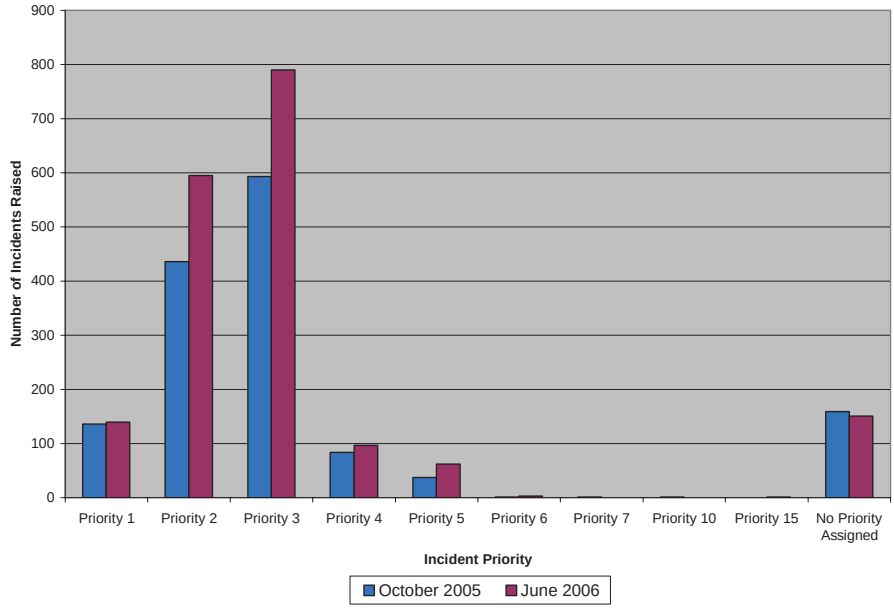
5.66 Customs rates incidents on a priority scale between 1 and 15. It advised the ANAO that a Priority 1 or 2 rating is not indicative of the severity of the issue; rather it indicates the allocation of tasks in the order in which they are to be addressed. A Priority 1 rating is assigned by the business areas and means that an immediate response is required in order to sustain core business operations. Figure 5.1 illustrates the number of incidents raised as at

[135] Australian Customs Service, *CMR Management Board Report*, Report No. 13, Customs, Canberra, October 2005.

October 2005 compared to the number as at June 2006. Priority 1 incidents marginally increased and Priority 2 and 3 incidents significantly increased.

Figure 5.1

Comparison of incidents raised at October 2005 and June 2006



Source: ANAO analysis of Customs' documentation

5.67 Customs informed the ANAO that USD was its authoritative source for the recording of ICS problems, incidents and system changes. The ANAO undertook an analysis of the data in USD to ascertain the number and severity of system problems that occurred post October 2005.[136] However, the ANAO was unable to accurately determine the number of problems and incidents recorded in USD, because of the issues identified in paragraph 5.65.

5.68 In summary, the ANAO found that:

- Customs was relying upon manual workarounds to monitor and correct production data; and
- the average time for resolution of problems in the period October 2005 to March 2006 was 45 days.

[136] This analysis was undertaken by the ANAO's Assurance Audit Service Group as a part of the review of Customs' general IT control environment during the annual financial statement audit (2005–06). Issues were reported separately to management in the Financial Statement Interim Management letter, and were reported in the ANAO Report No.48 2005–06, *Interim Phase of the Audit of Financial Statements of General Government Sector Entities for the Year Ending 30 June 2006*.

Conclusion

5.69 The ANAO concluded that Customs' processes for problem and incident management were not sufficient to support the ICS implementation. This adversely impacted on Customs' ability to support users by efficiently identifying, prioritising and communicating system issues. The ANAO raised these issues as a part of the 2005–06 financial statement audit, and Customs undertook an analysis of the data in USD to address a number of ANAO concerns. The quality of procedures for recording problems and incidents in USD has been significantly improved.

Application change and release management

Change management

5.70 The ANAO assessed the effectiveness of Customs' change and release management frameworks. That is, whether change management procedures ensure that changes to application systems are: specified and prioritised in accordance with business needs; implemented efficiently; and do not prejudice the integrity and maintainability of systems. Change requests go through a formal approval process and must be recorded and tracked in USD. Prioritisation is assessed throughout this process, based on business need.

5.71 The ANAO found that the USD was not the only tool used to record change requests. Details of changes were also recorded separately by development teams, generally on spreadsheets. The ANAO reviewed a sample of change requests to assess whether they had been processed in accordance with the change management framework. Customs had difficulty in providing the relevant documentation to support these changes. The ANAO recommended (as a part of the annual financial statement audit) that Customs review its change management procedures. These are to include a clear audit trail for all change requests, from the initiation to the closure of a change.

5.72 Customs advised the ANAO that it has initiated a project to improve the quality management processes that support application/system development and change management. The project is not specific to the ICS and Customs intends it to include a number of corporate and business applications.

Release management

5.73 The ANAO concluded that Customs' release management procedures ensure that business requirements are effectively implemented and the integrity of production data and programs is preserved. However, releases were deployed on a weekly basis until the end of April 2006, which is higher than normal for an 'in-production' system. This placed additional pressure on Customs to meet its system availability requirements. Customs has scaled back releases to monthly intervals.

External interfaces

5.74 The ICS application exchanges data with a range of external Government entities. These entities include: AQIS; ATO; ABS; Department of Defence; and Department of Industry, Tourism and Resources. The ANAO found that existing Memoranda of Understanding do not reflect the implementation of the ICS. Further, the current arrangements do not specify each party's responsibilities with regards to: system changes; data management; and user training. Consequently, they do not provide adequate accountability arrangements.

Recommendation No.5

5.75 The ANAO recommends that Customs updates its existing Memoranda of Understanding to reflect the implementation of the Integrated Cargo System. This should clearly establish: inter-agency consultative arrangements; security of information; message integrity requirements; and other administrative arrangements.

Customs response

5.76 Agreed. Customs is updating Memoranda of Understanding (MOU) with the Australian Taxation Office and the Department of Industry, Tourism and Resources to reflect the implementation of the Integrated Cargo System. Work to update MOU with AQIS, Defence and ABS will commence in February 2007. Guidelines for the development of future MOU will ensure Integrated Cargo System related issues are addressed where appropriate.

Data integrity

5.77 The ANAO found that a number of system issues post-ICS Imports implementation affected the payment and receipt of revenue. Customs' approach to remedying some of these issues was to implement data changes

into the production environment ('data fixes'). As a result, there were a large number of data fixes to the production environment in the period October 2005 to March 2006.

5.78 Customs and the ANAO undertook data integrity testing that focused on client registration information to determine the extent to which transactions and information exchanges could be relied upon. The ANAO identified the following issues:

- the way in which some mandatory fields are used in the database is different from how the application uses the same fields[137];
- a significant number of test accounts were active in the production environment and financial transactions were processed against some of these accounts. For example, one account had over 150 transactions processed. Customs indicated to the ANAO that such accounts were necessary to undertake system 'healthchecks'. The use of test accounts for production testing presents a significant risk to the validity, completeness and accuracy of financial transactions that are processed. If such processes must be used for operational reasons, then adequate controls should be developed to monitor and reverse such transactions so as to avoid erroneous and invalid transactions in production; and
- instances of unreasonable end dates, duplicate bank account numbers, and accounts with unreasonable daily limits for client registration records.

5.79 In addition, the ANAO's ability to test the integrity of the data was severely limited by the lack of available documentation. The ANAO considers that to ensure transactions and information exchanges are conducted appropriately, and to maintain the completeness, accuracy and validity of data stored in the ICS, business and system rules need to clearly specify the requirements for data management.

ICS security controls

5.80 The ANAO reviewed the management of access to information and data in the ICS application. The review included testing to ensure that access was appropriately restricted against unauthorised use, modification, disclosure

[137] For example, while the database may not allow 'null' values in a specific column, the application may not consider the same field to be 'mandatory', or to require a value.

or loss, and that security profiles were appropriately segregated to prevent inappropriate processing of transactions.

5.81 The ICS system has several layers of security controls and has roles that are specific to internal and external users. The ANAO found that at the time of the audit there were approximately 26 external role types and 56 internal roles. These roles were designed to restrict the user's ability to update information with some roles only allowing the user to view or read information. The ANAO identified a number of weaknesses in Customs' management of user access to the application. Specifically, the ineffective segregation of security profiles, increasing the risk of inappropriate access to information or data, including:

- an excessive number of users with 'administrator' roles;
- an excessive number of EDS staff with access to data reference files that enabled EDS staff to update data, potentially bypassing change management processes; and
- a high number of users with access to incompatible functions.

5.82 The ANAO identified these issues as a part of interim testing for the annual financial statement audit.[138] Customs is working to address these issues.

Conclusion

5.83 Customs' development of the CMR applications was a significant undertaking to integrate the IT systems that Customs uses to manage and facilitate cargo reporting and the collection of revenue. The CMR functionality was based on requirements developed by EDS and Customs between 1999 and 2000. Customs' lack of understanding of the complexity of the imports component was reflected in the requirements and, as a consequence, the Consortium's contract was revised to include further application development. The significant number of changes to user requirements also came at considerable additional cost to Customs. There are a number of ICS user requirements that are yet to be implemented and others that are being extensively modified. Some of the changes are directly related to the problems

[138] A 'Category A' finding was reported to Customs' management. A 'Category A' finding represents matters that pose significant business or financial risk to the client and must be addressed as a matter of urgency. This assessment takes into account the likelihood and consequences of the risk eventuating. ANAO Report No.48 2005–06, *Interim Phase of the Audit of Financial Statements of General Government Sector Entities for the Year Ending 30 June 2006*.

that arose when ICS Imports was implemented and demonstrated that the user requirements did not address the practical reality of industry processes.

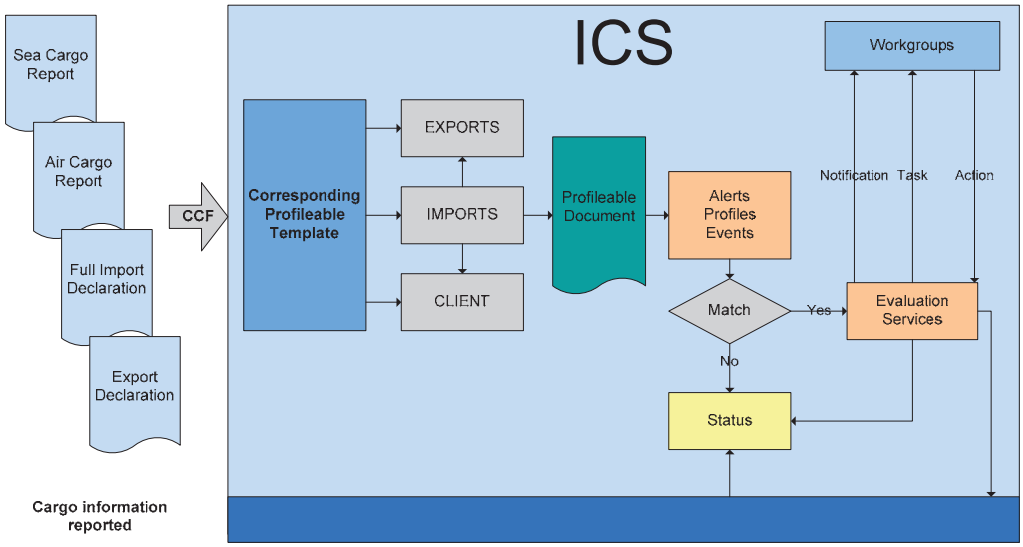
5.84 Although the testing strategies adopted by Customs were relatively sound, Customs did not employ a formally defined testing methodology that covered both the ICS and CCF. Testing was not well coordinated and was made more difficult because the ICS and CCF were being developed separately.

5.85 In comparison to exports, the imports component was more complex in both design and system performance. In the ANAO's view, Customs did not allow sufficient time for testing, reviewing test results or communicating the impact of these results to industry. Results highlighted high failure rates that required Customs' conditional acceptance of a number of Releases. A significant number of issues (including high priority incidents) were being identified in each round of UAT. This meant a higher than expected number of system modifications had to be progressed prior to implementation. Incidents were being raised faster than the developers could resolve them. Consequently, a considerable number of manual workarounds were put in place for the Imports implementation. This seriously affected the system's users and Customs' operational staff. The extent to which the system functionality met requirements became secondary to meeting the legislative deadline for implementation.

5.86 Customs (and industry) did not successfully complete end-to-end testing prior to implementation. This was primarily because the time available was insufficient. However, the way in which stakeholders were involved in business simulation testing also played a part.

Figure 6.1

Cargo Risk Assessment process



Source: Australian Customs Service

6. Risk Assessing Cargo

This chapter examines the development and implementation of the Cargo Risk Assessment system. The ongoing arrangements to improve system performance and functionality are also discussed.

Introduction

6.1 Customs risk assesses cargo to prevent illegal and harmful goods from entering Australia. To do this, all cargo information reported in the ICS is processed through the Cargo Risk Assessment (CRA) system.[139] The CRA system has two components: risk profiling and work management.[140] The risk profiling component is designed to identify potentially high-risk cargo and contains alerts, profiles, events and community protection and permit queries.[141] When cargo information matches a profile or alert, the cargo is automatically held and the cargo report or declaration is referred to a workgroup for further action. Evaluators within the workgroup decide whether the cargo is released or held for further examination. Figure 6.1 (opposite) illustrates this process.

6.2 The ANAO reviewed the development of the CRA system and its implementation as part of the ICS Exports and Imports releases.

