Project Rosetta (Streams 1 and 2)

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Dear Presiding Officers

Under the provisions of section 16AB of the *Audit Act 1994*, I transmit my report on *Project Rosetta (Streams 1 and 2)*.

Yours faithfully

DDR PEARSON
Auditor-General

28 May 2008

Foreword

Electronic directories are part of the government's 'back office' information and communication technology (ICT) infrastructure and are not visible to the public. They help to manage information about people and organisations and, as such are fundamental to identity management.

Project Rosetta has established a whole-of-government enterprise directory and a uniform set of meta-directories in each of the 10 participating departments, which are synchronised with the whole of Victorian government (WoVG) directory.

Although the capital cost of the project was slightly lower than estimated, recurrent expenditure has exceeded the estimate by $3.0 million (107 per cent), and the departmental costs incurred to implement the directories are estimated to be at least $7.9 million. The project was delivered seven months late.

The time and cost overruns experienced in Rosetta are becoming commonplace when reviewing multi-agency ICT implementations. While not of the same scale as those experienced in other projects recently audited, such as Health*SMART*, these recurring features indicate that lessons need to be learned.

By their nature, multi-year and multi-agency ICT projects are complex, and this complexity needs to be better recognised when planning timeframes and estimating costs. This audit confirms that realistic contingency is not being factored into plans. Accordingly, time and cost outcomes should be better characterised as 'underestimates', not 'overruns'.

It is also disappointing to observe that no objective, rigorous attempt has been made to confirm that the expected benefits from the project have been realised. Many ICT business cases are predicated on achieving efficiencies outweighing the cost of implementation and operation. Yet many of those responsible for ICT implementations simply do not seek to confirm these benefits have been obtained.

Operationally, Rosetta needs to strengthen its controls over data integrity and business continuity management and disaster recovery plans also need to be finalised.

Strategically, if the longer-term vision for the Rosetta project is to be achieved, ICT standards and guidelines are needed to reduce the risk of inconsistent approaches to identity and access management in future ICT developments.

DDR PEARSON
Auditor-General

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Contents

1 Executive summary

1.1 Introduction

Project Rosetta is an initiative under the government's *Connecting Victoria* policy. The policy aims to deliver the benefits of information and communications technology (ICT) to all Victorians.

At a minimum, the project was expected to establish electronic directory services in core government departments, to store personal details of employees and contractors and to provide 'white pages' capability.

The overall objective of this audit was to assess whether Project Rosetta has been effectively managed; involving a review of its development, ongoing management and maintenance by the Government Services Group (GSG) and in three selected departments.

1.2 Key findings

- Project Rosetta has delivered the planned functionality of a whole of Victorian Government (WoVG) enterprise directory and a uniform set of electronic meta-directories in the 10 portfolio departments as intended, albeit seven months later than originally planned.
- There is still a need to improve control over the inputting and updating of data in the directories so they remain complete and accurate. Some key elements of identity data, mainly date of birth and gender, are stored incorrectly in some departmental directories and in the WoVG directory. While this does not impact on the overall operation of the Rosetta directory, it does mean that additional work is required to validate new and changed directory entries.
- The Rosetta system in its current form is authoritative only as a 'white page' directory for government employees. If the directory is to become an authoritative identity management database, it will need to be reviewed and enhanced to strengthen system integrity.
- The Rosetta directory provides a common platform that can be used in future ICT systems developments. The GSG is coordinating aspects of WoVG ICT developments to avoid new ICT projects incorporating components that compete or conflict with existing architectures, in particular those provided by Rosetta.

- GSG has yet to finalise ICT standards for identification, authentication and authorisation of system users and for information classification. In the absence of these standards, future ICT developments using Rosetta functionality are likely to adopt inconsistent approaches to identity management and information classification.
- The approved funding for Rosetta (Streams 1 & 2) was $16.8 million. Total actual costs on completion of the project were $19.8 million. The cost overrun relates to operating expenditure. Audit analysis indicates that the initial estimates of the staff time and materials required to operate and maintain the Rosetta directory were not realistic.
- The approved budget for the project did not include the costs incurred by participating departments. Audit estimates departmental project expenditure of more than $7.9 million, in addition to the $19.8 million incurred by Multimedia Victoria (MMV).
- The three departments in our audit sample have not completed an assessment of benefits realised, and while MMV has completed a benefits realisation report, it is inadequate. In the absence of a rigorous and comprehensive benefits realisation study, audit is not able to give any assurance that Project Rosetta has realised the benefits predicted in the business case.
- The arrangements for the ongoing support and management of Rosetta at the WoVG level are appropriate. The GSG has established 'Rosetta Operations' to manage and support the WoVG directory.

1.3   Recommendations

- GSG should develop realistic timeframes for future major ICT projects involving multiple agencies that:
  - include a realistic allowance for contingency, and
  - take sufficient account of other competing IT activities planned in the participating agencies. **(Recommendation 3.1)**

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF agrees, in-principle, with this recommendation. Whole-of-government projects, by their very nature, are complex requiring the development of a robust and flexible project plan that will allow for the identification of contingencies and competing IT priorities, especially where there is involvement from multiple agencies. It would be expected that a regular review of the project plan could result in periodic changes to certain underlying project assumptions, impacting on the delivery of each key phase of the project delivery, and the delivery of a project within a realistic timeline.

