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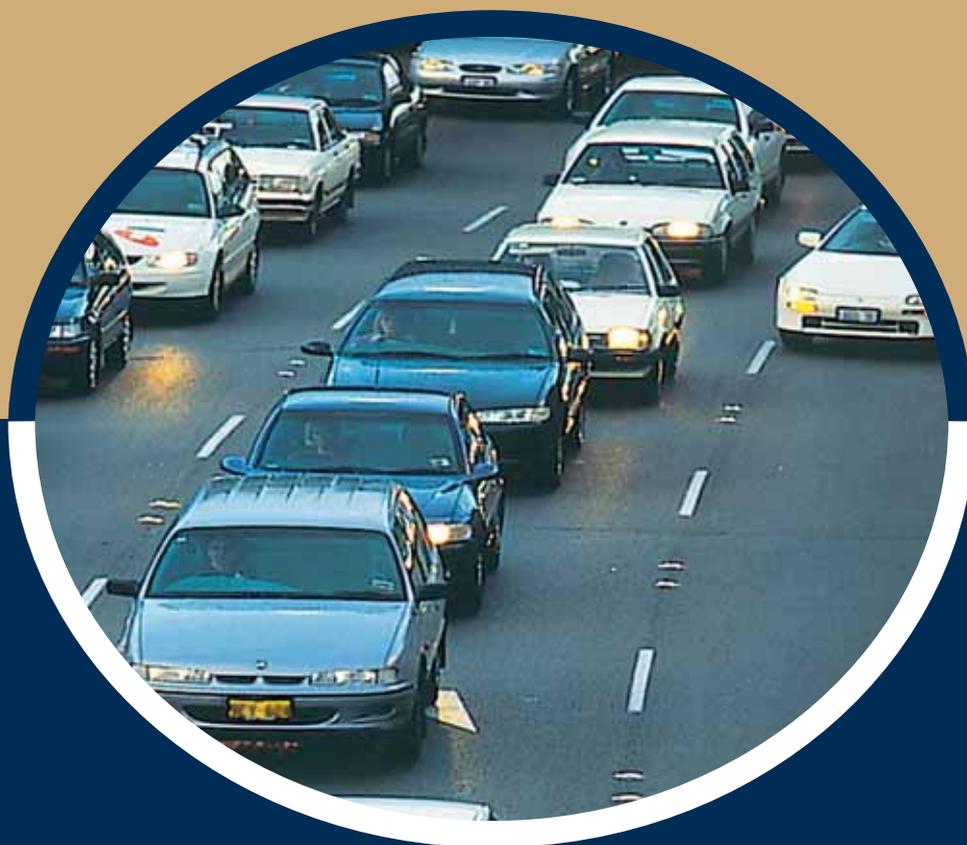


AUDITOR GENERAL
FOR WESTERN AUSTRALIA

Serving the Public Interest

Auditor General's Report

Management of the TRELIS Project



Report 1
April 2006



**AUDITOR GENERAL
FOR WESTERN AUSTRALIA**

**THE SPEAKER
LEGISLATIVE ASSEMBLY**

**THE PRESIDENT
LEGISLATIVE COUNCIL**

MANAGEMENT OF THE TRELIS PROJECT

I submit to Parliament my report *Management of the TRELIS Project* pursuant to section 95 of the *Financial Administration and Audit Act* (FAAA). This Report has arisen from work undertaken pursuant to section 80 of the FAAA.

A handwritten signature in black ink, appearing to read 'D D R Pearson'.

**D D R PEARSON
AUDITOR GENERAL**

12 April 2006



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Management of the TRELIS Project

Overview

The Department for Planning and Infrastructure's (DPI) Transport Executive and Licensing Information System (TRELIS) is a critical government computer system that:

- is a client-centric system with a database that contains personal information on the 1.3 million licensed drivers and 1.9 million registered vehicles in Western Australia. This information supports DPI's licensing function
- calculates applicable fees, records payments, and issues licenses and registration documents
- collects fees for the Insurance Commission of Western Australia, the Commissioner of Main Roads and the Police
- creates records of financial transactions which are used to update DPI's financial accounts.