CRA user requirements

6.3 The CRA system was to enhance Customs' capacity to risk assess cargo. The user requirements for the system were developed jointly by EDS and Customs and signed off in 2001. These requirements were the basis for developing detailed business analysis and design specifications when the Consortium was engaged in February 2002.

6.4 EDS had intended using the profile engine in the legacy systems to provide the profiling functionality in the ICS, recognising that it would need to be significantly enhanced. In reviewing this option with the Consortium, Customs noted that the code was complex with little explanatory

[139] This includes all sea and air cargo reports and import and export declarations.

[140] Work management is a task-based service that automates the passing of information between workgroups according to routing rules.

[141] Alerts are entity specific such as names and addresses. Profiles include broader clusters of risk indicators. Events detect behaviours in industry that may indicate non-compliance and potential risks. Community protection and permit queries notify the reporter that there are requirements for certain goods to be accounted for and authorised for entry into Australia.

documentation and there was a shortage of programmers proficient in the programming language it used. Also, Customs did not know: whether enhancements would be successful; what the risk was to the project delivery timeline; and if possible alternatives had been assessed.

6.5 The ICS Steering Committee approved undertaking an impact assessment to investigate possible solutions for a profiling capability. To meet delivery deadlines the analysis period supported only a limited survey of possible solutions, which included: porting the existing profile engine; building a new profile engine; and utilising commercial-off-the-shelf (COTS) products.[142] The assessment concluded that using a COTS product was the best option. On 6 May 2002, the ICS Steering Committee approved the use of SSA-NAME3 (SSA) as the profile matching tool.

Creating profiles using SSA

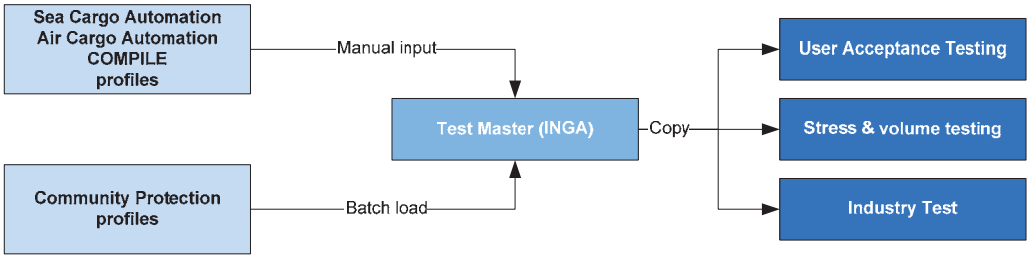
6.6 Customs has strict guidelines for creating, approving and authorising profiles. As legacy profiles could not be directly translated into the CRA system, all profiles had to be re-written using the SSA methodology. The CRA Team (ICS Business Support) coordinated the input of Air Cargo, Sea Cargo and COMPILE profiles (these are known as Customs profiles); and the Import Business Team (Cargo Systems) coordinated the input of Community Protection profiles, including AQIS profiles.

6.7 The complete set of profiles was input into the Test Master (INGA) database. This environment was used as the master source for profiles and did not have a testing capability. Profiles were copied (either in their entirety or as a sample) into other environments for UAT, stress and volume testing and industry test as required. This process is illustrated in Figure 6.2.

[142] A time-boxed approach was recommended that allowed 20 working days to complete the analysis and documentation for review by Customs and the Consortium.

Figure 6.2

Process for testing profiles



Source: Australian Customs Service

Exports Release

6.8 The CRA system was introduced into the ICS Exports environment incrementally. For this reason, the profiles in the CRA system identified the same risks as those in the legacy Export Integration (EXIT) system. This was to give users the opportunity to build confidence in the use of the system, whilst retaining familiarity with the type of risks that were identified.

6.9 An exercise was conducted in June 2004 to both input export profiles into the system, and to determine the performance cost (referred to as CPU) of certain profiles. It was found that where complex or multiple criteria were used in constructing a profile it generated high CPU and should be avoided. Subsequent to this exercise, profiling officers were advised not to use 'or' and complex and weighted criteria when constructing profiles. This meant that where one profile would suffice in the legacy systems, several profiles were now required for the same assessment in the ICS.

6.10 The implementation of the ICS Exports component demonstrated the need for a detailed plan for imports profile input. Customs considered the exports profile input had been rushed and did not allow sufficient time for users to become familiar with the CRA system or to analyse results. As a consequence, user guidelines were not developed as a complete package and training was based on erroneous information.

Imports Release

6.11 In response to the lessons learned from the Exports Release, a comprehensive strategy for the imports profile input was developed that incorporated:

- a nationwide profile review to identify profiles for migration to CRA;

- a mapping exercise to identify how profiles may be translated to CRA and potential profile numbers;
- acquisition of a dedicated IT environment for profile input (INGA);
- developing and/or updating guidance material;
- visits to regional offices to give advice and training;
- analysis of the profile input results; and
- stress and volume testing and analysis.

6.12 As with ICS Exports, to avoid high CPU for the Imports Release, profile creators were restricted in the system functionality they could use (such as complex criteria) when constructing profiles. Historical testing[143] and retroactive profiling[144] were also not to be used. Profile creators were to test profile effectiveness against a 'dummy cargo' document template. Import profiles were manually input into the INGA environment between January and March 2005.

Profile testing for the Imports Release

6.13 The CRA Team, with the support of the Applications Branch, undertook testing to systematically test CRA functionality for the Imports Release. Testing was carried out between April and May 2005 and involved three core elements:

- assessments: testing to ensure that holds were lifted and the correct message sent to the client;
- profile fields: testing to ensure that matches occurred as expected and fields were populated correctly; and
- import events: end-to-end testing of all import events.

6.14 Test scenarios were rated as high, medium or low risk. High risk scenarios were those that were most likely to occur and, if they failed, the consequences would be more severe. Numerous incidents were identified and Customs advised that these were resolved prior to going live. The results of testing are shown in Figure 6.3.

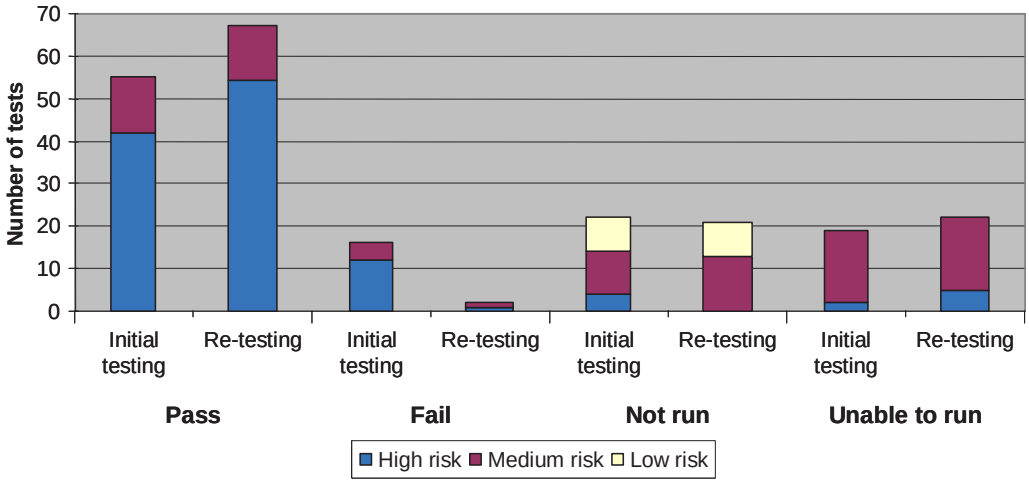
---

[143] Historical testing was designed to allow profile creators to test profiles to ensure that they match appropriately (neither too many nor too few matches) and that the logic of the profile is working correctly.

[144] Retroactive matching is designed for cases where the owner of the risk, for example a law enforcement agency, is not sure whether the cargo has already been reported. A profile can be created to run backwards over a period of time to ascertain if the cargo was reported.

Figure 6.3

Results of profile testing



Source: ANAO analysis of Customs' documentation

6.15 Stress and volume testing was undertaken to determine the most expensive profiles in terms of CPU. Testing was escalated from late February 2005 and is ongoing. Customs advised that there were approximately 13 820 profiles in the test environment in June 2005. This was reduced to 10 000 through a refinement process. Scenarios were conducted against these profiles and the results of these tests were presented in monthly capacity reviews. These reviews drove performance tuning activities.

6.16 The last capacity review before Imports implementation was in August 2005. This review noted that client processing, especially where SSA was used, was proving to be a major CPU cost. Profile evaluation was based on 10 per cent profile matching and was contingent upon retroactive profiling being run overnight. CPU projections were also reliant upon the intelligence data holdings functionality remaining off.

Profiles in the production environment

6.17 Customs advised that, to maintain security, the Customs profiles were entered into INGA using 'dummy' entity-specific information. The Community Protection profiles and AQIS profiles were not altered and were automatically uploaded into the Imports production environment. The Customs profiles were manually input into the production environment and, as part of this process, the correct entity details were included. This effectively meant that the Customs profiles that were input into the production

environment were not the same as those in INGA or those that had been subject to any form of testing. Customs acknowledged this was a risk. To automatically batch load these profiles also presented validation problems, and Customs advised that there was not sufficient time to address the problem prior to 12 October.

Tuning SSA

6.18 SSA is a powerful tool for searching and matching data but it requires a significant amount of tuning to suit the specific requirements of the data it is searching. The two major issues associated with this software were the demands on processing power required (CPU burn) and the poor quality of the matches produced.

6.19 In March 2005, Customs began tuning SSA in an attempt to produce a desirable level of matching. Proposed changes to the product were designed to generate a new mainframe population. However, during UAT in July 2005, it became apparent that the changes which had been captured on a PC [desktop] test harness could not be replicated on the mainframe.

6.20 As the UAT had exposed problems with the tuning process, a new process was proposed. Under the new arrangements put in place in August 2005, a new population (in PC format) was provided by the developer so that the business could test (and retest) this population before it was placed on the mainframe. A consequence of implementing these new arrangements was that the population in the production environment whilst testing was being undertaken on the PC versions was not producing quality matches and also had a high CPU burn—the worst of both worlds. The mainframe population, which met business matching quality requirements, was sent to Customs on 6 October 2005. However, this population was not used in the production environment because Customs considered it too high risk as the consequences of using this new population were unknown.

6.21 In addition, the version of SSA that had been in the Exports production environment was also upgraded for the Imports Release. Rather than the expected improvement, the upgrade combined with the poor quality population, resulted in a significant reduction in the quality of profile matching and high CPU burn. This is the version of SSA and the population that was in place when ICS Imports went live on 12 October 2005.

Days prior to implementation

6.22 In the days prior to going live, the over matching that was occurring with the export profiles and the early traffic coming in for Imports highlighted the potential for problems when ICS Imports was implemented. To try to reduce the over matching, work was undertaken to urgently develop a new data set. Profiles were reconstructed several times; however, problems still existed in the days before implementation. It was considered that although the problems surrounding profiles and SSA would cause anguish, these were not seen as being 'show-stoppers'.

Implementation of ICS Imports

6.23 When ICS Imports was implemented in October 2005 there was a total of 14 061 effective active profiles in the system.[145] The profiles were created by Customs, AQIS, law enforcement agencies and other Government agencies and related to air and sea cargo reports, import and export declarations and community protection issues.

6.24 Shortly after the system went live it became apparent, particularly for air cargo, that there were significant problems with the risk profiling functionality. Cargo was being held because of excessive profile matching on cargo reports and import declarations. System performance was also affected because of the extensive processing time required.

Deactivation of air cargo profiles

6.25 To facilitate the movement of air cargo and to reduce the backlog of air cargo profiling transactions all air cargo profiles were deactivated on the afternoon of 12 October 2005. The ANAO was advised that, although this decision was taken in consultation with Customs' business areas in Central Office, the owners of these profiles, such as Customs' regions, AQIS or law enforcement agencies, were not consulted. A total of 3 200 air cargo profiles were deactivated of which 1 300 were AQIS profiles.

6.26 Customs identified its most critical profiles later that afternoon (approximately 200 profiles). Each profile was individually reviewed, amended as necessary and reactivated. Between 18:30 and 22:30 a 'batch run'

[145] Where a profile is used across multiple document types, it is counted as one effective profile for each document type that it is assessed against it. For example, if a profile is used to assess an air cargo report, sea cargo report, import declaration and export declaration, it would be counted as four effective profiles.

was carried out in the ICS to reactivate all AQIS air cargo profiles. This meant that at 22:30 there was a total of 1 500 active air cargo profiles in the ICS.[146] The majority of deactivated air cargo profiles were gradually reinstated over the next 12 days as outlined in Table 6.1.

Table 6.1

Timeline for re-instatement of deactivated air cargo profiles

Date	Number of air cargo profiles deactivated	Number of air cargo profiles reactivated	Percentage of profiles reactivated
12 Oct 2005 14:15	3 200	0	0%
12 Oct 2005 16:00	3 000	200	6%
12 Oct 2005 20:30	1 700	1 500	47%
14 Oct 2005	1 382	1 818	57%
17 Oct 2005	982	2 218	69%
18 Oct 2005	882	2 318	72%
19 Oct 2005	779	2 421	76%
20 Oct 2005	683	2 517	79%
24 Oct 2005	291	2 909	91%
25 Oct 2005	238	2 962	93%

Source: Australian Customs Service

AQIS air cargo profiles

6.27 After being advised that its profiles had been deactivated, AQIS identified 27 profiles for high risk goods. Customs was requested to provide details of the cargo reports that would have matched these profiles during the period of deactivation to enable AQIS to identify any consignments of concern. AQIS followed up around 100 consignments believed to be high risk. Customs advised that it was unable to undertake a similar exercise as its profiles were more complex and retroactive profiling was not an option as the ICS was too unstable.