A post-implementation review of this project will identify the areas for improvement, with any lessons learnt from the delivery of this project to be applied to other cross-government projects.

- Departments establish controls to:
  - detect or prevent erroneous data input into directories, and
  - correct and resubmit data that has been input erroneously. **(Recommendation 3.2)**
- GSG review run-to-run control totals and ensure completeness of WoVG directory file updates. **(Recommendation 3.3)**

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF supports this recommendation. To ensure completeness of updates to the WoVG directory file, the following actions will be taken:

- *file update indicators (as managed by DTF) will be reviewed and strengthened; and*
- *departments will be advised of their responsibilities in submitting updates to the directory file.*

- GSG establishes control procedures to monitor system activities. **(Recommendation 3.4)**

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF notes this recommendation. Control procedures to monitor the activities of the system are currently in place. However, where appropriate, these internal control procedures will be reviewed and strengthened to support the completeness and accuracy of the database.

- GSG confirms that the methods for exchanging Rosetta information within and between departments, and Rosetta Operations, are compliant with departmental privacy requirements and consistent with existing information classification standards. **(Recommendation 3.5)**

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF notes this recommendation. DTF believes that the method that has been used for exchanging Rosetta information within departments, across departments and across the Rosetta Operations is consistent and compliant with applicable classification standards and privacy requirements.

In order to mitigate any concern about variability in the manner in which some departments have implemented privacy requirements and classification standards, DTF will review this process and re-affirm with departments as to their responsibilities in this area.

- GSG ensures that for future multi-agency, multi-year ICT infrastructure investments:
  - full life-cycle cost estimation is undertaken at the planning phase

- GSG works in conjunction with the departments to make sure that common project charts of account and accounting rules are established at each participating agency so that development and recurrent costs are recorded consistently
- forecast full cost to completion is updated regularly and monitored to reconcile with the cost assumptions in the original business case. **(Recommendation 3.6)**

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF agrees in-principle with the recommendation. While departments are consulted when estimates of full life cycle costs are developed, it is often difficult to comprehensively establish actual project costs. A review of the method by which the costs incurred for multi-agency projects are determined will be undertaken in the near future, with lessons learnt to be applied to future multi-agency and multi-year ICT infrastructure projects. A review will also be undertaken to determine a consistent method for developing and recording project costs, including a reconciliation of approved project costs with the approved business plan.

- GSG completes a robust and conclusive benefits realisation study. **(Recommendation 3.7)**

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF advises that a benefits realisation study has been undertaken for this ICT infrastructure project however an additional study, which will show the cumulative benefits, will be undertaken shortly.

- GSG finalises its business continuity planning as a matter of priority. **(Recommendation 4.1)**

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF agrees with the recommendation. The finalisation of the business continuity planning will occur as a matter of priority.

- GSG should issue standards for information classification. **(Recommendation 4.2)**

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF supports this recommendation. Work is currently being undertaken which will result in the development of appropriate standards for information classification, with these standards to be formally issued for adherence upon completion.

- GSG should complete and issue standards for the identification, authentication and authorisation of users, for the recording and auditing of activities, and for the detection, reporting and collection of evidence related to unauthorised access to information or systems. **(Recommendation 4.3).**

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF notes this recommendation. The development of appropriate standards to mitigate unauthorised access to information or systems is currently in progress, with these standards to be formally issued for adherence upon completion.

2 Background

2.1 Overview of electronic directories

All computer networks rely on electronic directories. These directories keep track of user names, passwords and other data to authenticate the identity of the people authorised to access computer systems on a network.

They also allow computer system administrators to manage organisation-wide information from a central repository. This information can be distributed across the organisation through the entire network to as many, or as few, people as required.

Before the Rosetta project there was rapid growth in directories across government. While these directories served their immediate purpose, different technologies had been used to develop them, creating a complex operational environment.

There were three major government-wide directories in existence before Rosetta:
- Victorian Government Directory Online (VGDOL)
- Lotus Notes address book
- Victorian Government directory.

The contents of the government-wide directories were not compatible with each other and did not constitute a complete record of government employees.

These government-wide directories and separate departmental directories, together, contained information on tens of thousands of Victorian Government staff and contractors. Staff could be listed in more than one directory, and each additional directory required extra effort to keep its entries up to date. The Rosetta directory was intended to replace VGDOL and provide a consolidated directory of all government staff and contractors.

2.1.1 Origins of the Rosetta program

In November 1999, the government released its *Connecting Victoria* policy, which included strategies for expanding the information and communications technology (ICT) industry and for sharing the benefits of ICT across the Victorian community. *Connecting Victoria* was followed in March 2002 with the publication of '*Putting People at the Centre*', the state's vision for e-Government, which described initiatives to improve delivery of government services.

The Multimedia Victoria (MMV) group (in what was then the Department of State and Regional Development), was responsible for implementing the government's vision for ICT, including the development of ICT infrastructure and the implementation of e-Government services.

MMV had been working on various aspects of government directories since 1999, and by 2001 had developed a strategy for the implementation of a government-wide integrated electronic directory service (IEDS). The IEDS strategy was intended to implement a secure and flexible electronic directory infrastructure to provide a foundation for e-Government services.