The system was the result of the TRELIS Development Project, (the Project), which was initiated by the Department of Transport (DOT) in December 1999. Development was undertaken by a large national contractor following a tender process. In July 2001, DOT and the Ministry of Planning were amalgamated to form DPI, though responsibility for TRELIS remained with DOT until it was abolished in July 2002.

TRELIS Version 3.1 went 'live' on 6 July 2004. A combination of user errors, data validation errors, system processing errors, poor control over data input by DPI's collecting agents and software compatibility problems with car dealers hampered the performance of TRELIS when it first went 'live'. However, by the end of the financial year close to 6.5 million transactions had been processed through TRELIS and more than a billion dollars in fees collected.

Key Findings

- Testing indicates that TRELIS can be relied on for accurate financial reporting and raising of fees and charges.
- Poor specification of business requirements and software development problems resulted in TRELIS being two years behind schedule when it went 'live' on 6 July 2004. Software development continues to be undertaken to enhance functionality.
- An approved business case for TRELIS could not be located. Draft business cases were found though these lacked estimates for the ongoing maintenance and support of TRELIS. Approved funding for maintenance and support of TRELIS from July 2004 to June 2009 totals \$37.4 million.
- The capital cost of TRELIS when it went 'live' was \$32.6 million. DPI spent a further \$2.8 million in the year after it went 'live' in correcting software weaknesses. The cost





of TRELIS was estimated at \$24.5 million in 1999 but was revised to \$29.7 million in 2001.

- Funding for TRELIS was provided on an incremental basis rather than total funding to match the requirements of the project and the level of project management, oversight and quality control were inadequate for a project of this size.
- Satisfactory procedures were followed in respect of contracting activities including tendering, vendor selection, probity audits, due diligence and contract formation. Other aspects of the project were also adequate including long term strategic planning, project planning including identification of project tasks and expected completion dates. Independent reviews of technical aspects of software architecture and high-level project management were arranged where appropriate.
- Sections of TRELIS software were rewritten at a cost to DPI of \$2.8 million. The causes of this were inadequate project management and specification of business requirements by DOT/DPI and inconsistent compliance with accepted software design and programming standards by the prime contractor. DPI determined that these costs could not be recovered under the agreed warranty plan with the prime contractor though this assessment is not adequately documented.
- DPI has yet to fully test TRELIS' business continuity procedures and disaster recovery arrangements. Such testing is essential to confirm business continuity in the event of an emergency.

What Should Be Done?

The Office of E-Government (a division of the Department of Premier and Cabinet) has recently developed a checklist for the Management and Implementation of Complex or Across Agency ICT Projects. DPI (or any other government agency) when undertaking any new large project should ensure that they address these check points, key elements of which include:

- build a strong business case, provide full disclosure of all funding required and ensure all funding requirements will be met
- adopt a proven approach to project and contract management
- undertake regular project reviews to monitor and manage how the project is progressing against its objectives.

DPI should also:

- test the TRELIS business continuity procedures and disaster recovery arrangements
- promptly address identified security weaknesses.



Background

IT capital acquisitions and developments in Western Australian (WA) government agencies are a relatively common occurrence. Department of Treasury and Finance (DTF) records show that information and communication technology (ICT) capital works programs or individual projects are underway at 65 agencies with estimated expenditure over the next 10 years amounting to \$1.05 billion.

The TRELIS development is by most standards a large ICT development. Nevertheless, its size is not unique in the WA government environment. Other large and even larger developments are currently underway at a number of agencies including the Department of Justice (DOJ), the Public Transport Authority and the Department of Health. For this reason, this review of the TRELIS development has relevance elsewhere in Government.

The TRELIS Project was initiated by the then Department of Transport (DOT) in 1999 following a business case prepared in April 1998. The initial intention was to replace the existing licensing system which operated on the WA Police computer with a system to enable WA to meet its obligations regarding the National Exchange of Vehicle and Driver Information Systems (NEVDIS), a national database agreement. As time passed, the original scope of the Project changed and DOT began to plan for a contemporary licensing system to meet its own current and future business and technical requirements as well as those of the other key stakeholders; and provide a foundation for delivering future requirements.