Deactivation of sea cargo report and import declaration profiles

6.28 On 13 October, similar problems occurred for sea cargo reports and import declaration profiles. At 16:00, a further 845 profiles were deactivated.[147] As with the air cargo profiles, the address-matching criteria were considered to

[146] This figure included the 200 Customs profiles and 1 300 AQIS profiles.

[147] This included 261 of the 1 130 import declaration profiles and 584 of the 2 105 sea cargo report profiles.

be the reason for excessive matching. The majority of deactivated sea cargo report profiles and import declaration profiles were gradually reinstated over the next 12 days as outlined in Table 6.2.

Table 6.2

Timeline for re-instatement of deactivated sea cargo report and import declaration profiles

Date (2005)	Sea cargo report profiles deactivated	Sea cargo report profiles reactivated	Percentage of profiles reactivated	Import declaration profiles deactivated	Import declaration profiles reactivated	Percentage of profiles reactivated
13 Oct	584	0	0%	261	0	0%
14 Oct	335	249	43%	158	103	39%
17 Oct	253	331	57%	94	167	64%
18 Oct	222	362	62%	74	187	72%
19 Oct	190	394	67%	61	200	77%
20 Oct	160	424	73%	55	206	79%
24 Oct	42	542	93%	6	255	98%
25 Oct	33	551	94%	3	258	99%

Source: Australian Customs Service

6.29 Customs advised that it did not retrospectively review the cargo reports and import declarations received during the two-week period over which profiles were manually reinstated because of the volumes involved. A further complication was that because of the way the profiles had been disabled in the ICS, the system was showing profiles as being active when they were not. This made it very difficult to be able to determine when profiles were re-instated in the system and correctly functioning, further complicating the process of identifying what should have matched and did not.

6.30 When the initial workloads/issues surrounding CRA had stabilised, Customs assessed sea cargo reports for the period 12 October – 22 November against the risk profiles in the Business Continuity Database. The database contains Customs core risk profiles (approximately 2 600). Customs advised that no major issues were found. With the volume of air cargo being significantly higher and, based on the sea cargo results, it was decided not to replicate this exercise for air cargo reports or import declarations.

Targeting risk cargo

6.31 The deactivation of over 4 000 risk profiles over a period of several days presented a considerable risk to Australia's border security and Customs' revenue collection responsibilities. These profiles covered areas such as counter terrorism, illicit drugs, revenue, prohibited items and compliance.

6.32 During this period 778 554 air and sea cargo reports and 252 129 import declarations were processed by the ICS. Although not all reports/import declarations were high risk, there is certainly a high probability that some at risk cargo was not identified while profiles were inactive. Customs could not assess the potential risks associated with this cargo and, if necessary, inspect it prior to its release from Customs' control.

Sea cargo inspections

6.33 Sea cargo containers are selected for inspection based on the risks they present when a cargo report matches a risk profile. Inspections are then carried out at the Container Examination Facilities (CEFs) in each major port.[148] In order to determine how the problems surrounding the CRA system impacted on Customs' ability to target and inspect sea cargo, the ANAO reviewed the CEF inspection and detection rates pre- and post-ICS implementation. The number of containers inspected by the CEFs significantly reduced in October and November 2005, particularly for the Priority 1 and 2 categories.[149] Table 6.3 outlines the national CEF inspections by priority rating for the period September to December 2005.

Table 6.3

National CEF inspections by priority rating

Priority Rating	Sept 2005	Oct 2005	Nov 2005	Dec 2005
1	300	205	280	287
2	2 400	1 743	1 578	1 850
3	4 624	4 550	4 673	4 757
4	1 103	977	953	1 338
Total	**8 427**	**7 475**	**7 484**	**8 232**

Source: Australian Customs Service

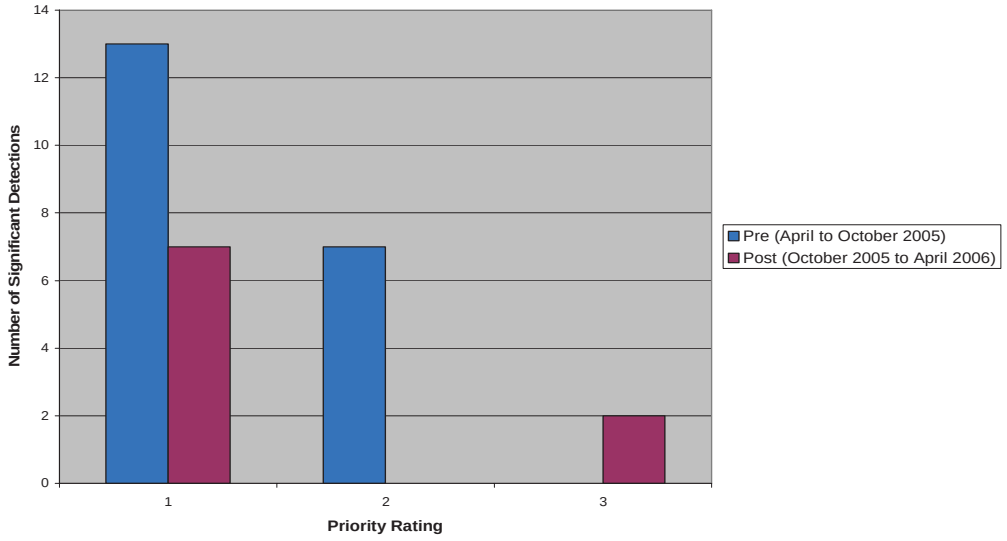
[148] The CEFs are designed to address the full range of Customs risks and integrate container x-ray technology with physical examination and a range of other technologies.

[149] Cargo selected for the CEF is prioritised in accordance with the following priority rating system: Priority 1, x-ray and physical examination of cargo; Priority 2, x-ray with a view to physical examination; Priority 3, x-ray with a view to verifying commodities; and Priority 4 is used to adjust CEF workflow.

6.34 The CEF's detection rate for the six-month period before and after implementation showed that there was a decrease in detections post-implementation, in particular, Priority 2 detections. Figure 6.4 compares the number of the significant detections by priority rating for the periods April to October 2005 and October 2005 to April 2006.

Figure 6.4

Significant detections by priority rating pre- and post-ICS Imports implementation



Source: Australian Customs Service

6.35 Customs considers that ICS usability issues could provide an explanation for the decrease in detections. In addition, the time taken to conduct research to upgrade a container to a higher priority may explain the fall in Priority 2 detections and the rise in Priority 3 detections.

6.36 Customs also undertook a comparative analysis of the number of detections by the CEFs over the same periods for previous years. Table 6.4 outlines the number of detections from 2003 to 2006.

Table 6.4

Three year comparison of detections

	April to October	October to April
2003 to 2004	23	11
2004 to 2005	12	17
2005 to 2006	20	9

Source: Australian Customs Service

6.37 This analysis shows that the number of significant detections post-ICS was below average. It is difficult to determine if the fall in detections is related to a reduction in illegal importations, ineffective enforcement activities or ICS functionality and performance issues. The ANAO considers that the data for the six-monthly periods analysed was not adequate to draw a conclusion on the role of the ICS in reducing detections.

Air cargo inspections

6.38 Customs mass-screens 70 per cent of all imported air cargo consignments.[150] However, Customs has not undertaken an analysis of inspections and detections in the air cargo environment. The ANAO requested data on the number of detections from the mass-screening of air cargo pre- and post-ICS Imports implementation. Customs advised that the data provided had varying reliability, as it had to be sourced from several database and could not all be obtained from the EXAMS system.[151] As a result of these data integrity concerns, and because the problems surrounding the ICS impacted more significantly on sea cargo, the ANAO did not analyse air cargo detections.

The way forward for the CRA system

6.39 The ongoing problems surrounding the tuning of SSA, the lack of functionality and poor system performance has had a considerable impact on Customs' ability to risk assess and target high-risk cargo. In December 2005, Customs convened a workshop to identify and agree on a way forward for the most serious issues facing internal users of the CRA system.

[150] The 70 per cent mass-screening includes any air cargo consignment that has been subject to either: x-ray; visual inspection; physical examination; or inspection by Customs' detector dogs. The Government initiated this intervention strategy in July 2002.

[151] The Examination Data Management (EXAMS) system is Customs' application for recording the risk selection and inspection of cargo.

6.40 In addition to the need to tune SSA, the workshop identified the main pressures impacting on the system's ability to risk assess cargo as being:

- the time consuming navigation procedures affecting the processing of profiled cargo, and consequent workload and occupational health and safety impacts;
- difficulties in retrieving reliable information for research and analytical purposes in a timely way, again impacting on workload and accurate intelligence assessments;
- lack of controls to detect deficient data and to verify the accuracy of information being reported to Customs; and
- difficulties in getting accurate and reliable results from the profiling engine.

6.41 Four projects commenced in January 2006 to address the highest priority issues. The projects covered: data quality; CRA risk selection; reports; and CRA useability. The projects were initially intended to run for six months, with the working groups focusing on immediate solutions and making recommendations on medium to longer-term options. The projects were reviewed in July 2006. Although some early system improvements have been introduced, there is still considerable work to be done. Outstanding issues have been prioritised and the projects will be completed by specific work areas. Overall responsibility for the projects rests with the new Program Management Branch.[152]

6.42 The limited reporting and data interrogation capability has meant that Customs is unable to determine the effectiveness of its profiles or retrieve data for research and intelligence assessments. The ANAO has raised these issues in previous audits and was advised that they would be addressed with the implementation of the ICS.[153] It is also a far more time consuming process to create and acquit profiles. There are few perceived benefits from the CRA system and a general belief that Customs' ability to effectively target high risk cargo has been compromised by poor system performance and lack of functionality. The recently announced review of Customs' intelligence operations should address some of these concerns.

---

[152] The Program Management Branch is part of Customs' new organisational structure and governance arrangements. This is discussed in paragraph 8.43.

[153] Relevant audit reports include: ANAO Audit Report No.16 2004–2005 *Container Examination Facilities*; and ANAO Audit Report No.18 2005–06, *Customs Compliance Assurance Strategy for International Cargo*.

Review of Customs' intelligence operations

6.43 The purpose of this intelligence review is to assess Customs' intelligence operations support for the delivery of Customs' outcomes. It will cover the range of intelligence functions and operations, with a key focus on current risk assessment processes and technology in the cargo environment. This will include an analysis of options for advanced risk assessment processes and the impact of measures such as supply chain security.

Ownership and governance of the CRA system

6.44 During the project, it was difficult to determine who had overall responsibility for the CRA system. Although the system is a component of the ICS, the development of the CRA, to some extent, was separate to the ICS development process. Cargo Systems was the business owner with responsibility for workgroup management and the Intelligence Branch was responsible for profiling and alerts. Management of profiles was also divided between Cargo Systems and the Profiling and Alerts (P&A) group within the Intelligence Branch. P&A managed Customs profiles and Cargo Systems maintain the Community Protection profiles.

6.45 The testing of profiles was also quarantined, to some extent, from normal project testing arrangements. Although UAT and stress and volume testing was undertaken, it was coordinated by the CRA Team in Cargo Systems with input from the P&A Group. However, there was little visibility over this process. The training for CRA was undertaken by the Intelligence Branch and was not part of the ICS Communication Strategy for internal users. The ANAO has been advised that the training only gave an overview of the system and guidance on navigating the various screens. It did not give users details of how the system operates.

Conclusion

6.46 The CRA system was to significantly improve Customs' risk assessment capability, however, this has not occurred. Target identification and selection processes are less efficient and some areas of Customs consider them to be less effective than the legacy systems they replaced. The expected reporting and research functionality, which is crucial to Customs' intelligence function, was also not available when the system went live.

6.47 In addition to the ongoing problems of tuning SSA, the Customs profiles that went into the ICS Imports production environment were not

properly tested. The ANAO acknowledges the security concerns relating to these profiles but considers that steps could have been taken earlier to develop a secure testing environment.

6.48 In the ANAO's view the management of the development of this system was inadequate. There were three Branches involved in the development and testing process: Intelligence, Cargo Systems and Applications. However, the roles and responsibilities were not clearly understood, work across these Branches was not coordinated and there was a lack of acceptance of responsibility and accountability. The new governance arrangements being introduced by Customs need to clearly define roles, responsibilities and ownership of the CRA system.

6.49 Customs is taking steps to improve the functionality and useability of the CRA system primarily through the CRA projects. The review of intelligence operations will also focus on risk assessment processes and technology in the cargo environment. However, the outcomes of these initiatives need to be given priority if Customs' risk assessment capability is to be fully effective.

7. Implementation of the Systems

This chapter discusses the implementation of the CMR systems and their impact on industry and operational areas within Customs.

Introduction

7.1 As previously noted, the ICS was introduced in three releases. Release 1a was a trial with DHL Express, Release 2 was ICS Exports and Release 3 was ICS Imports. The CCF was trialled as part of Release 1a and became fully operational for Release 2. The ANAO reviewed the implementation of each of these releases, particularly focusing on their impact on industry and operational areas within Customs.

Release 1a—industry pilot

7.2 Release 1 was to include Advanced Cargo Profiling, reporting and research components.[154] However, the scope of this Release was subsequently restricted to trialling ICS and CCF functionality with DHL Express. The trial, which became Release 1a, was undertaken between March and April 2003. It was to ensure that the ICS and CCF met stakeholder expectations before being made more widely available to external users. The evaluation report concluded that additional work was required before the systems were made available to other industry participants.