In July 2002, MMV obtained approval and funding to launch its Telecommunications Purchasing and Management Strategy (TPAMS). This strategy was intended to establish a framework for the whole-of-government procurement and management of telecommunications services into the future.

TPAMS included funding of $16 million over five years for the development of the first stage of an integrated directory infrastructure for the Whole of Victorian Government (WoVG), which is now known as Rosetta.

2.1.2 Objectives and scope of the Rosetta program

Rosetta was initiated to establish a series of inter-connected electronic directories to store details about employees and contractors who require access to government computer systems.

The MMV envisaged three streams of work under the Rosetta program; however, the approved scope of the Rosetta project was to deliver only streams 1 and 2:

- **Stream 1 –** develop the directory infrastructure
- **Stream 2 –** develop an identity management framework
- **Stream 3 –** extend directory functionality and take advantage of simplified sign-on and authentication.

Stream 1 related to the specification, selection, implementation and deployment of the hardware and software for a WoVG, central hub meta-directory[1], and meta-directories for the 10 participating departments.

The establishment of the directory infrastructure was designed to be more than just a 'white pages' – it was to be the key to identity management in the public sector, with direct implications for improved information security, reduced administrative effort and improved efficiency. Figure 2A shows how the Rosetta directories are arranged.

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[1] *A 'meta-directory' is used to synchronise and aggregate information from multiple directories and applications. The information in the directory is a collection of personal details, such as names, addresses and dates of birth, which are used to create a unique identity for each user.*

Figure 2A
Rosetta directory structure
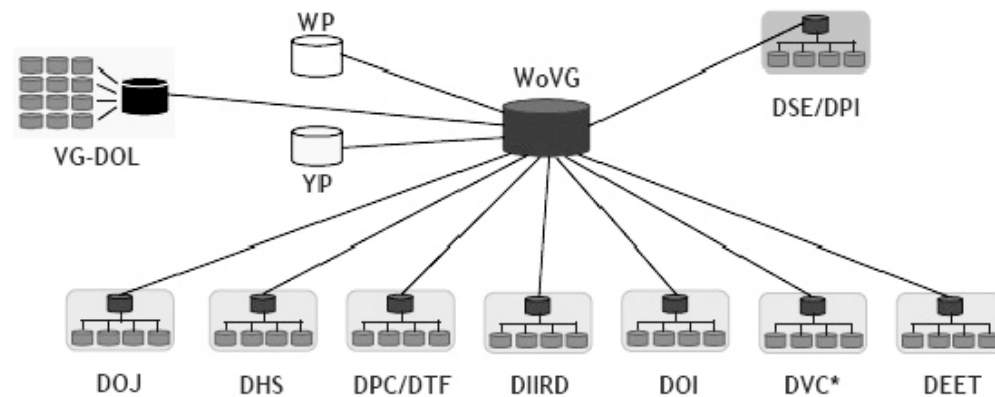
* Note: Logical representation only. DVC likely to be serviced by another department

Source: Project Rosetta — Stage 1 Discovery, RA & Design, Statement of Work prepared for Multimedia Victoria, dated 24 September, 2004.

Stream 2 was designed to deliver a conceptual framework document to help the government with identity management in the future. Its scope covered government employees and contractors, and where appropriate, members of the public.

This framework was intended to allow government to:
- develop consistent rules for authentication, access control, and authorisation across the WoVG
- identify potential requirements for future infrastructure projects within agencies, that relate to identity management
- address privacy, liability or legislative issues that may be associated with identity management.

Stream 3, which was not part of the scope of the Rosetta project, focussed on the progressive roll out of additional directory functions relating to identity and access management across all agencies. This stream would provide the strategic opportunities for the WoVG to harvest significant benefits.

2.1.3 The Rosetta project business case

MMV established the Rosetta project board, which had its first meeting in January 2003. This high-level board included the Director of e-Government Strategy and Policy as chair, and representatives from each of the participating departments.

The board approved the business case for Project Rosetta (Streams 1 and 2) in March 2003. The $16 million project funding obtained through TPAMS was allocated as capital expenditure of $13.2 million and operating expenditure of $2.8 million, to be spent over five years.

The implementation of Stream1 required:
- procuring of the hardware and software solution and an associated vendor
- 'cleansing' of data on existing directories
- establishing a WoVG hub directory at MMV and meta-directories in each department
- establishing connections between the meta-directories and selected applications in each department
- establishing connections between the departmental meta-directories and the hub meta-directory
- synchronising directories
- establishing a set of standards, operational procedures and guidelines
- training.

A consulting firm was engaged for Stream 2 in order to complete the necessary research and analysis to develop a conceptual framework for WoVG identity management.

In December 2003, the chief technology office was established within MMV, and assumed responsibility for the management and delivery of whole-of-government ICT contracts and projects, including, TPAMS and Rosetta.

In October 2004, MMV issued a governance model for Project Rosetta implementation and convened a Project Rosetta Implementation (PRI) Program Board. This comprised the chief technology officer, a representative of the deputy secretary from each participating department, the Project Rosetta director and a program director from the prime contractor. The board was responsible for the implementation of the project. The implementation work completed in each participating department had its own governance framework, which included a separate project board, and included senior IT staff.

The implementation of the electronic directories and their subsequent rollout to portfolio departments was to be completed by December 2005.