In July 2001 divisions of the DOT and the Ministry for Planning were amalgamated to form the Department for Planning and Infrastructure (DPI). Official responsibility for TRELIS was passed to DPI when DOT was abolished in July 2002. The Licensing Division of DPI now collects fees associated with motor vehicle registration and motor driver licenses. The fee for motor registration includes third-party insurance fees, which DPI collects for the Insurance Commission of Western Australia (ICWA) and recording fees, which are collected on behalf of the Commissioner of Main Roads and Department of Treasury and Finance (DTF).

TRELIS also supports the operations of:

- the Police through an interface that updates records relating to driver license and vehicle registrations. TRELIS also processes payments raised by the Police in respect of fines, infringements and firearm licenses
- DOJ through an interface that enables the Fines Enforcement Registry to pursue the collection of monetary penalties issued by DPI
- the Department of Consumer and Employment Protection through an interface that provides data in relation to motor vehicle encumbrances.





Development of TRELIS was undertaken by a large national company (the prime contractor). A second contractor was engaged to provide project management. The Project was organised as a series of Releases each of which entailed the delivery of key components of the system. Project funding was committed incrementally to match each Release. The planned Releases were:

- Releases 1.0 and 2.0 provided a database to support the Call Centre and were followed by Release 2.1, which added a web based payment gateway to TRELIS that enabled payments to be made by credit card over the internet. It also allowed DOT to implement an Interactive Voice Response, (IVR) service which then allowed payment by credit card over the telephone
- Release 3.0 was designed to support the Call Centre, the metropolitan licensing branch offices and the back office operations and batch processing
- Release 4.0 was to provide data warehouse functionality.

Releases 1.0 and 2.0 were delivered on time and in budget. However, problems began to emerge with Release 2.1. Although it also was delivered on time and on budget it became apparent in mid 2002 that it was an unsuitable foundation for Release 3.0.

In August 2002 DPI engaged consultants to undertake a review of the readiness of TRELIS to proceed with the rollout of Release 3.0. The consultants confirmed a range of problems with the development and advised that the system could not 'go-live' in 2002. DPI addressed these concerns through a range of changes contained in Release 3.1

In September 2003 DPI commissioned new consultants to undertake a technical review of Release 3.1. The consultants concluded that a 'go-live' date of July 2004 was achievable but that strategies were required to address system problems. The Project Steering committee supported the 'go-live' recommendation subject to substantive redesign and recoding to make it stable and robust enough to begin implementing the remaining required functionality.

Following several postponed implementation dates, the TRELIS system (Release 3.1) officially went 'live' on 6 July 2004. Initially the TRELIS system encountered a number of operating problems which attracted public attention. These problems culminated in the establishment in November 2004 of the TRELIS Oversight Group (TOG) with the purpose of advising Government on the future viability of TRELIS. Membership of TOG included senior executives of other government agencies. Establishment of TOG was a condition of DPI securing funding for TRELIS to 30 June 2005. In July 2005 TOG reported to the Government that further investment in TRELIS was justified.



What Did We Do?

The examination involved assessment of:

- the TRELIS Development and Implementation Project, which included project funding, project management and data migration from the Police and DPI legacy systems to the TRELIS database
- completeness and accuracy of input, processing and output of Licensing Business transactions and correct functioning of system interfaces with key DPI and external agency systems
- business continuity and disaster recovery planning and the controls that ensure the integrity and security of data.

What Did We Find?

Project Funding and Management

Managing a project of the size and complexity of TRELIS is a difficult task and one for which challenges can be expected. Much has been written nationally and internationally about the challenges that face large IT developments, many of which were experienced in developing TRELIS.

The examination found that the project's initial contracting activities were well managed. These included tendering, vendor selection, probity audits, due diligence and contract formation. Additionally, adequate controls were established over certain aspects of project management including long term strategic planning, project planning including identification of project tasks, expected completion dates, project risk register, and timely reporting to the Steering Committee.

However, aspects of the Project were not well managed. Neither DOT nor subsequently DPI prepared accurate estimates of total project cost nor had they been able to secure guaranteed funding over the life of the project. Furthermore, adequate arrangements and controls were not established to ensure the quality of the software delivered by the prime contractor with the results that there were several missed 'go live' dates. However, a number of important steps were taken by DPI to address these issues from mid 2002 as it took increasing responsibility for project control from former DOT staff. For instance, independent technical advice was sought to identify weaknesses in the TRELIS project.