Release 2—ICS Exports

Integrated Cargo System

7.3 ICS Exports was initially planned to go live in September 2002 but it was not introduced until 6 October 2004. An early version released into industry test in August 2003 (and scheduled for implementation in December 2003) had highlighted significant messaging problems and was not favourably received by industry. Customs worked with industry and software developers to address these problems and all agreed to the October 2004 implementation date.

[154] Advanced Cargo Profiling was a risk assessment capability specific to High Volume Low Value (HVLV) air courier consignments. At the time of this Release, high volume related to the volume criteria an applicant must meet to be registered as a special reporter under the HVLV scheme. Low value meant that the value of each consignment must be less than $250 and have a combined duty/tax liability of less than $50.

7.4 Customs considered the implementation of the Exports Release to be relatively successful. Industry supported this view. A post implementation review undertaken in November 2004 identified three key problems: a number of defects that Customs was not previously aware of; incorrect reporting practices by industry; and deficiencies with support arrangements, particularly for outside normal business hours.[155] The compounding effect of these and a number of system performance issues[156] required Customs to put greater than anticipated effort into releasing goods outside normal ICS processes. The situation was exacerbated by the lack of sufficient and timely information being available to give regional staff and industry early warning of system failures.

7.5 Customs took steps to address these issues. Strategies were put in place to educate and reinforce to clients the importance of reporting cargo correctly. Support arrangements were also revised and outstanding system defects re-prioritised to progress their early resolution. Monitoring tools were also implemented to provide greater visibility to staff of potential problems with ICS availability.

Customs Connect Facility

7.6 The CCF was introduced for industry testing purposes and client registration in June 2003 and was operational for ICS Exports. Customs did not undertake a formal evaluation of the CCF following Release 2. It was always recognised that the solution in place for this release had been targeted and scaled for exports processing only. The CCF would require additional infrastructure and upgrading to process the more complex requirements of Release 3.

Release 3—ICS Imports

7.7 Release 3 was initially scheduled to go live in April 2003. It was implemented two and a half years later on 12 October 2005. Almost immediately there was disruption to the movement of cargo in the air cargo environment closely followed by sea cargo. Cargo was delayed and Australia's major ports were congested with a backlog of containers awaiting clearance

[155] Australian Customs Service, *Review of Exports Implementation,* Customs, Canberra, November 2004, p. 1.

[156] These issues related primarily to lost or missing messages and slow system response times.

and delivery. The impact on Australia's trading environment, industry and Customs was severe and continued for many weeks.

Readiness for Imports

7.8 The implementation date of 12 October was determined by consensus at a Ministerial Roundtable meeting on 5 July 2005. Participants at this meeting included the Minister, Customs senior managers, AQIS officers, peak industry bodies, stevedores, third-party software developers and business organisations. As ICS Imports was to be available from 19 July 2005, this date would give industry a three month transition period, supported by a stable system. It would allow software developers to undertake thorough end-to-end testing and also provide the opportunity for industry to train staff and become familiar with the new system.

7.9 However, the system that was made available in July had a considerable number of outstanding incidents and Customs was continually making software changes up to one week prior to the cutover date. Software developers advised the ANAO that this impacted on their ability to update their software, undertake testing and release software packages to customers. Some customers only received their software updates days before the 12 October 2005 cutover and, in some cases, after this date. This meant that these clients were unable to interact with the ICS and CCF.

7.10 Industry's lack of readiness was demonstrated in a survey completed on 10 October by the industry ICS User Representative. Only 13 per cent of the 211 respondents advised they were fully operational and less than 10 per cent supported the decision to go live. Customs was provided with individual survey responses over 10–11 October 2005. Individual survey responses reviewed by the ANAO clearly indicated the major concerns were that software had not been delivered by a number of software developers and, where it had been delivered, applications were not working and staff had not had adequate training. This was despite commitments being given by developers that their software would be ready, tested and made available to clients in advance of the cutover date. In response to these concerns, Customs agreed on 10 October to allow service providers who were unable to communicate with the ICS to continue to report import declarations in the COMPILE system.

COMPILE Extension

7.11 Customs initially advised that the COMPILE system would be extended for two weeks (until 24 October 2005). However, the system continued operating until 3 February 2006.[157] The COMPILE Extension arrangement was extremely resource intensive and had a significant impact on Customs' operational resources in most regions for many weeks. It involved staff matching the COMPILE entry with the corresponding cargo report in the ICS to give an informal clearance. When the cargo report was clear of all impediments (Customs and AQIS) a clearance status message was sent to the Container Terminal Operator and depot and an *ICS Documentary Delivery Advice Notice* proforma[158] was faxed to the client. In New South Wales alone this project initially involved 10 staff and increased to 60 officers at its peak.

7.12 As customs duty/GST was being paid in COMPILE and the cargo was released in the ICS, the ANAO sought to determine how Customs gained assurance that there was no revenue leakage during this period. Customs advised that officers confirmed that duty and taxes were paid in COMPILE prior to the cargo being released. Total revenue figures were also monitored but Customs did not reconcile individual transactions.

Impact on industry

7.13 The introduction of ICS Imports had a severe impact on all sectors of Australia's importing industry over many weeks. This impact was far greater for some than others, depending on their level of preparedness. Those organisations that either did not receive their software packages or their software was not compatible with the ICS experienced considerable difficulty. For many organisations, staff were required to work very long hours over several weeks. The workload increases significantly if a company that normally uses EDI is required to use the CI facility. The delay in clearing cargo also had a flow on effect to the business distribution chains of many Australian companies. The ANAO was advised by industry that, for many organisations, the implementation of ICS Imports was seen as an extremely stressful and costly exercise that extended over many weeks.

---

[157] Importers and brokers were required to register with Customs if they wished to continue using COMPILE. At the Ministerial CMR Roundtable meeting on 20 October, Customs reported that 27 brokers were using the ICS only, 43 brokers were using COMPILE and 306 brokers were using both systems.

[158] The proforma was developed as part of the COMPILE Extension arrangements and was sent with the ICS screen-print as the legal authority to release the goods.

7.14 There was also a general view that the training provided by Customs was inadequate even though Customs had put considerable effort into communicating to industry the requirements of the ICS. However, these information sessions were not interactive and provided little opportunity for industry to fully appreciate the breadth of change. Although the industry test environment was available for training, it did not replicate the production environment, changes were continually being made to the system and there was insufficient 'real' data to enable proper training. Added to this, the delay in receiving software packages meant that there was insufficient time available for organisations to train staff in the combined new environment of their third-party software applications, the new ICS and CI facility.

7.15 The performance and functionality of the ICS were the cause of considerable frustration for many industry participants. For several years they had raised concerns about issues such as cascade reporting, data integrity, underbond movement requests and the adequacy of contingency arrangements. These were the very issues that confronted them on 12 October 2005 and are the same issues that are now being progressed through the Industry Action Group (IAG).[159] For them, the problems surrounding the implementation of ICS Imports reinforced the belief (expressed to the ANAO many times) that Customs does not really understand supply chain processes or how the various industry sectors operate.

System performance and related issues that impacted on industry

7.16 In the days following the implementation of ICS Imports, system performance and issues relating to data integrity and cargo reporting quickly became apparent. There were also problems with the CRA system and the online Customs Interactive (CI) facility.[160]

7.17 Table 7.1 outlines some of the problems surrounding the implementation of ICS Imports. The ANAO sought comments from a number of industry organisations to gain an appreciation of the impact that these issues had on industry participants. By its nature, industry is made up of a number of different stakeholders with a range of views and perceptions. The table

[159] The role and outcomes of the IAG are discussed in more detail in Chapter 8.

[160] The CRA system is discussed in Chapter 6 and the CI facility is discussed in paragraphs 7.22 to 7.25.

attempts to capture a general overview of these perceptions and views. The rating applied has been averaged across industry responses.[161]

Table 7.1

Industry's assessment of the impact of the ICS Imports Release

Severe	High	Moderate	Low	Nil
●	◕	◑	◔	○

Problem	Description	Industry's view on the impact of ICS Imports	Industry comment
Data integrity issues	The ICS required a far higher standard of data accuracy than the legacy systems it replaced. Data integrity issues prevented mandated data fields matching in the various levels of reporting within the cascade reporting framework.	◕	Industry needed to identify what had been reported using CI or by contacting other reporters. Cargo reports needed to be withdrawn and re-submitted resulting in recalculation of screening timeframes. The air cargo industry works within a high standard of data accuracy and was minimally impacted by data integrity requirements. Sea cargo was severely impacted.
Workarounds	The number of workarounds created considerable confusion and difficulty for Customs Help Desk staff and for industry users.	◕	Industry considers that there are still too many workarounds resulting from the ICS's inability to automatically handle many day-to-day business processes.
Communication of cargo status	Cargo terminals and depots were not receiving electronic notification of cargo status.	◕	Customs promptly introduced a workaround whereby brokers and importers could print a "screen dump" from the CI and present this to the delivery point to take delivery of cargo. Industry was also affected by contradictory cargo statuses being issued to different parties in the supply chain.

[161] Industry organisations surveyed included: CBFCA; Australian Federation of International Forwarders; Shipping Australia; 1-Stop; and CAPEC.

Problem	Description	Industry's view on the impact of ICS Imports	Industry comment
Cascade reporting and sequencing of reports	The ocean bill of lading (OBL) must match lower level bills before clearance could be given. In addition, cargo reports had to be sequentially reported. This presented considerable difficulty for containerised sea cargo, and resulted in cargo being held.	●	The sea cargo industry needed extensive human intervention to match OBL data within the ICS. Sequencing issues caused reports to be rejected and these had to be cancelled and re-entered. This problem was compounded by the lack of diagnostic facilities and slow CI response times.
Lack of adequate diagnostics and the ability of industry to use	Sea Cargo diagnostics lacked functionality and screens were difficult to navigate. The information provided was not adequate to obtain a clear understanding of cargo status. Air cargo did not have a diagnostic capability.	◕	Industry considered that Customs did not give CI the priority it warranted. The combination of some software providers' application problems and the ICS's intolerance to data inconsistencies highlighted this problem.
Security concerns	On rare occasions the ICS allowed brokers to sight other brokers' import declarations data.[162]	◑	Industry advised that this did not impede the release of cargo but exposed highly sensitive commercial information to other ICS users.
Software applications	Many companies were using software that failed to work correctly, resulting in incorrect information being transferred and/or viewed, making it very difficult for companies interacting with Customs.	◕	Some users did not have software fully deployed until late January 2006. Industry representatives expressed concerns with the inability to complete live testing and the fact that there was no opportunity to parallel run with the legacy systems. Industry also suggested that Customs should have had a benchmark that software developers must attain before their software could be released to the trading community.

[162] Customs advised that this was caused by an intermittent failure in the commercial communications software within the system. In some events, this resulted in a response being returned to the wrong user. Customs rectified this problem on 27 October 2005.

Problem	Description	Industry's view on the impact of ICS Imports	Industry comment
Part-shipments	The current design of the ICS does not reflect how the air freight business operates and the problem for industry is that the part-shipping of a consignment is not within their control but governed by the carrying airline.	◕	This presents an ongoing problem for industry, who advised that part-shipments only reach importers because of time-consuming workarounds. Industry is expecting a system fix in December 2006.
Underbond movement requests	There were problems gaining permission to move cargo underbond. Clients were finding that a status of 'chained' was being granted for underbond reports but they were unable to obtain the required permission to move the goods.[163]	●	Until workarounds were introduced, this was the initial cause of congestion at air cargo terminals and caused substantial problems in relation to sea freight. There was also an inconsistent application of regulations by Customs' regions. The situation was exacerbated by the Help Desk not being sufficiently trained on the underbond process.
Electronic Funds Transfer (EFT) reporting	Due to other priorities EFT reporting was not available. Brokers were required to use the CI facility to search financial transactions or email a request to Customs.	◕	Industry expressed frustration with formatting of the financial reporting functionality and the emailing of Excel spreadsheets as a workaround.
Electronic data interchange (EDI) messaging	Reconciliation errors resulted in the ICS showing a 'pending' or 'held' status against cargo when the consignment had cleared all Customs and AQIS border processing requirements. Between 10 and 30 per cent of EDI messages failed.	◕	Many messages sent to the ICS were not apparently received or acted upon. A high cost human checking process would have been required to monitor that every message sent had been received and implemented. Customs' workaround of 'ITOOLS' overcame this problem to a large degree. However, there was confusion about whether cargo could be released or not and failure to update 'ITOOLS' in 'real time' caused further delays.

Source: ANAO analysis of industry comments

[163] An Underbond Movement Request (UBMR) will not be approved until all movements in the underbond reporting chain have been reported. The ICS will not acknowledge an underbond movement chain to be complete until the initial UBMR has been reported in the system. The ICS identifies the initial movement when all establishment identifications (discharge, originating and destination) are reported to the ICS.

Ministerial Roundtable meetings

7.18 The Minister convened a meeting on 20 October 2005. At this meeting he was advised of industry's concerns about the poor performance of the ICS, the excessive number of workarounds and the difficulty in clearing cargo. The ports and airports were under stress and the situation was having a significant impact on many organisations and their staff. Customs outlined the measures it was taking to assist with cargo movement. In addition to trying to resolve system performance and functionality problems, dedicated cargo teams were positioned at the premises of terminal operators to facilitate clearance of low risk goods and additional staff were deployed to support the Help Desk.