2.1.4 Benefits expected from the Rosetta project

Key benefits expected for participating agencies were identified at the project's inception. They included both intangible and tangible (cost) benefits arising from:
- better assurance of integrity and efficiency in the location of, and communication between people across government departments
- better security, efficiency and effectiveness of directory infrastructures
- delivery of a platform suitable for the launch of other e-Government initiatives.

During subsequent development of the business case, the MMV project team used a two-stage elimination process to select its preferred solution for the project.

First the project team identified four alternative approaches, completed a comparative analysis, which eliminated two. Then they completed a detailed financial evaluation to identify the final preferred solution.

The approach selected required implementation of a particular technical solution at the WoVG level with a recommendation that all participating departments adopt the same technical solution.

This approach was assessed as being able to optimise collective purchasing power and reduce technical differences in implementation. Importantly, it also allowed those departments to continue with their existing meta-directory technology if they wanted to.

The business case forecasted the following benefits for the preferred solution for Rosetta Streams 1 and 2:

- intangible benefits of a qualitative nature, which included:
    - improved security
    - the ability to deploy software to automate user account provisioning and to provide simplified sign on (SSO)
    - a standardised directory infrastructure.
- direct cost savings over five years, estimated to be $9 million in net present value terms, arising from:
    - increased productivity of IT staff and end users
    - costs avoided in the ongoing acquisition and maintenance of alternative technology by departments.
- indirect cost savings, estimated to be $15 million in present value terms, arising from productivity improvements in the following activities:
    - security, access management and workflow (specifically SSO, provisioning and other key directory functions unlocked through directories infrastructure)
    - enabling non-duplicated access by citizens, businesses and local government to Victorian Government services, and enablement of key elements of the TPAMs.

2.2   Audit objective and approach

2.2.1   Objective of this audit

The overall objective of this audit was to assess whether Project Rosetta (Streams 1 and 2) has been effectively managed.

To address this overall audit objective, the audit examined whether:

- the implementation of Project Rosetta (Streams 1 and 2) has met its defined objectives
- the budgeted development cost of the project and its key milestones have been achieved
- the expected benefits from the implementation of Rosetta (Streams 1 and 2) have been realised by WOVG and departments.
- appropriate structures, policies and processes are in place for the ongoing management and support of Rosetta systems at the WoVG level and for selected departments.

2.2.2 Audit approach

The audit involved a review of the development and ongoing maintenance by the GSG, within the Department of Treasury and Finance, and three selected departments.

The audit was performed in accordance with Australian Auditing Standards.

The total cost of this audit, including the preparation and printing of this report was $200 000.

3 Implementation of the Rosetta project

At a glance

Background

The initial electronic integrated directory services program was broken into three streams, each with different objectives. The Rosetta project focused solely on the implementation of Streams 1 and 2, which related to the development and implementation of directory infrastructure and the development of an identity management framework. Rosetta is strategically significant because the directory services it set out to establish are essential components of the government's ICT infrastructure strategies within and across all government agencies.

Key findings

- Rosetta Stream 1 has delivered the planned functionality of a WoVG enterprise directory for the expected capital cost
- It was delivered later than planned, but with no significant adverse cost or operational implications
- The annual operating costs for Rosetta are higher than anticipated and this needs to be taken into account in any benefits realisation study
- Objective evidence is not available to substantiate that the expected tangible cost savings have been realised. Nor has there been any conclusive study undertaken to demonstrate that the chosen solution has achieved the planned intangible benefits including improved security, a standardised directory infrastructure and simplified sign on.
- Rosetta Stream 2 was delivered as planned.

Key recommendations

- In setting timeframes for major ICT projects involving multiple agencies GSG should:
  - include a realistic allowance for contingency
  - take sufficient account of other competing IT activities planned in the participating agencies.
- In setting budgets for major ICT projects involving multiple agencies GSG should ensure full life cycle cost estimation is undertaken at the planning phase.
- GSG should complete a robust and conclusive benefits realisation study of the Rosetta system.

3.1 Rosetta Stream 1

3.1.1 Background

The objective of Stream 1 was to establish an authoritative, automated and integrated directory service in all 10 government departments by December 2005.

Stream 1 was organised in three stages, with project funding committed incrementally to match work completed at each stage. The three stages were:

- **Stage 1 –** requirements management, system analysis and design
- **Stage 2 –** system development, integration and pilot deployment
- **Stage 3 –** roll out to participating departments.

3.1.2 Achievement against planned timelines

Rosetta Stream 1 started in August 2004 and implementation concluded in July 2006, seven months later than originally planned. Key project dates are shown in Figure 3A below.