The following sections outline these weaknesses, the advice received and action taken as well as our own assessment of the difficulties encountered.



Life Cycle Cost

Good practice when developing a business case for capital projects is to estimate and fully disclose both the acquisition/development cost and the operational cost of the project. Together these costs are sometimes referred to as the project life cycle costs.

DOT did not establish an initial estimate of the total life cycle cost of TRELIS. DPI has commented that estimating the life cycle cost was not common practice in 1999; did not become a government requirement until 2000 and even now is not always practised in government. However, we are of the view that a project the size of TRELIS should have been developed using emerging best practice and that an estimate of total life cycle cost even if prepared in say 2002 would have been beneficial to government decision making. The first estimate of life cycle cost of TRELIS (to June 2009) was prepared in November 2004.

The business case for TRELIS should have included estimates of:

- the initial acquisition or development costs part of which might include roll out costs such as staff training
- the operational life cycle costs which include staffing, ongoing support and maintenance and the costs of any anticipated enhancements
- the life of the asset and its useability over time compared with performance requirements
- any offsetting savings or benefits accruing from the Project, typically identified in a benefits realisation plan. This might have included any maintenance savings accrued from switching off the Police mainframe (currently scheduled for December 2006).

Audit was unable to locate an approved business case for TRELIS. Various unsigned documents and references to total anticipated costs were located at both DPI and DTF which indicates that the anticipated development and implementation cost of TRELIS in 1999 was \$24.5 million. In September 2001, the then Minister for Transport approved an increase in the Project cost of \$5.2 million bringing the total cost to \$29.7 million.

The accumulated cost of the Project at the 'go-live' date was \$ 32.6 million though a further \$2.8 million was expended in 2004-05 in rewriting software. This resulted in the total 'build cost' of TRELIS being \$35.4 million.

Development and enhancement of TRELIS is continuing. Approved funding will bring the total capital cost of TRELIS to \$44.8 million at June 2009 with life cycle costs totalling \$82.2 million. A business case for an additional \$4 million in capital and recurrent funding to 30 June 2009 is currently being prepared. DPI has also advised that it expects to apply for



further funding throughout the life of the system to meet continuing demands for enhanced functionality such as demerit point exchange between States and seasonal registration of farm vehicles.

Year	Capital \$ millions	Recurrent \$ millions	Total \$ millions
Expenditure at ‘go-live’ – 30/6/04	32.6	N/a	32.6
Supplementary funding in 2004-05 – rewriting vulnerable code	2.8		2.8
Sub total – build cost	35.4		35.4
Supplementary funding in 2004-05 – enhancements and support	1.9	7.6	9.5
Other supplementary funding in 2004-05 not spent at 30/6/05	1.6	2.0	3.6
Approved Funding July 05 to June 09	5.9	27.8	33.7
Total estimated expenditure to June 2009	44.8	37.4	82.2

Table 1: Life Cycle Cost of TRELIS – to June 2009

Life Cycle cost of TRELIS to June 2009 is expected to be at least \$82 million. DPI has estimated that this will represent approximately 1.25 per cent of the revenue collected, managed and dispersed by TRELIS during the period to June 2009.

Source: DPI

Reporting of project costs to the TRELIS Steering Committee ceased after June 2003. Although the TRELIS Project Team tracked Project costs for the duration of the Project through DPI’s general ledger, it ceased reporting actual costs versus budgeted figures to the Steering Committee after June 2003. This was not consistent with good governance arrangements.

We have recommended that DPI establish procedures to manage properly any future large scale IT investments. This should include ensuring that management has an accurate awareness of total life cycle cost.