7.19 There was also considerable discussion about the viability of reverting to the legacy systems, particularly for sea cargo. Some participants wanted to revert to the Sea Cargo Automation system whereas others wanted to continue with the ICS. The decision to continue with the ICS was made on the 21 October 2005.

7.20 A further roundtable meeting was held on 26 October 2005 when it was noted that the situation had improved but there were still significant system problems. Data matching, insufficient diagnostics and workarounds remained major concerns for industry. The financial impact on business because of the delays in delivery of cargo and the impact of the extra time, cost and logistics on planned retail programs were also raised.

7.21 The meeting acknowledged that there were both immediate and long-term technology/business/procedural issues. It was agreed to establish an action group to progress potential solutions and to identify and rectify problems. This IAG was to be jointly chaired by Customs and industry. The role of the IAG and the issues it is dealing with are discussed in detail in paragraphs 8.5 to 8.8.

Customs Connect Facility

7.22 Problems with third-party software and the need for additional online searching to determine cargo information forced many customs brokers and freight forwarders to use the online CI facility. Despite being seen as a contingency if EDI was not available, the CI facility was not designed to accommodate such a high number of concurrent users or the type of activity they were undertaking. Under the additional load, the CI became increasingly hard to use and its response time slowed to frustrating levels.

7.23 A number of factors were identified as being the cause of this including: higher than expected volumes of CI users; longer transaction run times; contention with EDI traffic; and the inability to manage the control flow through the CI channel.

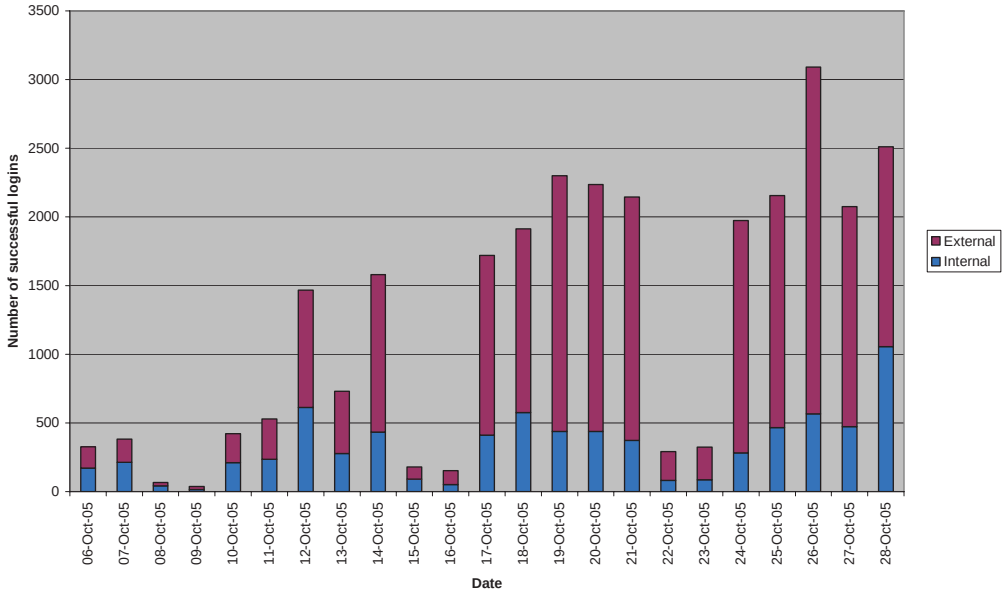
7.24 Processing client interactive requests was also a problem, with some requests taking in excess of half an hour.[164] CI transactions were also competing with EDI traffic. With only a single mainframe platform EDI and CI transactions are not separated at the 'back end' of the CCF. This effectively saw CI requests sitting in a queue with EDI transactions awaiting processing on a first in first out basis. With over 95 per cent of transactions being received over the EDI channel, frequent queuing of CI transactions occurred. Although immediately following go live a number of adjustments were made to the CI system, little improvement was seen by users. Customs responded by making significant system changes and additional services were hosted to alleviate the increased load being experienced within the ICS.

7.25 Customs advised that prior to the implementation of ICS Imports, considerable work was undertaken to determine the likely number of CI users. This analysis was critical to estimating capacity targets and was fairly accurate in relation to EDI transactions. However, it was less so for CI. Figure 7.1 shows the number of successful login attempts for internal and external users accessing the CI environment between 6 and 28 October. This indicates that the number of users able to access to the system significantly improved from less than 1 500 on 12 October to over 3 000 on 26 October. The number of actual users is also significantly higher than the predicted load target of 270 concurrent users.

[164] Time is measured from the point at which a client has selected an option or action on the web page to the time the result is returned to the client's browser.

Figure 7.1

Customs Interactive daily successful logins for the period 6 to 28 October 2005



Source: Australian Customs Service

Help desk arrangements

7.26 The overloading of the CI facility had a considerable impact on Customs Information and Support Centre (CI&SC). The CBFCA March 2006 Position Paper *Integrated Cargo System – Imports* noted:

> The Customs Interactive virtually came to a grinding halt for the first few days after cut-over. Without access to this essential operational tool, users were left with no option but to contact the Customs Information and Support Centre "Help Desk" to be the user's eyes into the system to assist with problem resolution. The "Help Desk" became inundated with incoming calls and email correspondence and was unable to meet demand within any acceptable response times.

7.27 The CI&SC was established in 2003 to bring together in one location an information and support service that had previously been provided in each State and Territory office. The service is available nationally; it is free and represents a significant investment in direct industry support by the Government. The CI&SC provides two key services:

- the information line handles general Customs-type enquiries from the public and industry through a national, toll free 1300 number; and
- the System Support line provides IT 'help desk type' support for private businesses using Customs' cargo management systems, also through a national, toll free 1300 number.

7.28 In preparation for the implementation of ICS Imports a support framework was put in place in April 2005 to provide assistance to users of the system on a 24 hours/seven days a week basis. This framework comprises two levels:

- Level 1 support provided by the CI&SC in Sydney; and
- Level 2 support provided by Central Office, Canberra.[165]

Level 1 support

7.29 The CI&SC was expanded and upgraded to reduce waiting times and to provide access to timely advice. Improved call centre management technology was installed in March 2005 to allow for the effective deployment of staff to meet peak demands and minimise queue-waiting times.[166] Overflow arrangements were put in place to divert calls to Melbourne, Brisbane and Fremantle with up to 40 officers available if required. An urgent Customs clearance hotline was also established in Level 2 to handle queries on cargo where clearance needed to be expedited.

October 2005

7.30 The Level 1 Help Desk was the first place industry turned to for assistance. It was also the cause of considerable frustration because of the time taken to respond to calls and the perceived inability of the staff to either clear the cargo or provide an explanation as to why the cargo was being held.

7.31 Customs advised that in the initial days of the implementation the Help Desk coped well with the increased volume of calls. However, as the problems associated with ICS were complex and could not be resolved quickly and the delays in clearing cargo increased, the wait time and queues grew to unsatisfactory levels, particularly during peak times. All general information

[165] Level 2 deals with complex technical issues raised by industry users. These calls are generally received by CI&SC and escalated to Level 2 where higher-level technical expertise is available.

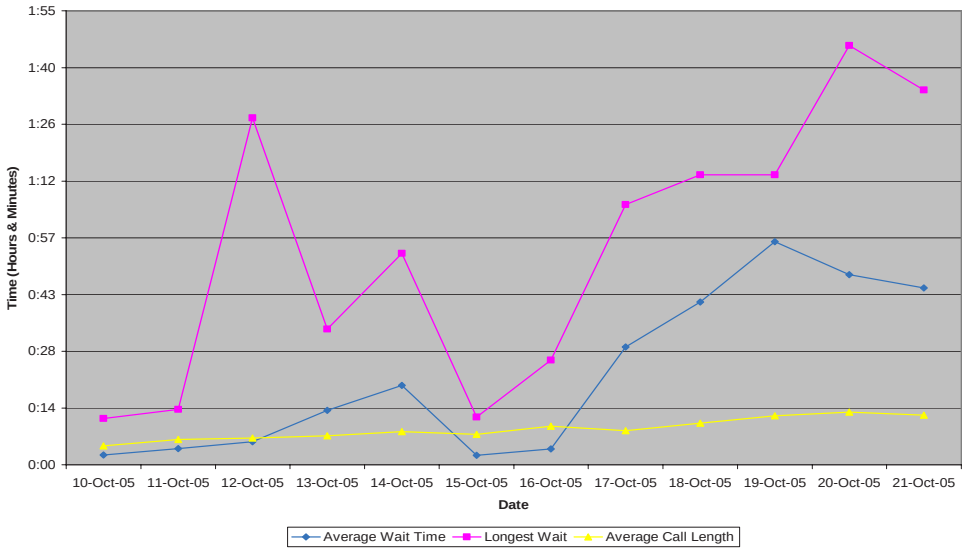
[166] This also allowed the real-time monitoring of the number of agents online, number of calls waiting in the queue and the longest call waiting time.

calls were diverted to Melbourne so that all staff in the Centre were available to answer ICS related calls. An additional 30 staff were deployed to assist the CI&SC team.

7.32 Between 10 and 21 October 2005, the CI&SC handled nearly 35 000 contacts (in and outbound telephone calls, emails and faxes). The average wait time for the systems support queue was 23 minutes and the longest wait time was 1 hour and 46 minutes. On 10 October 2005, the average talk time was 5 minutes; by 20 October it was 13 minutes.[167] Figure 7.2 gives the longest and average daily calls for this period.

Figure 7.2

Daily call times for the period 10 to 21 October 2005



Source: Australian Customs Service

Level 2 support

7.33 Requests for assistance that could not be resolved by the CI&SC and system support issues were referred to the Level 2 Help Desk. Matters unable to be solved by Level 2 were escalated to business areas within the Cargo Systems Branch for specialist analysis.

[167] Some staff spent more than an hour on one call as they tried to assist and educate callers. On many occasions when a staff member resolved a query at a specific company the caller would pass the Customs staff member on to other employees in the company to resolve their queries.

7.34 The volume of requests to the Level 2 Help Desk increased dramatically following the implementation of ICS imports. These were received from a number of sources including: a 1800 number for technical assistance and the urgent Customs clearance number; faxes and emails; escalations from the CI&SC; Customs' regions; and the Minister's office.

7.35 For the first week of implementation Level 2 operated on a 24 hour basis. The hours of operation were subsequently reduced to 6:00 to 23:00 with the hours outside of this being supported through redirecting support numbers to an on-call officer. Additional resources (approximately up to eight staff at any given time) were provided from other areas of Customs to supplement existing staff.

Recording of requests for assistance

7.36 It is usual for the Help Desks to record the details of all requests and any subsequent action in the Unicentre Service Desk (USD) electronic system. However, Customs advised that this was not possible because of the sheer volume of requests being received over an extended period and the priority being given to assisting clients. Customs is therefore unable to provide details of the number of requests received during the early weeks of this transition period or what they related to.

7.37 A review of the Cargo System Support Framework completed in early 2006, is discussed in paragraphs 8.15 and 8.16.

Alternative contingency arrangements for sea cargo

7.38 As part of its business continuity arrangements, Customs developed a contingency database[168] to enable cargo to be risk assessed prior to a clearance being given. This database was used as an alternative contingency arrangement for releasing containerised sea cargo from 21 October 2005. These arrangements were to help alleviate port congestion, and to ensure the critical supply chain to Australian business was maintained without further unnecessary delay. The contingency arrangements were managed nationally by the CI&SC and remained in operation until early-December 2005.

7.39 The process allowed the delivery of cargo 'held' within the ICS because of data matching difficulties or similar issues after being risk assessed. Cargo identified as being held for risk analysis purposes was not selected. Data was

[168] As previously noted, incorporated in this database are a number of Customs' core risk profiles.

extracted from the ICS and processed through the contingency database. Cargo identified as being clear was given a unique reference number (Contingency Screening Number) and published as available for release on a temporary web site known as the 'ITOOLS' facility. The results were also given to the Container Terminal Operators so that the cargo could be released in their systems.

7.40 To expedite the clearance process, a number of consignments were delivered before the appropriate duties, taxes and charges were paid. Customs subsequently undertook a reconciliation process to identify those goods cleared through these contingency arrangements where any duties, taxes and charges remained unpaid. Customs advised that outstanding liabilities ($1.1 million) were recovered by Customs' Compliance Branch.

Business continuity arrangements

7.41 Given the circumstances surrounding the implementation of ICS Imports, the ANAO reviewed the business continuity plans (BCPs) for exports and imports processing. The purpose of these plans is to ensure that, with minimal impact, critical business functions are able to continue to operate in the event of a loss or interruption to IT facilities.

7.42 The ANAO was advised (by industry and Customs) that the Exports BCP was comprehensive and had worked effectively when needed. Industry stressed the need for a similar BCP for imports at the Ministerial Roundtable meeting on 13 April 2005. An initial draft of the Imports BCP was given to industry (and distributed internally) for comment on 19 April 2005 and a second version was forwarded on 7 June 2005.

7.43 At the time of the initial development of the Imports BCP in April 2005 the planned implementation date for ICS Imports was 20 July 2005. This realistically gave Customs very little time to develop the BCP, request and incorporate feedback and to undertake any testing. It also meant that if the implementation date had not been extended there would not have been a BCP to support the ICS Imports Release.

7.44 The BCP was subsequently released to industry in August 2005. It was based on an ICS outage greater than two hours (or a series of equivalent minor outages) only. It did not address partial system failure, functionality deficiencies or poor system performance. The BCP did not include a Business Impact Analysis or any consideration of disaster recovery or backup of

information. Customs is currently reviewing the Imports BCP and expects this project to be completed by early 2007.