Figure 3A
Project Rosetta timeline
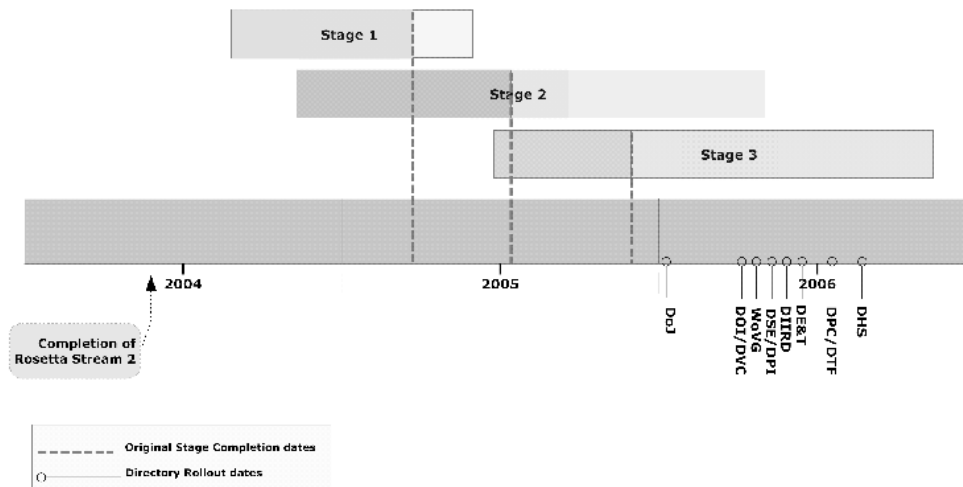
Source: Victorian Auditor-General's Office.

The implementations in departments went 'live' in 2006, starting in April, with the last system going 'live' in July. Following the expiration of the warranty period, the project officially concluded in November 2006.

Throughout the project, issues causing delays were communicated to the Rosetta project board. The project team's exception reports and minutes of discussions with key departmental staff reveal that delays were primarily due to an underestimation of the complexity of the project, both by the vendor and the departments.

Specific delays were attributed to project scope changes, clashes with the implementation of other departmental IT projects, especially HR system upgrades; and the need for re-work and correction of defects in the solution provided by the vendor.

Stage 3 was the most severely affected by schedule overruns and required a deed of release to formally document delays and to provide an agreed framework for subsequent completion by the vendor.

It was also noted in a post-implementation report that the original schedule was regarded as 'uncompromising' and had minimal consideration for contingency planning.

Conclusion on achievement against timeframes

The project experienced delays. However, given the complexity associated with a multi-agency implementation, these delays are not considered excessive. The tight timeframes planned and the lack of contingency in the schedule reflect an 'optimism bias', such that the delays in implementation are better viewed as underestimates in the time required, rather than running over time.

Recommendation

3.1 GSG should develop realistic timeframes for major ICT projects involving multiple agencies that:

- include a realistic allowance for contingency
- take sufficient account of other competing IT activities planned in the participating agencies.

3.1.3 Achievement against planned functionality

Project Rosetta is the first WoVG ICT project to define and build a common solution integrated into 10 departments. Rosetta Stream 1 has established:

- a WoVG enterprise directory
- a uniform set of electronic meta-directories in each participating department, which are synchronised with the WoVG directory.

This has created a directory infrastructure with a two-level hierarchy as planned.

Rosetta Stream 1 has also:

- brought together information from the 10 departments, as well as information previously stored in VGDOL

- provided a 'white pages' directory for locating people (the solution has also provided 'yellow pages' capability for use in a subsequent project)
- provided a basic application for 6 of the 10 participating departments that automates creation and deletion of computer user accounts.

Only four departments followed a recommendation in the Rosetta business case to connect their HR databases to their Rosetta directories. This recommendation was aimed at establishing the HR system as the single authoritative source of identity data in accordance with recommended best practices based on research conducted by global IT analysts.

The other six departments did not connect Rosetta to their HR database due to timing conflicts between Project Rosetta and major upgrade projects for their HR databases. The departments decided that it would not be feasible or practical to develop the connection during a state of change. Consequently, they identified other databases, such as email or Lotus Notes databases, to be used to provide accurate identity information.

If the government decides to mandate HR as the single authoritative source of identity data across all agencies in the future, the Rosetta solution has the capability to implement this change.

Conclusion on planned functionality

Rosetta Stream 1 has delivered its planned functionality.

3.1.4   Data integrity and system reliability

While the project has delivered the desired functionality, we found that certain controls that ensure data integrity and systems reliability are not operating effectively.

Controls over data integrity

Rosetta aims to deliver an 'authoritative…directory service'. To fulfil this objective, there needs to be controls in place to ensure the accuracy and integrity of the information contained in the directory.

The audit analysed the data contained in the WoVG directory, as well as the data contained within three departmental meta-directories and found that:
- from the 71,869 records in the WoVG directory, 272, or 0.38 per cent have special characters or dummy data in name fields
- from the 8,345 records sampled in the departments' meta-directories, 985 or 11.8 per cent were not in the WoVG directory.

The results indicate that there are weaknesses in the controls over the data input into Rosetta directories.

The results also indicate that there is a lack of control over certain aspects of the synchronisation process. The processes built into Rosetta should ensure that a subset of information from each record entered into the departmental meta-directories is instantaneously copied the WoVG Directory.

Missing and incomplete data

Inspection of the data in the Rosetta WoVG directory revealed that 25 763 records (35.8 per cent) had dummy date of birth data ('01/01/1900') and 17 846 (24.8 per cent) had dummy gender data ('X').

A number of departments decided either not to include the date of birth and/or gender data in their respective departmental Rosetta meta-directories or not to forward this data to the WoVG directory.

Audit research indicates that departments are not prohibited from storing these items of personal data in Rosetta. Although date of birth and gender data is of a personal nature; it is not identified as 'sensitive' in the *Information Privacy Act 2000*.