Project Funding

Funding for the Project was provided on an incremental basis rather than total funding to match the requirements of the Project. Consequently, the Project advanced in phases as funding became available, the outcome of which was that TRELIS was not managed as a



\$24.5 million project. For instance, the project commenced with a commitment of only \$5 million. Consultants hired by DPI have reported that this compromised the Project from the outset. The lack of guaranteed funding meant that:

- the Project team was not adequately structured to support a project of this size and nature. For example, a full-time Project Director, which was required for a project of this size and complexity was not appointed until December 2003
- the Project Team lacked Licensing Business staff with sufficient expertise to ensure the quality and completeness of the Licensing Business's specifications
- an inordinate amount of time, effort and resources, of the small project team were distracted from project management activities to securing ongoing funding.

Table 2 shows the many sources of funding for the Project. Obtaining this information and reconciling it with DTF figures proved difficult and time consuming.

Source	Expended \$
Reallocation of funds from NEVDIS project	3 967 648
Reallocation of funds from CAPSPEED project (note 1)	5 000 000
Borrowings from WA Treasury Corporation	5 200 000
Proceeds – Sale of Property (note 2)	1 700 000
Sale of License to South Australian Government	1 000 000
Sundry Revenue / Recoups	1 044
Transfer of funds ex DPI Funds	3 000 000
Appropriations to June 2004	11 507 000
Costs incurred to 30 June 2004 and recouped through appropriation in 2004-05	1 231 314
	32 607 006

Table 2: Funding sources of TRELIS expenditure to 30 June 2004

Note 1 – a joint project between Police, Justice and DOT aimed at increasing the use of speed and red light cameras.

Note 2 – sale of East Perth Bus Station.

Source DPI and DTF



Future planning and funding

TRELIS is now a critical whole of government system. It has approximately 500 interfaces with Commonwealth, State and Local government agencies as well as private sector organisations and is handling over 6.5 million transactions per year. In this context, it is essential that the stability and future functionality of TRELIS is ensured through effective long term planning and assured funding arrangements.

Government has committed to supporting the investment in TRELIS. This was demonstrated by the funding approved by Government on the recommendation of TOG in August 2005. Subsequently, TOG has been restructured to provide a governance structure for the ongoing strategic management of TRELIS. This includes supporting DPI's partner agencies in planning developments to the TRELIS application to provide new functionality.

Project Development

Oversight and responsibility

The Project had a stable governance structure in place. This entailed a Project Steering Committee and a Project Team. The structure was expanded after TRELIS went 'live' by the establishment of the TOG.

The Project Steering Committee comprised representatives from the prime contractor, DPI, ICWA, and the Police. Representatives from Audit also attended as observers so as to maintain awareness of changes to the audit environment.

The Committee's primary responsibilities included review of the performance of both DPI and the prime contractor, risk management and other planning and funding activities associated with the project. The Steering Committee relied upon the TRELIS Project Team to manage the project and keep it informed of any issues which were preventing progress.

The TRELIS Project Team, which comprised representatives from DPI and the prime contractor, was responsible for the system development including requirements analysis, design, testing, data migration and the transition to the new system.

Some weaknesses were identified in these arrangements. After missing several 'go-live' dates in 2002, DPI engaged consultants to review its project management arrangements. The report in September 2002 found that:

- as previously mentioned, the TRELIS Project Team did not have a full-time Project Director. Such an appointment would ordinarily be a prerequisite for a \$24.5 million project



- the TRELIS Project Team did not have sufficient technical knowledge to understand and address the issues that were being reported by the primary contractors and the DPI developers. This also affected their capacity to communicate a clear understanding of many of the operational problems facing the Project to the Steering Committee.
- The software development was not being managed tightly enough by both the prime contractor and the TRELIS Project Team. As a result the prime contractor was unable to address quickly the problems it was experiencing with the quality of software or to integrate the software with the technologies required for the project.

DPI took some time to address these findings, advising that this was due to funding constraints. Ultimately, to ensure a successful 'go-live', DPI appointed its Director of Information Services (DIS) to be the full-time Project Director in December 2003 and established the Project Management Committee (chaired by the DIS) to assume prime responsibility for project delivery. About the same time a number of key decisions were taken to reinforce the Project Team. Activities essential to 'go-live' were divided into five streams, each with their own project manager: development, testing, interfaces, business readiness and infrastructure.

Progress was tracked with a project schedule and reported to the Steering Committee through a project scorecard. As the final 'go-live' date approached, the following additional streams were added: Data Migration, Training, and Implementation and an expanded Project Management Office were established.