Impact on Customs

7.45 The implementation of ICS Imports had a significant impact on Customs own business operations. Customs officers across all regions and in Central Office worked very long hours between October and December 2005 to facilitate the movement of cargo including being placed at cargo terminals, depots and wharves. The support provided by Customs was always acknowledged during the ANAO's many discussions with industry stakeholders.

7.46 The ANAO was advised that from 12 October to mid-December 2005 very little (if any) compliance activity was undertaken as part of the Compliance Assurance Strategy.[169] The majority of Compliance Assurance staff were involved in ICS implementation activities and responding to clients' requests.

7.47 Contingency arrangements were inadequate. The majority of regions advised the ANAO that they had developed contingency arrangements as part of their business continuity planning. However, these plans were not relevant for what occurred on 12 October and several weeks thereafter. The regions were not prepared for the length of the contingency period, the ongoing support required by industry and the many intervention strategies that had to be implemented as part of system workarounds 'to just move the cargo'.

7.48 An internal Customs' review of ICS contingency arrangements in November 2005 noted that the arrangements were having a dramatic, although gradually declining impact on Customs' core business and particularly cargo compliance. The review also noted that the impact on industry was substantial and unsustainable for both Customs and industry in the longer term. The draft report noted that:

> The biggest single reason contingency operations have been needed relates to a lack of understanding of end-to-end supply chain processes, business relationships and data flows. Customs instigated ICS and it has a responsibility for change management throughout the import supply chain.[170]

---

[169] This includes post transaction audit activity, compliance activity in relation to licensed premises and the audits undertaken as part of Compliance Benchmark Testing Program to measure revenue leakage.

[170] Australian Customs Service, *ICS Contingency Report (Draft)*, Customs, Canberra, 25 November 2005.

Conclusion

7.49 The implementation of ICS Imports should have been better managed and this has been acknowledged by Customs. Customs' implementation strategy was inadequate and did not include a proper assessment of the risks associated with the implementation. There was no fall back position or adequate contingency arrangements to reduce the impact of the systems' poor performance and functionality problems. These were primarily developed 'on the run' as issues arose.

7.50 The success of the ICS was very much dependent on third-party software packages working and, in many cases, they did not. Although the feedback provided to Customs on industry's readiness was mixed, Customs had no mechanisms in place to properly assess the level of readiness of industry participants or third-party software providers. System performance issues could have been highlighted if adequate testing had been carried out by both Customs and software developers.[171] The system went live with numerous workarounds and many outstanding incidents.

7.51 Customs' Help Desks were inundated with requests for assistance and were unable to deal with these requests within acceptable timeframes. This situation was exacerbated by a lack of familiarity with a complex system beset with technical problems. The level of compliance activity undertaken as part of Customs Compliance Assurance Strategy was also reduced from October to December 2005.

7.52 Customs has put in place a number of strategies to prevent a similar situation occurring again. These are discussed in detail in Chapter 8.

[171] The testing carried for the ICS and CCF is discussed in Chapter 5.

8. Ongoing Arrangements

This chapter discusses the initiatives being undertaken by Customs to improve its business processes and the performance of the ICS.

Introduction

8.1 Problems surrounding the implementation of the ICS Imports Release severely damaged Customs' reputation. Under the spotlight of the media and considerable political pressure, Customs has worked to resolve the issues identified during the ICS transition period.

8.2 The ANAO recognises that a number of the improvement projects and reviews are ongoing. These will continue to evolve as business structures and processes are refined and implemented, and system enhancements are incorporated into the ICS. The ANAO reviewed:

- the strategies put in place immediately following the implementation to address system performance and functionality problems;
- the reviews and projects initiated by Customs to identify system and business improvements;
- the longer-term strategies being developed to ensure that a situation similar to what occurred in October 2005 does not happen again.

Review of the Integrated Cargo System

8.3 After this audit commenced, Customs engaged Booz Allen Hamilton to undertake a separate review of the ICS.[172] The ANAO consulted closely with the review team and supports the recommendations made in their report. There are thirteen recommendations relating to the ongoing management and governance of the CMR Program at both strategic and tactical levels. Customs has agreed to implement the recommendations, which include:

- three recommendations to improve ICS governance to provide greater strategic direction and oversight;
- seven recommendations aimed at short-term actions to increase the functionality, usability and stability of the system; and

[172] Booz Allen Hamilton, *Review of the Integrated Cargo System*, 16 May 2006.

- three recommendations focusing on the ICS as a platform for the future after a sound governance framework has been implemented and short-term process and functional deficiencies stabilised.[173]

8.4 In preparing this report, the ANAO has been mindful of these recommendations and has not unnecessarily duplicated them. Given the importance of these recommendations, the ANAO considers they should be implemented in a timely manner. Customs advised that regular reports detailing progress in implementing the recommendations will be provided to the Chief Executive Officer. Customs' Audit Committee will also monitor their implementation.

Industry Action Group

8.5 Following the implementation of ICS Imports, Customs formed the IAG as the initial vehicle for addressing technology, business and procedural issues for external ICS users. The IAG was established to identify issues and progress solutions. The Group is jointly chaired by Customs and industry (ICS User Representative) and convened its first meeting on 28 October 2005. The IAG reports directly to the Minister for Justice and Customs.

8.6 Industry advised the ANAO that they perceived the initial momentum shown by Customs to progress system improvements/enhancements has slowed. An IAG Issues Register records completed and open issues. As at 26 June 2006 there were 14 completed issues and 35 outstanding issues. A number of major initiatives are being driven out of the IAG. A challenge for Customs is managing industry's expectations regarding the time and resources required to implement their requests.[174]

8.7 The Booz Allen Hamilton review recommended continuing the existing IAG-driven program of tactical improvements, prioritising high-impact changes with a short-term benefit and proposed a six-month window for short-term improvements. The purpose of this is to avoid potential conflict with Customs' and industry's strategic agendas.

8.8 Following consultation with industry, Customs prioritised the items on the IAG Issues Register and developed an IAG work program. The program has been developed across three six-month periods, concluding in December

---

[173] ibid., pp. 47-49.

[174] For example, the ocean bill alignment project will take several months to complete and involves extensive change within the ICS.

2007. Any new issues and/or projects will not be included in this work program. The work program and any new projects are managed by the Program Management Branch as part of the Trade Facilitation program.

8.9 To accommodate industry's request that it does not have to wait for an IAG meeting to raise matters of concern, Customs has established a process for industry to raise 'change requests'. This is done through the ICS User Representative. Customs' strategy for dealing with projects where resolution will be longer than six months is on a case-by-case basis and managed under the Trade Facilitation Program. Customs advised that it is adopting a collaborative approach and working with industry to improve systems and processes. The ANAO considers this is a positive step towards Customs rebuilding its relationship with industry.

Business continuity planning

8.10 Business continuity planning assesses the likelihood of continued availability of information and delivery of services. Contingency plans should reflect actual business processes or requirements to ensure that, in the event of an incident or disruption, an organisation is able to recover critical business functions in an acceptable timeframe and maintain data security and integrity. Customs' business continuity plans were not effective during the implementation of ICS Imports. Customs is currently reviewing the ICS Imports Business Continuity Plan and expects to complete this project by early 2007.

8.11 The ANAO considers it is important that, as part of the review process, a control framework is documented. This should enable all transactions that occur outside normal business activities as a result of a disruption, to be identified and appropriate controls established. These controls should verify that all transactions are complete, accurate and comply with policies and procedures; for example, reconciliations and audit trails. Customs' Business Continuity Management framework should also be assessed, specifically for its continued appropriateness and relationship to existing disaster recovery requirements as there have been significant business changes with the implementation of the ICS.

Recommendation No.6

8.12 The ANAO recommends that Customs' review of the Integrated Cargo System (ICS) Imports Business Continuity Plan include:

- an evaluation of Customs' Business Continuity Management framework, specifically assessing its continued appropriateness following the implementation of the ICS and its relationship to existing disaster recovery requirements;
- documenting a control framework for transactions that occur as a result of a disruption to normal business activities; and
- developing processes for regularly reviewing and testing continuity plans.

Customs response

8.13 Agreed. Customs agrees with, and has made substantial progress in implementing, the recommendation. A revised ICS Business Continuity Plan was implemented on 11 December 2006. The Plan includes a documented control framework and provides for regular testing and review. Following significant consultation and formal testing, the ICS User Representative signed off on acceptance of the BCP on behalf of industry.

8.14 The Plan aligns with Customs' Business Continuity Management Framework. Customs will review the Framework to ensure it provides for appropriate disaster recovery arrangements as part of implementing new information technology service contracts in mid-2007.

User support framework

8.15 Customs reviewed the effectiveness of its Cargo Systems Support Framework in early 2006. As outlined in Chapter 7, user support facilities include the Customs Information and Support Centre in Sydney, User Support in Central Office (Level 2 Help Desk) and the ICS liaison role in the regions. As part of the review, Customs considered: the need to restore industry's confidence; how to provide appropriate support to users; and how to build capacity within industry through client service and education.

8.16 Customs has proposed new support arrangements with the primary objective being to provide timely, accurate assistance to industry, Customs and other Government agency staff across all relevant systems. The revised

operations of the Cargo Systems Support Framework have been endorsed by Customs' Executive and are now being implemented.

Working with third-party software providers

8.17 The successful implementation of ICS Imports depended on users' ability to transact business electronically with Customs. Some 25 per cent of companies use third-party software to interface with its systems. For many, preparedness for the implementation of the ICS came down to whether third-party software providers had adequately tested and installed their software. As noted in Chapter 7, some organisations did not receive their software until just prior to implementation or, in some cases, after 12 October 2005. Customs did not have formal quality assurance mechanisms in place by which to assess the readiness of third-party software providers or the quality of their software.

8.18 To manage the quality of third-party software, Customs could adopt a similar approach to the Australian Taxation Office (ATO). The ATO's Electronic Lodgement Service relies on the use of third-party software. The ATO, in consultation with industry, has implemented a self-regulated registration system for software products. The ATO does not assume any responsibility for the performance, accuracy or fitness for purpose of the third-party software.

8.19 Software developers must maintain their software according to ATO-provided functional specifications[175], undertake testing against ATO test cases, and submit validation and cross-check reports[176] to the ATO for assessment. On meeting the ATO's requirements, the software provider is advised of their registration number for the current year. Software providers must also make a declaration of compliance to register a product with the ATO.

Simulation centre

8.20 The ATO has also developed a 'simulation centre' to support applications development and business process redesign. The centre uses a co-design approach, which brings together designers and users of the tax

[175] Functional specifications are posted on the Registered Software Facility web site.

[176] Cross-check reports demonstrate that the test data used by the software provider is identical. The validation report shows that the test data set is successfully lodged with the test gateway and is the primary test.

system. It supports user involvement in the research, design and evaluation of products and related processes. The ATO has found that the practice of consulting users in the design process helps to ensure the quality of the product and that it meets both internal and external user expectations. Customs could review the practices adopted by the centre and assess the benefits of using a similar approach.

Communication strategy

8.21 An effective communication strategy must include not only listening to industry but demonstrating that their views have been considered. After the ANAO's discussions with many stakeholders, it is apparent that Customs needs to reassess how it communicates with industry to rebuild trust and cooperation.

8.22 Industry raised concerns throughout the life of the CMR project and, particularly, in the early stages. This included concerns associated with cascade reporting, data quality and underbond movements. The ANAO considers that these concerns were not adequately addressed by Customs, particularly for the sea cargo environment. As a consequence, resolving some of these issues now requires complex system changes and revisiting business rules. This will involve considerable additional cost for Customs.

8.23 From industry's perspective, although there were a number of forums that allowed their participation, Customs was primarily 'telling them what would happen'. Industry has advised that where it provided input there was rarely feedback on what suggestions were accepted or rejected and why.

8.24 As previously noted, Customs devoted considerable resources to make industry aware of the changes that would occur with the introduction of the CMR applications. However, the practical application of this strategy was not effective. This was seen as a contributing factor to the situation that developed in October 2005.

8.25 To determine the most effective delivery method for each group or industry sector, the ANAO considers that Customs should consult with industry to determine their information needs and how they would like to receive information. The recent introduction of the Australian Customs Cargo Advice notices is one example of how this can be achieved.[177]

[177] Customs Cargo Advices provide clarity around issues arising from the implementation of the imports segment of Customs ICS. The advices are developed from consultation between Customs and industry through the IAG.

8.26 The ANAO was continually told by industry that 'Customs does not understand how industry operates or their business processes'. To address this criticism and to ensure that Customs does understand industry and supply chain processes, consideration could be given to developing a program of secondments for Customs staff. Industry participants that the ANAO spoke to would be willing to accommodate such an arrangement.

Recommendation No.7

8.27 The ANAO recommends that Customs review its strategy for communicating with industry and, as part to this review:

- identify the most appropriate forums for communicating with industry;
- establish formal feedback and review mechanisms;
- determine the information to be exchanged and the most appropriate delivery method for each industry sector; and
- assess the practicalities of implementing an industry/Customs secondment program.

Customs response

8.28 Agreed. Over the last year Customs has made considerable progress in improving its communication with industry. A Cargo Processing Executive Steering Committee, chaired by the CEO and comprising senior customs and industry representatives, has been established to provide high-level guidance to shape future improvements to cargo management processes. The Industry Action Group continues to play a central role in identifying and prioritising changes to the Integrated Cargo System.