Departments are, therefore, only required to give employees 'notice' of their intention to store this data.

The Rosetta project board, which included representatives of senior management from the participating departments, had also completed a privacy impact assessment and consulted with HR and legal representatives before completing its specification for the data to be stored in Rosetta. Certain departments also completed independent privacy impact assessments before deciding on whether or not to input the date of birth and/or gender data. These reviews supported the view that the inclusion of this data in Rosetta is not a privacy issue.

The WoVG directory is used to support automatic data matching programs. These programs are designed to match personal data in order to identify and correct duplicated staff records. The data matching process is designed to run automatically. When the Rosetta system has successfully identified a person for the first time it will create a unique personal identification number for that person. However, when a person is initially entered into the system, in the absence of a unique personal identification number, Rosetta must rely upon a combination of name, gender and date of birth to identify the person.

If date of birth or gender data is not available this process must be taken offline and completed manually, which takes time and is prone to error.

Controls over system reliability

Rosetta WoVG directory reporting facility

Reporting is a necessary control that helps keep administrators up-to-date on the accuracy and integrity of information contained within Rosetta. In particular, it is necessary in order to confirm that there is no data lost in the transfer process between the departmental meta-directories and the WoVG directory, and to check that the total number of records contained in the directory does not exceed software licensing provisions.

Staff at both the WoVG and departmental level are not using the Rosetta reporting capabilities to monitor the transfer process or to check the number of records.

Rosetta WoVG directory business activity monitoring

The Rosetta design requires directories to 'talk to each other' i.e. exchange information. Rosetta directories are able to exchange information as and when required, in most cases without any human interaction, using a type of software known as middleware. Thereby, the directories are programmed to produce emails that advise the WoVG Rosetta administrator and the relevant departmental administrators that certain events have occurred, such as the transfer of information from one directory to another or the failure of a message to reach its destination.

Rosetta Operations is currently unable to analyse and monitor these system messages and is therefore unable to ensure that all messages are accounted for.

Conclusion on data integrity and system reliability

The Rosetta directories have a high level of data accuracy overall in relation to names; however, there are weaknesses in the data input controls and GSG has not established procedures to check for accuracy and validity of data.

Our results indicate that certain controls governing the synchronisation process are not working properly. Moreover, there are no reporting procedures in place to check that data has been synchronised correctly and is complete and valid. In addition, GSG is unable to account for, or reconcile the numbers of email messages sent and received across its infrastructure.

Finally, the lack of date of birth and/or gender details in Rosetta impairs the effectiveness of the data matching process and makes it more time consuming and error-prone.

Recommendations

3.2 That departments establish controls to:
- detect or prevent erroneous data input into directories
- correct and resubmit data that has been input erroneously.

3.3   That GSG review run-to-run control totals and ensure completeness of WoVG directory file updates.

3.4   That GSG establishes control procedures to monitor system activities.

3.5   That GSG confirms that the methods for exchanging Rosetta information within and between departments and Rosetta Operations are compliant with departmental privacy requirements and consistent with information classification schemes.

3.1.5   Achievement against planned cost

Project costs

The original approved funding for the project was $16 million, sourced from the amounts appropriated by the Department of Infrastructure for the TPAMS.

From this amount $13.2 million was to be used for the capital costs controlled by the MMV project team and $ 2.8 million for operating costs for years 2003–04 through to 2006-07.

MMV allocated $115 000 from its annual appropriation for 2002–03 for recurrent costs. Subsequently, the project was granted ongoing operational funding of $700 000 per annum, which covered the costs of Rosetta Operations, which currently maintains the system at the WoVG level.

The actual combined capital and recurrent costs for Project Rosetta through to 2007–08 totalled $19.8 million, compared with the original approved funding amount of $16.0 million and the first year of ongoing funding of $700 000.

Actual acquisition and development costs were $13.1 million, which included $320 000 for Stream 2. This was consistent with the approved capital budget.

Estimated recurrent costs for WoVG Rosetta Operations for the years 2003–04 through to 2006–07 were $2.8 million; however, the corresponding actual costs were $5.8 million.

Audit analysis of the 'excess' expenditure of $3.0 million (107% overrun) indicates that in the preparation of the original budget there was a failure to fully understand and accurately estimate the costs of staff and materials required to operate and maintain the Rosetta directory. Accordingly, cost outcomes could be better characterised as 'underestimates', rather than 'overruns'.

Participating departmental costs

The approved Rosetta project budget of $16 million did not include any amounts for costs incurred by departments in the implementation of Rosetta, or for ongoing operational costs in those departments.

MMV's project team monitored direct costs that it incurred for externally provided material and services, but did not monitor departmental costs. Furthermore, neither MMV nor the departments recorded or tracked internal labour or overhead expenditure incurred on the project.

During the audit, participating departments were asked to supply estimates of project expenditure, which are shown in Figure 3B below.

These estimated costs amount to more than $7.9 million, which includes capital costs of $1.6 million and recurrent costs of $6.3 million. By comparison, in the 'end of program' report prepared by the project team in May 2007, the costs incurred by departments were estimated to be $3.9 million.

