

# rpde

ACCELERATING NETWORKED CAPABILITY

Report of Activities and Achievements FY2008–2009

Issued October 2009





## Table of Contents

RPDE Overview	3
Chairman's Report	4
General Manager's Report	5
Steering Group Report	6
RPDE 2008–2010 Strategic Plan	7
RPDE Charter	7
Strategic Theme 1—RPDE Outcomes	8
RPDE FY08–09 Tasks and Quicklooks Summary	10
Potential RPDE Activities for FY09–10	14
Strategic Theme 2—Business Development	15
Strategic Theme 3—Stakeholder Management	17
Strategic Theme 4—Governance and Management	18
RPDE Participants (Members and Associates)	20

### RPDE

RPDE is a group of focused problem-solvers who help Defence resolve difficult and challenging bite-sized problems by identifying, understanding and then facilitating change. This often involves the introduction of new organisations, concepts and technologies—and from that perspective, all the Fundamental Inputs to Capability (FIC) need to be addressed, not just technology or equipment.

### FY08–09 Management Team

#### General Manager:

Pam Price (December 2006 – October 2008), David Welch

#### Commercial Manager:

Rodger Phillips

#### Analysis Capability Manager:

David Thorncraft (August 2007 – May 2009), John Davidson

#### Stakeholder Liaison Manager:

Ian McKenzie

#### Operations Manager:

Daniel Munro

© Commonwealth of Australia 2009

This work is copyright. You may download, display, print and reproduce this material in unaltered form only (retaining this notice and imagery metadata) for your personal, non-commercial use or for use within your organisation.

Apart from any use as permitted under the Copyright Act 1968 (for example, 'fair dealing' for the purposes of reporting news under section 103B of the Copyright Act), all other rights are reserved. Requests for further authorisation should be directed to the Commonwealth Copyright Administration, Copyright Law Branch, Attorney-General's Department, Robert Garran Offices, National Circuit, Barton, ACT 2600, or posted online via [www.ag.gov.au/cca](http://www.ag.gov.au/cca).

ISSN 1836-2311 (print)

ISSN 1836-232X (online)

Date of Issue: October 2009

Front cover image sourced from the Defence Image Gallery © Commonwealth of Australia 2004

The Rapid Prototyping Development and Evaluation (RPDE) Program is a collaborative joint venture arrangement between the Australian Department of Defence and Industry. It is a virtual company, with its own identity, that is sponsored by CCDG with HCS chair of its management board.

RPDE, Second Floor, 18 & 20 Brindabella Crt,  
Brindabella Business Park,  
Canberra Airport ACT 2609  
[www.rpde.org.au](http://www.rpde.org.au)  
02 6127 4900

# RPDE Overview

The Rapid Prototyping, Development and Evaluation (RPDE or 'Rapid') Program is a collaborative partnership between Defence and Industry. The RPDE mission is:

**'To enhance Australian Defence Force (ADF) warfighting capacity through accelerated capability change in the Network Centric Environment.'**

## What does RPDE do?

We accelerate the introduction of innovative Network Centric Environment solutions into the Australian Defence Force (ADF).

We target areas that can be improved upon immediately to produce measurable benefits in the near-term, by which we mean weeks and months, rather than years.

## What is RPDE's background?

RPDE has been fully operational for over four years (established February 2005) with approximately 70 full and part-time personnel drawn from RPDE Participants and Defence. The program has since completed 38 activities—24 Tasks and 32 Quicklooks—with 12 currently underway.

## Who are RPDE?

RPDE's Participant base is now 135 organisations comprising large companies, service providers, Small and Medium Enterprises, and academia. A listing of these organisations is on the back cover of this report. There continues to be strong growth in both awareness and interest in the program. More than 200 companies approached RPDE seeking to join the program at the latest Invitation to Participate.

RPDE governance is conducted through a Board (chaired by Head of Capability Systems) and the One Star Steering Group (chaired by Director General Integrated Capability Development). The Board is responsible for setting the strategic direction of the program and the One Star Steering Group is responsible for providing RPDE with a prioritised set of questions related to current capability deficiencies.

RPDE operates from purpose-built facilities at Building 18–20, Brindabella Business Park, Canberra.

Where it makes sense to do so, RPDE has the ability to identify suitable facilities for the establishment of remote teams. This may be driven by customer needs or the need to take full advantage of the skills and expertise available across Australia. Funding for these activities will be drawn from individual Task allocations.



▲ RPDE is located in Building 18–20 of Brindabella Business Park, Canberra

## Task

A Task is designed to deliver a **prototyped solution** to Defence. It is focused on identifying, understanding and then facilitating change, and can involve the introduction of new organisations, concepts and technologies. The Task analytical approach considers all Fundamental Inputs to Capability (FIC)—it is not focused only on technology or equipment.

## Quicklook

The Quicklook rapidly brings Industry specialists together to workshop a problem or series of issues confronting Defence, often in the very early phase of a procurement project. Within a time specified by the sponsor, RPDE provides a report with more/better data to inform the sponsor's decision(s).



▲ Air Vice-Marshal Brian 'Jack' Plenty, AM

# Chairman's Report

The 2008–2009 Financial Year has been an extremely productive one for RPDE. As you will read later in this report, the program has continued to develop innovative solutions to extremely complex Defence problems and in some cases, has produced solutions where none were thought to exist.

The program is well on the way towards delivery against the objectives of the 2008–2010 Strategic Plan. Key achievements during the year included success in a wide range of Tasks and Quicklooks to a widening Defence customer base, continued close engagement with the Counter Improvised Explosive Device Task Force (CIED TF) leading to a number of CIED TF-sponsored studies, providing support to Defence Materiel Organisation (DMO) projects, continuing to engage Participants through the Regional Regimen framework and the very high level of interest in the latest Invitation to Participate (ITP). On the financial side, the program exceeded the Board's target overhead-to-output ratio and met Defence's target for budget achievement. More detail on these and other achievements are included later in this report.