8.29 Already the Steering Committee has commissioned joint industry/ACS working groups to explore the potential of alternative cargo reporting models and to co-design improvements to ACS cargo clearance processes.

8.30 As part of new national program management arrangements, Customs has established an Industry Engagement and User Services Branch that is responsible for establishing effective on-going industry engagement and communication processes, including the information, training and support services for key industry segments.

Training provided by Customs

8.31 To have successfully implemented the ICS, Customs should have had in place well developed education and training strategies to assist internal and external users. The ANAO agrees with Booz Allen Hamilton's assessment that some parts of industry did not understand the nature or complexity of the system, its sophisticated matching requirements, or the training needed to use the new system.[178]

8.32 Industry and Customs' own internal users advised the ANAO that the training provided by Customs was not 'hands-on' and was not sufficiently targeted to specific industry sectors. As previously noted, Customs made available to industry a range of training materials. Although the material provided comprehensive information on how to use the ICS, it was not interactive. The industry test facility was also available, for training purposes, but was not considered to be effective because of the limitations of the data. Customs updated its training products but did not evaluate the effectiveness of its training strategy.

8.33 Customs is developing new training products and reference materials and has sought input from industry representative bodies. The ANAO considers that Customs also needs to put in place strategies to evaluate the effectiveness its ICS-related training strategies, regularly review training packages and update these packages as necessary.

Customs' Cargo Reporting Compliance Strategy

8.34 The late reporting of cargo impacts on Customs' ability to: risk assess cargo; facilitate trade; and efficiently clear cargo. Customs introduced its Cargo Reporting Compliance Strategy in April 2003. The strategy was implemented to enhance the timeliness and accuracy of cargo reporting. In recent years it has focused on preparing industry for the implementation of the CMR initiatives, primarily through general education and awareness.

8.35 Customs advised that, from October 2005 to March 2006, it could not provide accurate and detailed statistics covering the time periods in which cargo was reported (for example, when cargo was reported after vessel arrival). Data for this period was only available for cargo reported on time. This indicated that 65 per cent of sea cargo reports and 87 per cent of air cargo

[178] Booz Allen Hamilton, op. cit., p. 30.

reports were received within legislative timeframes.[179] More accurate and detailed statistics are now available. For the period April to September 2006 timeliness has improved significantly in the sea cargo environment with 80 per cent of reports received on time, and remained stable for air cargo reporting.

8.36 Under the new Trade Modernisation Legislation, Customs can impose sanctions where a person fails to meet certain import cargo reporting requirements.[180] Customs provided for a six-month moratorium on applying the new reporting penalties. It has assured industry that infringement notices will not be served where efforts were made to comply with the legislation and the delay was caused by Customs' system-related problems.

Standardised Data Set project

8.37 A major initiative that will improve the integrity and quality of data received by Customs is the Standardised Data Set project. Currently, there is no whole-of-government approach to the collection of international trade data. A single international shipment can require data to be submitted to several different Government agencies with different data requirements and systems. As part of the Maritime Security Review undertaken in 2004, Customs put forward a proposal for a Standardised Data Set. This proposal was endorsed by Government in August 2004.

8.38 The Standardised Data Set project is a whole-of-government initiative being coordinated by Customs. It is expected to significantly improve data accuracy and data integrity and, in turn, better inform Customs risk assessment processes. This is a long-term project in its very early stages. The ability to use the ICS and CCF and existing interfaces with other agencies is yet to be considered but does offer some possibilities.

Accredited Client Program

8.39 Customs' Accredited Client Program is intended to streamline clearance processes. The program was initially part of the CMR Business

[179] Under the *Customs Legislation Amendment (Airports, Ports and Cargo Security) Act 2004*, sea cargo must be reported 48 hours prior to the vessel's arrival at the first Australian port and air cargo two hours before arrival at the first Australian airport.

[180] Legislative requirements are also discussed in paragraphs 2.20 to 2.26.

Model.[181] The *Customs Legislation Amendment Act (No.2) 1999* contained provisions to enable the deferral of customs duty. However, the Government announced in the 2004–05 Budget that it would not proceed with the duty deferral model.

8.40 Customs is working towards implementing a revised program in early 2007. The revised model will be open to highly compliant companies and will facilitate the monthly reporting of imports and exports. Each consignment is currently reported separately. Participating companies will make a mid-month payment of duty based on an estimate of anticipated imports for that month, with a reconciliation payment to be made in the following month.

8.41 Commencement of the program is subject to legislative amendments being passed by Parliament and modifications to the ICS. The legislative amendments were included in the Customs Legislation Amendment (Border Compliance and Other Measures) Bill. The Bill was referred to the Senate Legal and Constitutional Legislation Committee. The Committee reported on 4 May 2006 and recommended that an independent cost/benefit analysis of the program be undertaken, taking into account the removal of the duty deferral mechanism. At the time of preparing this report, the Government was reviewing the Committee's recommendations but is yet to respond.

The future of the CMR project

8.42 The Booz Allen Hamilton review highlighted deficiencies and made recommendations in relation to the governance arrangements supporting the CMR project. The review found that, although Customs had established several committees responsible for different aspects of the management and governance of the ICS, there was no single business owner and that accountabilities for its delivery were unclear.

8.43 To address these concerns, Customs revised its governance structure and established a new Program Management Branch (Trade Facilitation) under the Cargo and Trade Division. The Branch's role is to put in place skills and capabilities to manage the Trade Facilitation program, which includes the ICS. The Branch will establish and manage the scope of the program under the direction of a new Deputy Chief Executive Officer and the Program Management Governance Group.

[181] The Accredited Client Program was intended to accredit highly compliant enterprises and allow increased flexibility in cargo movement. Major platforms of the program included speedy clearance of goods and the ability to pay duty on a periodic rather than a transactional basis.

8.44 The ICS has the potential to offer considerable benefits over the legacy systems it replaced. The benefits to be gained from the ICS will be seen when outstanding incidents and change requests are completed and reliance on the workarounds currently in place are reduced. Further improvements will also be seen when ongoing reviews are completed and when:

- Customs implements the recommendations proposed in the Booz Allen Hamilton review and works collaboratively with industry to achieve them;
- business processes are reviewed to ensure they align with the functionality of the ICS or, alternatively, the functionality of the ICS is modified to support these processes;
- business areas become more aware of their responsibilities as business owners and develop a better understanding of the functionality of the CMR applications. This should translate into better decisions regarding system enhancements and modifications; and
- Customs is in a better position to monitor and report on the effectiveness of its IT processes across systems.

8.45 Critical to the successful implementation of these initiatives and the outcomes of the various reviews, is Customs' ability to rebuild and maintain its relationship with industry.

Ian McPhee
Auditor-General

Canberra ACT
7 February 2007

Appendices

Appendix 1: Agency Response

Australian Government
Australian Customs Service

CHIEF EXECUTIVE OFFICER

Customs House
5 Constitution Avenue
Canberra City ACT 2601

Phone: 02 6275 6600
Fax: 02 62756796

Mr Peter White
Group Executive Director
Performance Audit Services
Australian National Audit Office
Centenary House, 19 National Circuit
BARTON ACT 2600

Dear Mr White

I refer to your letter of 29 November 2006 regarding ANAO's Performance Audit of Customs' Cargo Management Re-engineering Project.

I attach Customs' Agency response (Attachment A) and a response to the 7 recommendations at Attachment B.

Progress in implementing specific recommendations, which impact on Customs, will be reported, as usual, through the Audit Committee, which the ANAO attends.

The opportunity to comment, both throughout the audit and during the reporting phase is appreciated.

If you require any further information please do not hesitate to contact Neil Mann on (02) 6275 6500 or Jane Bailey on (02) 6275 6581.

Yours sincerely

Michael Carmody
Chief Executive Officer

9 January 2007

protecting our borders

Section 19 Report to Customs

Agency Response

60. Through the implementation of the Cargo Management Re-engineering (CMR) Project, Customs has delivered a robust platform for business re-engineering, replaced our legacy cargo management systems and introduced the Trade Modernisation Legislation to support the new security and trade facilitation environment.

61. At the same time, Customs acknowledges that there are things that could have been done to make the implementation smoother and that there are lessons for Customs that will arise not only in the continuing development of the Integrated Cargo System (ICS) but also in future major systems developments.

62. Customs has made significant progress in addressing the shortcomings identified by the ANAO in this report and taking action to ensure they do not re-occur.

63. Our staff responded quickly to address the immediate problems experienced by industry following the implementation of the imports processing component of the ICS in October 2005 and the system has functioned reliably during the past 14 months. However, it is clear that much remains to be done to realise the potential benefit of the ICS for both Customs and industry. Industry is now actively engaged with Customs in undertaking this work.

64. Over the last year, Customs has implemented significant changes to the ICS to address the difficulties faced by industry and worked hard to build a more effective industry relationship for the future.

65. Recognising the serious impact on Customs and industry, Customs commissioned external reviews of the ICS implementation and intelligence processes. Additionally, Customs has undertaken internal reviews of key business processes including the Cargo Risk Assessment component of the ICS.

66. In early 2006, Customs engaged independent experts to assist it to identify the business improvements required to address any shortfalls of the ICS, and to deliver any unrealised benefits for government or industry.

67. The review of the ICS proposed a number of recommendations, addressing improvements to governance arrangements; tactical improvements providing for increased functionality, usability and system stability; and strategic transformation actions. A number of actions have been completed, including:

- Implementation of a range of enhancements to the ICS addressing functionality issues. Work on further enhancements continues in line with a work program agreed with industry;
- Establishment of the Cargo Processing Executive Steering Committee, chaired by the CEO of Customs and comprising senior representatives from industry and Customs, to provide on-going strategic direction to Customs Trade Facilitation Program;

- Development of a Trade Facilitation program management structure to ensure sound governance of the work program;
- Implementation of the first stage of new organisational accountabilities that better align operational outcomes with agency objectives, including the creation of a dedicated focus on end-to-end cargo management processes;
- Establishment of new cargo management business re-engineering projects, including projects examining Alternative Cargo Reporting, Supply Chain Security and Standardised Data Sets – co-design with industry and other stakeholders is a feature of these projects;
- Revision of software development procedures governing release of software;
- Implementation of a revised ICS Business Continuity Plan.

68. Action continues to ensure all recommendations of the independent review are addressed. Monitoring of implementation is occurring through Customs Executive Management and the Customs Audit Committee.

69. The external review of the intelligence function reported findings in December 2006. This review will provide a sound vision for the future development of Customs intelligence capability and to provide recommendations on how this can be achieved. To provide a stronger alignment of intelligence activity with agency outputs a new Intelligence and Targeting Division has been established.

70. Action was undertaken in late 2005 and 2006 to address internal user issues associated with the Cargo Risk Assessment component of the ICS. Four working groups were established to consider issues in relation to usability, information quality, reporting and cargo selection. A number of CRA system enhancements have been implemented and an ongoing work program is being progressed as a high priority.

Customs Response to specific recommendations to ANAO Performance Report - CMR

No	ANAO Recommendation	Customs Response
Rec 1 Para. 2.26	The ANAO recommends that Customs implements the necessary arrangements to align the import and export processing provisions of the Customs Act 1901 with the Integrated Cargo System business rules and processes as a matter of priority	Customs agrees with the recommendation. Customs is considering options to improve the alignment between the import and export processing provisions of the *Customs Act 1901* and the Integrated Cargo System business rules and processes. If legislative change is considered to be a preferred option, Customs will seek approval to develop and introduce any necessary legislative amendments consistent with the Government's legislative priorities.
Rec 2 Para. 3.70	The ANAO recommends that Customs review its major projects to gain assurance that they are supported by a sound project management framework	Customs agrees with the recommendation and has implemented revised governance arrangements covering Integrated Cargo System related projects under a new Trade Facilitation Program. These arrangements are consistent with recognised best practice project management frameworks. Customs will review other major projects to ensure that they also are being managed appropriately. Drawing on the approach implemented for the Trade Facilitation Program, Customs is moving to establish a Program Management Office as a Centre of Expertise to support project and program management in Customs and to provide independent assurance to executives.
Rec 3 Para. 4.37	The ANAO recommends that Customs review its contract management arrangements for major ongoing projects to ensure compliance with: - Chief Executive Instructions - Commonwealth Procurement Guidelines - Financial Management and Accountability Regulations.	Customs agrees with the recommendation. Customs initiated internal and external audit reviews of Customs procurement management practices indicate a high level of compliance with procurement related obligations. The Chief Executive Instructions relating to contract management have been revised. Customs will continue to review its Chief Executive Instructions relating to contract management to ensure the issues of concern raised in the ANAO review are addressed. Adherence to the Chief Executive Instructions will be monitored across the organization. All major contracts entered into by Customs have contract and performance management arrangements established within the contract and personnel assigned to contract management roles.
Rec 4 Para. 5.45	The ANAO recommends that Customs develop, as a part of its software development lifecycle, a standardised approach to the testing and implementation of application projects and system modifications. This approach should require that:-	Customs agrees with the recommendation. As acknowledged in the report, significant improvements in the application testing approach have been made.