Figure 3B
Estimated departmental costs for Project Rosetta

Agency	Capital $ millions	Recurrent $ millions	Total $ millions
DHS	0.24	2.64	2.88
DIIRD	0.17	0.04	0.21
DOI/DVC (now DPCD)	0.10	1.10	1.20
DPC/DTF	1.10	0.20	1.30
DOJ	0.06	1.60	1.66
DSE	0.00	0.10	0.10
DPI	0.00	0.39	0.39
DET (now DEECD)	0.00	0.20	0.20
Total estimated expenditure	**1.67**	**6.27**	**7.94**

Source: Victorian Auditor-General's Office.

Conclusions on costs

The capital cost of the Rosetta development amounted to $13.1 million, which is within the estimated figure of $13.2 million recorded in the original business case.

However, the project experienced relatively large cost 'overruns' against plan for recurrent expenditure. Due to the nature of the project, it required more rigorous budgeting at the planning stage to determine with greater clarity the likely cost of the project, and to identify the costs to be incurred by participating agencies. This would have ensured government made better informed decisions on this ICT investment.

The exclusion of departmental costs from the business case and from funding approvals means that the full life cycle cost of the project is not transparent. It also means that no one tracked the total cost of the project.

Recommendation

3.6 GSG ensures that for future multi-agency, multi-year ICT infrastructure investments:

- full life cycle cost estimation is undertaken at the planning phase
- common project charts of account and accounting rules are established at each participating agency so development and recurrent costs are recorded consistently
- forecast full cost to completion is updated regularly and monitored to reconcile with the cost assumptions in the original business case.

3.1.6 Realisation of benefits against plan

The business case included estimates of offsetting savings or benefits that would accrue from the project. The benefits from Stream 1, as listed in the business case, are outlined in Figure 3C below.

Figure 3C
Project Rosetta benefits per business case

Qualitative	Quantitative
Improved security and compliance with legislated outcomes, including privacy and OH&S	Cost avoidance through increased productivity over five years, in net present value terms of more than **$9 million**
Strategic option to enable high-value directory functions, including SSO and provisioning	Productivity increases and cost savings over five years of **$15 million** in present value terms through:
Enablement of the increasing number of e-Government services that are predicated on a robust directory infrastructure framework	• security, access management and workflow (specifically SSO, provisioning and other key directory functions unlocked through directory infrastructure
Improved usability of, access to and reach, for government services.	• enabling non-duplicated access by citizens, businesses and local government to Victorian Government services, and enablement of key elements of the TPAMS.

Source: Victorian Auditor-Generals' Office.

The business case did not provide for any formal benefits realisation (BR) processes, as it was recognised that BR has a large associated cost. However, the contract with the vendor specified the development of a BR framework and plans for participating departments as a key deliverable for the project.

The framework and its plans addressed the realisation of both quantitative and qualitative benefits for the departments, and were distributed to all departments during 2006.

At the time of this report the three participating departments included in our audit sample had not completed any benefits realisation work based on the framework and plans.

MMV did commission a benefits realisation report on completion of the project; however, this review did not attempt to directly measure the benefits received from Rosetta. Rather, the report findings are based on outcomes from similar projects in other organisations and the report concludes that it is 'reasonable to expect' that the same findings can be applied to Rosetta.

Conclusion on benefits realisation

Project Rosetta has created a standardised directory infrastructure and several departments are planning to take advantage of this infrastructure to develop ICT identity and access management applications.

To this end, the project has eliminated the need for each agency to develop their own directory solution and so, to this extent, has avoided costs. However, the audit could not determine whether the avoided costs would have been greater than the incurred costs.

Accordingly, in the absence of a rigorous and comprehensive benefits realisation study, the audit process was unable to reliably assess whether or not Project Rosetta had realised the benefits predicted in the business case.

Recommendation

3.7 It is recommended that GSG completes a robust and conclusive benefits realisation study.

3.1.7 Overall conclusion on Rosetta Stream 1

Rosetta Stream 1 has delivered the planned functionality of a WoVG enterprise directory for the expected capital cost. It was delivered later than planned, but this has had no significant adverse cost or operational implications.

The annual operating costs for Rosetta are higher than anticipated and this needs to be taken into account in any benefits realisation study.

There is no objective evidence available to substantiate whether the expected tangible cost savings have been realised. There has also been no conclusive study undertaken to demonstrate that the chosen solution has achieved intangible benefits, such as improved security.

3.2   Rosetta Stream 2

A WoVG identity management framework document was finalised and approved by the Rosetta project board in September 2004.

This document contains the conceptual framework designed to address the identity and access management aspects of future WoVG ICT developments. Its scope covers access for government employees, contractors and where appropriate, members of the public.

The document discusses how the government should address problems faced in providing access to government information systems within and between agencies and in providing access to the general public. It also contains strategic recommendations concerning:

- development of consistent rules for authentication, access control and authorisation across the whole of the Victorian Government
- identification of potential requirements for future infrastructure projects within agencies, which relate to identity management, and
- privacy, liability and legislative issues associated with identity management.

Conclusion on Stream 2

Rosetta Stream 2 has delivered the planned framework document as intended.

4 Ongoing management and support

At a glance

Background

The Government Services Group (GSG) has established 'Rosetta Operations' to manage and support the whole of Victorian Government (WoVG) directory. The operations group is also responsible for overseeing the proposed WoVG ICT developments that build on Rosetta functionality.