The assignment of managers with necessary technical expertise to these key areas was considered a key factor in DPI achieving the 'go-live' in July 2004.

The establishment of TOG was also an important step in the management of TRELIS albeit that it occurred after TRELIS went 'live'. TOG provided a level of prudence, accountability and strategic thinking to the Project at a time when its immediate viability was being seriously questioned. TOG also demonstrated the importance of an Executive Management Governance Committee to oversight any major Government computer development.

System development

System development entails the identification and design of system requirements, software development including the software architecture and the writing of the software code, testing, implementation and conversion of the data required for the system operations.

System development was primarily undertaken by the prime contractor though DPI staff were involved in process analysis and testing. DPI also utilised consultants to review technical aspects of the software architecture.



Most of the above components of system development were managed adequately. However, the Project encountered problems in software development and the TRELIS Project Team lacked procedures to ensure that the prime contractor consistently delivered properly documented software on schedule and free of defects.

Technical consultants hired by DPI in September 2003 reported that the prime contractor had not consistently complied with accepted software design and programming standards. Significant sections of the TRELIS software had to be rewritten and the system ‘strengthened’ to make it easier to maintain and support at a cost of \$2.8 million. However, it is also apparent that the weaknesses in the TRELIS software were partly attributable to inadequate specification of business rules and frequent scope changes.

Hundreds of system enhancements arising from the scope changes in conjunction with time pressures meant that the Project team was unable to segregate design flaws that should be fixed under warranty. DPI advised that the warranty plan agreed between the authorised Project Director and the Prime Contractor has prevented pursuit of the prime contractor for these costs. DPI also advised that this view was reached by its legal branch in consultation with the State Solicitor’s Office. However, DPI has not documented its discussions or its decision.

Reasons for the problems encountered with the software development and the warranty include:

- In May 2001 the TRELIS Project Team abandoned the Release 2.1 software, which was already in production in favour of developing Release 3.0 as a brand new system. Audit was advised that resourcing constraints compromised what could be delivered via Release 2.1. The Release 2.1 software was not considered capable of being used as a foundation for developing Release 3.0. This decision had the following effects:
 - consequential time and cost pressures contributed to compromises in code quality and documentation.
 - the loss of the benefits from design work and software developed in the early stages of the project meant that many of the issues that had been identified in the testing of Release 2.1, and which had been addressed, began to reappear and affect Release 3.0. This required reworking of previously solved problems
 - The fixed price element of the contract with its associated warranty safeguards effectively ended. Thereafter, development was undertaken on an hourly ‘Schedule of Rates’ basis. This had the effect that while the warranty applied (in the sense that the prime contractor was available for the warranty period to address faults), all remediation was carried out on a Schedule of Rates basis rather than as a cost to the prime contractor.



- Contract management arrangements with the prime contractor deteriorated after the scrapping of the Release 2.1. Consultants hired by DPI were critical of this, reporting that...*A contractor that secures as much revenue out of a project as (the prime contractor) needs to be subject to a constant performance management regime. This focus should begin with clear focus on building and maintaining a contractual basis to the relationship which apportions risk, rewards or incents [sic] the delivery of quality code and which fundamentally equips the developer partner with the means to deliver the expectations of the brief.*
- The TRELIS Project Team did not initially have an effective change control process to manage the large number of change requests during the development of Release 3.0. For example, in August 2002, the Team received over 900 change requests. In the absence of adequate change control procedures there was no means to isolate changes to address software ‘defects’ that the prime contractor was required to fix at no cost to DPI from other types of change requests.
- Without a disciplined approach to software design, which includes standards for what constitutes good software; large software-intensive development projects rapidly become unmanageably complex. This was recognised in the contract between DOT and the prime contractor. It required that the software comply with *the quality standards specified ...in the System Development Plan.*

However, we found that the System Development Plan did not identify any software quality standards. Moreover, DPI did not have procedures to ensure that satisfactory design standards were followed. Rather, it relied upon the prime contractor to review its program code before delivery to ensure that it complied with its own internal standards. Consultants’ reports stated that the quality of the code delivered by the prime contractor was questionable, as was the ability of the Project Team to ensure that the functionality requested was delivered on time and according to specification. Additional funds have been spent on ‘fixing’ poor code although there has been no assessment of the performance of the prime contractor. Particular adverse findings described in the consultant’s reports include:

- the prime contractor had used ‘fat clients’, which meant that each workstation ran a relatively large amount of code which places constraints on how quickly and how often it can be updated to implement changes in the system
- the prime contractor did not consistently apply the development methodology across the entire TRELIS application resulting in the implementation of a system, which could fail and that would be hard to maintain. DPI acknowledged that the Project



Management team did accept compromises to procedures as a consequence of time and cost pressures

- the prime contractor failed to document significant parts of the system, making it difficult to maintain the application in the future
- the system software includes considerable amounts of dead and duplicated code. Furthermore, it appears that third party libraries included in the application have not been managed effectively. This has resulted in high maintenance costs.

DPI has acknowledged that there should have been a much earlier insertion into the project of more senior knowledge experts who could have foreseen the consequences of some of these design directions. However, as indicated elsewhere, resource constraints limited its capacity in this regard.

Release 3.1 went live on 6 July 2004, more than two years after the initial planned 'go-live' date. The Project team provided continuing support to approximately October 2004 to ensure that the system was properly 'bedded down'.

After 'go-live' a 'strengthening' project began aimed at rewriting poor code. This work was to be undertaken in parallel with normal production activity with the expectation that the first stage of strengthening would deliver a system ready to support the implementation of the changes requested by the stakeholders.

We have recommended that for future projects DPI establish and maintain more formal quality review processes and ensure that contractors comply with predetermined software design standards.

Data Migration

The data migration process was designed to transfer data from the old to the new system. The process took five weeks. We found that the Project Team had prepared appropriate written procedures to provide guidance and check points for the data migration task.

However, technical constraints with legacy data structures meant that only the six million active data records out of 20 million records were cleansed. DPI currently has a project underway to cleanse the 14 million historical records.



Reliability of TRELIS

Directly following implementation of TRELIS, DPI experienced significant delays in accounting for the components of revenue collected and in the reconciliation of collections and payments. However, testing indicates that TRELIS can now be relied on for accurate financial reporting and raising of fees and charges though opportunities remain to enhance business continuity, interface procedures with other government systems and system security.

System Processing

From July 2004 and up until December 2004, a combination of user errors, data validation errors, system processing errors, poor control over data input by DPI's collecting agents and problems with the software used by car dealerships to communicate with the TRELIS system occurred. This resulted in around 22 000 transactions (1.6 per cent of transactions) being transferred to the TRELIS suspense account for manual processing. This in turn led to some public inconvenience, such as delays in issuing driver's licenses and motor vehicle registrations. During this period DPI could not:

- fully reconcile the TRELIS Cashbook to the Licensing Bank Account or to the General Ledger
- post the TRELIS receipts into its accounting records
- calculate the amounts collected by TRELIS on behalf of other agencies. DPI collected \$576.3 million, paid out \$525.4 to stakeholders and accumulated \$50.9 million in its bank account. The amounts paid to stakeholders were based on prior year collections. This strategy was agreed to by the stakeholders to ensure stakeholders were not overpaid and the bank account overdrawn.

In August 2004, DPI's Finance Branch took steps to address the reconciliation and suspense problems and to bring the system into balance. At 30 June 2005 all licensing transactions had been properly brought to account and suspense account items were being investigated and cleared on a timely basis.

Testing also found that adequate procedures and controls existed over the major classes of licensing transactions including over inputs, the accuracy and validity of transaction processing, the completeness and accuracy of outputs, and the update and maintenance of important master files, tables and data stores.



Business Continuity Plans Not Tested

TRELIS is a critical system and is relied upon by many stakeholders both internally and externally. In the event of a disaster, failure to perform system recovery in the accepted timeframe could result in significant operational impact and financial, reputation and image loss.

DPI has prepared procedures for the recovery of critical system functionality in the event of a disaster. However, these procedures have not been formally tested to ensure that the system can be successfully recovered in a timely manner. We have recommended DPI test its recovery procedures. DPI has advised that it accepts this recommendation.