Attachment B

Customs Response to specific recommendations to ANAO Performance Report - CMR

	standards are established prior to the approval of the test project plan;- testing be undertaken in accordance with the project test plan.	Customs has developed and documented a standardised approach to the testing, quality management and implementation of application projects and system modifications. Through this approach, testing is required to comply with Full Life Cycle Testing principles, standards, procedures and methods, and to be managed, monitored and improved to provide optimal service. Testing is undertaken across the full product lifecycle to ensure early detection of problems, errors and risks. Formal management, monitoring, measurement, evaluation and reporting of testing activities are also included. The standardised approach is being progressively implemented across Customs with application development for the Integrated Cargo System the first to have adopted the approach.
Rec 5 Para. 5.74	The ANAO recommends that Customs updates its existing Memoranda of Understanding to reflect the implementation of the Integrated Cargo System. This should clearly establish: - inter-agency consultative arrangements; - security of information; - message integrity requirements; - and other administrative arrangements.	Customs agrees with the recommendation. Customs is updating Memoranda of Understanding (MOU) with the Australian Taxation Office and the Department of Industry, Tourism and Resources to reflect the implementation of the Integrated Cargo System. Work to update MOU with AQIS, Defence and ABS will commence in February 2007. Guidelines for the development of future MOU will ensure Integrated Cargo System related issues are addressed where appropriate.
Rec 6 Para 8.12	The ANAO recommends that Customs' review of the Integrated Cargo System (ICS) Imports Business Continuity Plan include:- an evaluation of Customs' Business Continuity Management framework, specifically assessing its continued appropriateness following the implementation of the ICS and its relationship to existing disaster recovery requirements;- documenting a control framework for transactions that occur as a result of a disruption to normal business activities; and- developing processes for regularly reviewing and testing continuity plans.	Customs agrees with, and has made substantial progress in implementing, the recommendation. A revised ICS Business Continuity Plan was implemented on 11 December 2006. The Plan includes a documented control framework and provides for regular testing and review. Following significant consultation and formal testing, the ICS User Representative signed off on acceptance of the BCP on behalf of industry. The Plan aligns with Customs' Business Continuity Management Framework. Customs will review the Framework to ensure it provides for appropriate disaster recovery arrangements as part of implementing new information technology service contracts in mid-2007.

Customs Response to specific recommendations to ANAO Performance Report - CMR

Rec 7 Para. 8.26	The ANAO recommends that Customs review its strategy for communicating with industry and, as part of this review: - identify the most appropriate forums for communicating with industry; - establish formal feedback and review mechanisms; - determine the information to be exchanged and the most appropriate delivery method for each industry sector; and - assess the practicalities of implementing an industry / Customs secondment program.	Customs agrees with the recommendation. Over the last year Customs has made considerable progress in improving its communication with industry. A Cargo Processing Executive Steering Committee, chaired by the CEO and comprising senior customs and industry representatives, has been established to provide high-level guidance to shape future improvements to cargo management processes. The Industry Action Group continues to play a central role in identifying and prioritising changes to the Integrated Cargo System. Already the Steering Committee has commissioned joint industry/ACS working groups to explore the potential of alternative cargo reporting models and to co-design improvements to ACS cargo clearance processes. As part of new national program management arrangements, Customs has established an Industry Engagement and User Services Branch that is responsible for establishing effective on-going industry engagement and communication processes, including the information, training and support services for key industry segments.

Appendix 2: Chronology of the CMR Project

Date	Event
March 1996	Customs recognised the need to re-engineer its cargo management processes
March 1997	Cargo Management Strategy published.
December 1997	Customs outsourced IT services to EDS.
April 1998	Office of Business Systems established to undertake reviews of Customs' business systems and processes.
7 May 1998	Customs establishes work plan with EDS for the integrated cargo management system project.
August 1999	Draft Business Model released to industry.
March 2000	Business Model released to industry.
December 2000	Protected Business Model released internally.
20 July 2001	Trade Modernisation Legislation introduced. Delivery date for ICS implementation set for 20 July 2003.
16 October 2001	Customs assumed full CMR project responsibility from EDS.
12 February 2002	Customs engaged the Consortium to develop the ICS. The Consortium's delivery date set for April 2003.
March 2002	Customs engaged SecureNet to develop CCF products and services.
May 2002	Customs engaged IBM (in conjunction with SecureNet) to develop CCF products and services.
1 October 2002	Customs transitioned to the new organisational structure developed by the Business Re-engineering Project.
10 October 2002	Legislative amendment made to Trade Modernisation Legislation, revising ICS implementation date to 20 July 2004.
5 March 2003	Customs vary the contract with the Consortium, amending deliverables and price. Delivery date changed to 19 December 2003.
March - April 2003	Release 1a: ICS/CCF trial with industry.
17 December 2003	Legislative amendment to Trade Modernisation Legislation, revising ICS implementation date to 20 July 2005.
28 January 2004	First Ministerial Roundtable on CMR.
1 June 2004	Second Ministerial Roundtable on CMR.
6 October 2004	Release 2: ICS Exports implemented.
1 February 2005	Third Ministerial Roundtable on CMR.
13 April 2005	Fourth Ministerial Roundtable on CMR.
5 May 2005	Fifth Ministerial Roundtable on CMR.
5 July 2005	Sixth Ministerial Roundtable on CMR.

Date	Event
24 August 2005	Legislative amendment made to Trade Modernisation Legislation, revising ICS implementation date to 12 October 2005.
September 2005	Customs receives provisional Defence Signals Directorate (Gateway) Certification for the CCF.
12 October 2005	Release 3: ICS Imports implemented.
20 October 2005	Seventh Ministerial Roundtable on CMR.
26 October 2005	Eighth Ministerial Roundtable on CMR.
28 October 2005	First meeting of the Industry Action Group (jointly chaired by Customs and industry).
27 September 2006	Customs receives Full Defence Signals Directorate (Gateway) Certification for the CCF.

Note: Shading indicates key event.

Source: Australian Customs Service

Appendix 3: CMR Governance Structure

Table A 1

ICS governance arrangements

	Forums	How often met	Description
Executive level	Deputy Chief Executive Officer Briefing (Customs)	Monthly	Provided high level overview and management of the CMR project.
	CMR Management Board[182] (Customs/vendors)	Six weekly and as required	Provides strategic advice and management to the CMR project. Executive decision making forum with ability to approve major decisions and funding allocations.
	Audit Committee	Three monthly	Chaired by the DCEOs. Provides advice on all matters relating to audit, evaluation, risk management and fraud control.
	CMR SES/Directors Transition Group (Customs)	3-4 weekly	Brought together all areas of Customs (including regions) to discuss CMR issues.
	CMR Executive Group (Customs/vendors)	Weekly	Meeting between Customs and Consortium project managers.
Project level	ICS Working Committee (Customs/vendors)	Weekly	To discuss progress of both the Consortium and Customs against project schedule.
	Project Team Meetings (Customs)	Weekly	To discuss progress and emerging issues.
	Project Team Meetings (Consortium)	Weekly	Communicate schedule conditions and significant issues at the project and team levels to the Consortium project manager.
	Infrastructure Planning and Provision Meeting (Customs/vendors)	Weekly	Coordinate EDS' provision of infrastructure environment with the ICS schedule and design.
	Integration Assessment Team Meeting (Customs/vendors)	Weekly	Integrate ICS and CCF products. Discuss progress against project schedule and agree on impact/action required.
	ICS facilities and accommodation meeting (Customs/vendors)	Weekly	Discuss facility and accommodation requirements.
Change Control	Change Control Board	Weekly	To ratify change requests for functionality, data model and project schedule.
	Change Advisory Board	3-4 weekly	Reviews, assesses and approves changes.
	Change Planning Committee	Weekly	Decision rights to schedule changes.

Source: Australian Customs Service

[182] The Board was initially established as the Re-engineering Steering Committee in March 1998. It was replaced by an Executive Steering Committee in early 1999. This Committee was replaced by the CMR Board in March 2000, which became the ICS Steering Committee in March 2002 and then the CMR Management Board in July 2004.

Table A 2

CCF governance arrangements

	Forum	How often met	Description
Executive level	CCF Steering Committee Meetings (Customs/vendors)	Monthly and as required	To oversee the progress of the project and provide policy and corporate direction to the project.
	CMR Executive Group (Customs/vendors)	Weekly	High level meeting between Customs and Consortium project managers. Used same report as that used by ICS Working Committee.
Project level	Project Team Meetings	Weekly	Communicate current and forecast schedule conditions and significant issues at the project and team levels to IBM and other subcontractors.
	CCF Working Committee Meetings	Weekly	To discuss progress against the CCF and ICS project schedules and to agree impact/action if required.
	Infrastructure Planning and Provision Meeting	As required	To coordinate EDS' provision of infrastructure with the CCF schedule and design.
	Coordination and Planning Meeting	Weekly	To coordinate CCF functions and discuss design, architecture, technology issues and to agree impact/action.
Change Control	Change Control Board Meetings	As required	To ratify change requests for functionality, data model and project schedule.

Source: Australian Customs Service

Index

R

S

T

U

Series Titles

Audit Report No.1 Performance Audit
Administration of the Native Title Respondents Funding Scheme
Attorney-General's Department

Audit Report No.2 Performance Audit
Export Certification
Australian Quarantine and Inspection Service

Audit Report No.3 Performance Audit
Management of Army Minor Capital Equipment Procurement Projects
Department of Defence
Defence Materiel Organisation

Audit Report No.4 Performance Audit
Tax Agent and Business Portals
Australian Taxation Office

Audit Report No.5 Performance Audit
The Senate Order of the Departmental and Agency Contracts (Calendar Year 2005 Compliance)

Audit Report No.6 Performance Audit
Recordkeeping including the Management of Electronic Records

Audit Report No.7 Performance Audit
Visa Management: Working Holiday Makers
Department of Immigration and Multicultural Affairs

Audit Report No.8 Performance Audit
Airservices Australia's Upper Airspace Management Contracts with the Solomon Islands Government
Airservices Australia

Audit Report No.9 Performance Audit
Management of the Acquisition of the Australian Light Armoured Vehicle Capability
Department of Defence
Defence Materiel Organisation

Audit Report No.10 Performance Audit
Management of the Standard Defence Supply System Remediation Programme
Department of Defence
Defence Materiel Organisation

Audit Report No.11 Performance Audit
National Food Industry Strategy
Department of Agriculture, Fisheries and Forestry

Audit Report No.12 Performance Audit
Management of Family Tax Benefit Overpayments

Audit Report No.13 Performance Audit
Management of an IT Outsourcing Contract Follow-up Audit
Department of Veterans' Affairs

Audit Report No.14 Performance Audit
Regulation of Pesticides and Veterinary Medicines
Australian Pesticides and Veterinary Medicines Authority

Audit Report No.15 Financial Statement Audit
Audits of the Financial Statements of Australian Government Entities for the Period Ended 30 June 2006

Audit Report No.16 Performance Audit
Administration of Capital Gains Tax Compliance in the Individuals Market Segment
Australian Taxation Office

Audit Report No.17 Performance Audit
Treasury's Management of International Financial Commitments—Follow-up Audit
Department of the Treasury

Audit Report No.18 Performance Audit
ASIC's Processes for Receiving and Referring for Investigation Statutory Reports of Suspected Breaches of the Corporations Act 2001
Australian Securities and Investments Commission

Audit Report No.19 Performance Audit
Administration of State and Territory Compliance with the Australian Health Care Agreements
Department of Health and Ageing

Audit Report No.20 Performance Audit
Purchase, Chartering and Modification of the New Fleet Oiler
Department of Defence
Defence Materiel Organisation

Audit Report No.21 Performance Audit
Implementation of the revised Commonwealth Procurement Guidelines

Audit Report No.22 Performance Audit
Management of Intellectual property in the Australian Government Sector

Audit Report No.23 Performance Audit
Application of the Outcomes and Outputs Framework

Better Practice Guides

Implementation of Programme and Policy Initiatives:	
Making implementation matter	Oct 2006
Legal Services Arrangements in Australian Government Agencies	Aug 2006
Preparation of Financial Statements by Public Sector Entities	Apr 2006
Administration of Fringe Benefits Tax	Feb 2006
User–Friendly Forms Key Principles and Practices to Effectively Design and Communicate Australian Government Forms	Jan 2006
Public Sector Audit Committees	Feb 2005
Fraud Control in Australian Government Agencies	Aug 2004
Security and Control Update for SAP R/3	June 2004
AMODEL Illustrative Financial Statements 2004	May 2004
Better Practice in Annual Performance Reporting	Apr 2004
Management of Scientific Research and Development Projects in Commonwealth Agencies	Dec 2003
Public Sector Governance	July 2003
Goods and Services Tax (GST) Administration	May 2003
Managing Parliamentary Workflow	Apr 2003
Building Capability—A framework for managing learning and development in the APS	Apr 2003
Internal Budgeting	Feb 2003
Administration of Grants	May 2002
Performance Information in Portfolio Budget Statements	May 2002
Life-Cycle Costing	Dec 2001
Some Better Practice Principles for Developing Policy Advice	Nov 2001
Rehabilitation: Managing Return to Work	June 2001
Internet Delivery Decisions	Apr 2001
Planning for the Workforce of the Future	Mar 2001
Contract Management	Feb 2001
Business Continuity Management	Jan 2000

Building a Better Financial Management Framework	Nov 1999
Building Better Financial Management Support	Nov 1999
Managing APS Staff Reductions (in Audit Report No.49 1998–99)	June 1999
Commonwealth Agency Energy Management	June 1999
Cash Management	Mar 1999
Security and Control for SAP R/3	Oct 1998
Selecting Suppliers: Managing the Risk	Oct 1998
New Directions in Internal Audit	July 1998
Controlling Performance and Outcomes	Dec 1997
Management of Accounts Receivable	Dec 1997
Protective Security Principles (in Audit Report No.21 1997–98)	Dec 1997
Telephone Call Centres Handbook	Dec 1996
Paying Accounts	Nov 1996