Key findings

The arrangements for the ongoing support and management of Rosetta at the WoVG level are appropriate.

ICT standards for information classification and related processes are yet to be mandated across government.

ICT standards for the identification, authentication and authorisation of users, for the recording and auditing of activities, and for the detection, reporting and collection of evidence related to unauthorised access to information or systems are yet to be finalised.

Recommendations

GSG should:
- finalises its business continuity planning as a matter of priority
- issue standards for information classification
- complete and issue standards for the identification, authentication and authorisation of users, for recording and auditing of activities, and for the detection, reporting and collection of evidence related to unauthorised access to information or systems.

4.1 Ongoing management and support of the Rosetta project

4.1.1 Rosetta Operations

On completion of the Rosetta project, the project team was disbanded. Rosetta Operations was formed within the GSG of DTF to manage the Rosetta directory infrastructure and ongoing operations. Its primary focus is the WoVG meta-directory. It also works with the participating departments to ensure that processes across government maintain the integrity of directory data.

The WoVG meta-directory is housed in the government's Shared Services Centre (SSC), which provides IT infrastructure and helpdesk support services. The Infrastructure and Business Applications Services division within SSC manages the WoVG Network and associated IT security functions. Additionally, the software vendor has established a technical services team, which also provides support for the directory software. Rosetta Operations arrangements with the SSC are documented in a service level agreement.

Rosetta Operations has established operational processes at the SSC for both the WoVG meta-directory, and the connected departments in areas such as IT security and change management. The SSC processes are based on the Information Technology Infrastructure Library[1], which is an accepted standard for information systems management.

SSC had established adequate controls for the management of IT security, change management and computer and data centre operations. However, Rosetta Operations and SSC have yet to finalise business continuity management and disaster recovery plans.

A Rosetta Administrator User Group (RAG) was formed on completion of the project to provide a forum for discussing ongoing operation and maintenance of Rosetta. The RAG includes representatives from each department as well, as representatives from the GSG.

Through the RAG, GSG has established a mechanism to ensure that the Rosetta infrastructure, which comprises the directories in all 10 departments and the central 'hub' remain interoperable.

Conclusion on ongoing support and management of Rosetta

The arrangements for the ongoing support and management of Rosetta at the WoVG level are appropriate.

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[1] The Information Technology Library provides a set of best practices, including change management, configuration management, software control and distribution, and help desk arrangements.

Recommendation

4.1 GSG finalises its business continuity planning as a matter of priority.

4.2 Post Rosetta (Stream 3) ICT developments

4.2.1 WoVG ICT developments

The GSG has overall responsibility for coordinating aspects of Rosetta 'Stream 3' WoVG ICT development projects. This includes:

• review of all major ICT bids submitted for Expenditure Review Committee (ERC) approval; and

• development of ICT standards for identity and access management.

It was envisaged in the Rosetta business case that departments would undertake and fund their own identity and access management work to extend the Rosetta directory infrastructure.

Through its participation in the ERC bid review process, GSG ensures that departments do not implement new ICT projects, which may compete with existing architectures.

The 2003–04 Budget provided funds for an e-Government implementation plan to improve ICT systems integration and support better service delivery. It also provided funds to develop a standard corporate ICT infrastructure strategy (ICT strategy) to define WoVG ICT governance, and provide for the standardisation of investment in ICT infrastructure.

The ICT strategy was intended to increase the effectiveness of the ICT spend across government, improve efficiency, and address interoperability issues to enable 'joined up' service delivery.

The ICT strategy, produced in January 2003, was originally intended to cover the management of the WoVG ICT infrastructure for a period of five years up to 2008. It is timely; therefore, to review and confirm that the 2003 strategy remains current and relevant.

4.2.2 WoVG standards for authentication

Rosetta Stream 2 delivered the *WoVG Identity and Access Management Framework*, which included plans and guidelines for the post-Rosetta development of online government systems.

The chief information officer issued an ICT Policy — 'Identity and Access Management' in 2005. That policy requires agencies to comply with approved WoVG standards for identity and access management for all users accessing government information and systems. The policy, which is currently being updated, also stated that standards and associated guidelines to assist with compliance would be developed and approved.

To this end, GSG has developed ICT standards for information classification and related processes; however these are yet to be issued.

GSG is also currently working on ICT standards for the identification, authentication and authorisation of users, for the recording and auditing of activities, and for the detection, reporting and collection of evidence related to unauthorised access to information or systems.

Conclusions

GSG coordinates aspects of WoVG ICT developments, which include aspects of identity and access management, in particular those that build on the infrastructure provided by Project Rosetta.

Standards for information classification and related processes are yet to be mandated across government.

Standards for the identification, authentication and authorisation of users, for the recording and auditing of activities, and for the detection, reporting and collection of evidence related to unauthorised access to information or systems are yet to be finalised.

In the absence of mandated standards there is a risk that future ICT developments by departments using Rosetta functionality will adopt inconsistent approaches to identity management and information classification.

Recommendations

GSG should:

4.2   issue standards for information classification

4.3   complete and issue standards for the identification, authentication and authorisation of users, for the recording and auditing of activities, and for the detection, reporting and collection of evidence related to unauthorised access to information or systems.

Auditor-General's reports

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