Interface Controls

The TRELIS system interacts with numerous other government systems through more than 500 different interfaces.

The examination found that DPI does not have a procedure to review certain types of interfaces. We also found that DPI's design specifications for handling errors on these types of interfaces are not complete.

We have recommended that DPI establishes procedures to provide for a consistent approach to error handling and completes its design specifications. DPI has accepted these recommendations.

System Security

Security of the TRELIS application is a significant issue for Government. Security weaknesses found in the course of the audit either have been addressed or are subject of ongoing action by DPI. For confidentiality reasons these are not described here.



Chronology of the TRELIS Project

Licensing Division of the Department of Transport (DOT) develops 'Project Scoping and Implementation Plan' to determine the strategic direction of Licensing's information technology based on business systems for the next five years.	May 1997
Licensing Division produces 'Procurement Plan and Timetable for the Analysis, Design, Development, Installation and Support of a Computer Based Client-Centric Registration and Licensing Data Model and Transaction Delivery System'.	15 April 1998
Licensing Division produces 'A Business Case for the Analysis, Design, Build and Implementation of a Client-Centric Transaction Processing System for the Department of Transport, Licensing Division, Department of Transport'. Appendix 1 contains detailed cost assumptions, written by consultant for the Office of Road Safety, Department of Transport, 'A Comprehensive Business Case for the Enhanced Traffic Enforcement Project, July, 1998'.	31 July 1998
DOT issues RFT for 'The Data Analysis, Design, Development, Installation and Support of a Computer Based Client-Centric Registration and Licensing Data Model and Transaction Delivery System (Trelis Phase 1)'.	7 September 1998
The DOT Tenders Committee approves the award of Contract 210/98 for 'The Provision of Project Management Services for the Implementation of Contract for the Analysis, Design, Build and Implementation of the Transport Executive and Licensing Information System (TRELIS)' at a potential cost of \$300,000 over 24 months. Work commences October 1998.	25 September 1998
DOT completes tendering, vendor selection, probity audit, due diligence, pilot project and signs contract 216/98 'TRELIS Implementation and Support Contract' with the prime contractor, 22 December 1999. Work commences on TRELIS, 17 January 2000.	22 December 1999



MANAGEMENT OF THE TRELIS PROJECT

Release 1.0 completed at a cost of \$1.961m, 12 May 2000, on time and within budget, it covers documentation of requirements and design of TRELIS. Delivered by the prime contractor in the form of Use Cases and BPR documentation.	12 May 2000
Release 2.0 completed at a cost of \$3.646m, 4 December 2000, on time and within budget. Release 2.0 covered the release of the TRELIS application to Licensing Call Centre users, includes migration of data, interfacing to WAPS systems and provision of read access to database.	4 December 2000
DPI Tenders Committee agrees to commencement of Release 3.0 subject to availability of funds.	25 January 2001
Licensing Executive decides to develop enhanced version of Release 2.0, referred to as TRELIS Release 2.1. This includes a client-centric database, to allow payment by Credit Card over the Web and use of DPI's new PABX, to allow payment by Credit Card by Telephone using Interactive Voice Response. Release 2.1 was delivered to the Call Centre on time and within budget in 31 May 2001.	31 May 2001
The Project Team abandons work on Release 2.0 and starts Release 3.0 as a new design from scratch. This decision effectively ends the fixed price arrangement with prime contractor and removes DPI's ability to get defective work fixed free of charge under the warranty in contract 216/98.	31 May 2001
Postponement of Release 3.0 'go-lives' planned for 20 December 2001, 1 July 2002, 16 September 2002 and 14 October 2002. Furthermore, by July 2002, a very large number of Change Requests had been raised. The Project Team organises workshops to redefine Licensing Business' requirements and produces an enhanced set of requirements which it will implement in Release 3.1.	2001 to 2002
TRELIS Release 3.1 'goes live' on 6 July 2004.	6 July 2004
TRELIS Oversight Group (TOG) established to advise Government of the viability of TRELIS. Establishment of TOG was a condition of DPI securing \$15.9 million in supplementary funding to 30 June 2005.	November 2004