## Invitation to Participate

A notification to organisations by RPDE describing the requirements to fulfil in order to join the RPDE Program as a Member or Associate.

An ITP is issued approximately on an annual basis.

## Participant

A party to the Relationship Agreement that is executed by the Participants, which governs the operation of the RPDE Program. Participants have a general commitment to work together to achieve the successful outcomes of the RPDE Program.

An example of a Participant may be a university or a private company, usually in the Defence sector.

In June the Board conducted a mid-cycle review of the RPDE Strategic Plan to ensure it remains relevant in light of the recent Defence White Paper and Strategic Reform Program. The Board identified that the Strategic Plan is still relevant, but requires modification to reflect the opportunities presented by the White Paper and Reform Program; the new Strategic Plan will be published later this year.

RPDE is well positioned for an even higher level of achievement in Financial Year 2009–2010. In October, new Participants will be inducted into the program, new opportunities presented by the White Paper and Strategic Reform Program will be pursued and the volume of work will increase as DMO and possibly other parts of Defence and Government fund some activities.

I remain confident that RPDE is delivering real and unique value to both Defence and Industry and that it will continue to do so.

# General Manager's Report

Financial Year 2008–2009 has been the first full year in which RPDE has operated within the 2008–2010 Strategic Plan. As you will see later in this report, the program has continued to deliver on the key objectives of that plan.

Over the 12-month period, RPDE has completed 3 Tasks and had another 7 underway as at 30 June 2009. The Tasks completed in the past year can be characterised by their increased complexity, direct sponsorship by Defence Materiel Organisation (DMO) projects and engagement of specialist non-Participant companies in Australia and from overseas where necessary expertise was not available within the Participant base. Of particular note is the electronic-Health Task, which has generated very strong interest from state and federal health authorities and was specifically mentioned in Defence evidence before the Senate Foreign Affairs, Defence and Trade Legislation Committee in June 2009. This year has also seen a continuation of the trend for some Tasks to be conducted collocated with operational customers.

During the year, RPDE has completed 8 Quicklooks and had a further 5 Quicklooks underway as at 30 June 2009. Quicklooks continue to be very popular across Defence as a quick way of eliciting industry insights on a very wide range of questions. The 'firsts' for Quicklooks included the first conducted for—and funded by—an organisation outside Defence (Australian Customs Service) and the first to transition directly from a Quicklook to a Task (Armed Reconnaissance Helicopter Data Links). Of particular note is the Quicklook sponsored by the Head of Industry Division in the DMO, which sought industry input to the information to be provided in the Defence Capability Plan (DCP); this input directly influenced the DCP released by the Minister for Defence in July 2009.

RPDE is strengthening its relationship with our UK counterpart (Niteworks) through the sharing of experiences, approaches and insights, and the development of mechanisms to canvass the other organisation during the 'discovery' phase at the commencement of a Task or Quicklook. RPDE has also been involved in supporting the Canadian Department of National Defence in the establishment of an RPDE-like organisation.

RPDE's principal challenges in the new financial year are expected to be implementing the outcomes of the revised Strategic Plan and inducting new Participants into the program from the current Invitation to Participate.



▲ David Welch  
General Manager

**RPDE solutions are about drawing the bits of the answer from the multiple industry players who possess it, and gluing those bits together—micro-networking that delivers a macro-industry capability.**



▲ AIRCDRE Andrew Dowse,  
Chair of the One Star Steering Group

# Steering Group Report

Throughout the past year the Steering Group has continued in its role of reviewing and prioritising proposals from within Defence for activities to be conducted by RPDE, as well as monitoring the outcomes of those activities. The Steering Group continues to receive a healthy number of complex, operationally-focused problem proposals from across Defence.

Both the Chairman and General Manager have mentioned the increasing complexity of Tasks taken on by RPDE during the year. At the Steering Group we are seeing that RPDE's success on these activities is generating interest in the program's capabilities from different parts of Defence and is encouraging new complex problems to be presented for consideration.

The Steering Group has also considered increasingly wide proposals for Quicklooks. In addition to the 'normal' capability-focused Quicklooks, RPDE has used the Quicklook framework to elicit industry input into the content and format of both the Defence Capability Plan and the Network Centric Warfare Roadmap. The Defence Capability Plan released by the Minister for Defence in July 2009 was directly influenced by input provided during the Quicklook. Similarly, the Network Centric Warfare Roadmap to be released later in 2009 will be heavily influenced by insights from Participants.

The changes to Steering Group processes and procedures in 2007–2008, the maturation of the 'risk appetite' concept and the introduction of the 'sponsor's charter', are now well established—they contribute significantly to ensuring that RPDE undertakes the 'right' problems and that sponsors are fully engaged throughout the activity and are ready to initiate implementation of activity outcomes.

Steering Group activities in Financial Year 2009–10, in addition to our 'line' responsibilities of overseeing proposals, will include the conduct of planning consistent with the Board's revised Strategic Plan. Additionally the Steering Group will consider new types of RPDE activities, such as those in support of the Defence Capability Plan and Defence's Strategic Reform Program.

I am confident that the One Star Steering Group is well positioned to support RPDE as it addresses Defence's most complex challenges and problems.

## One-Star Steering Group

Sixteen Australian Defence Force (ADF) members with the rank of one star (Brigadier equivalent) representing the full spectrum of Defence activities. They meet on a bi-monthly basis at RPDE to decide on the progress path of RPDE activities.

.....

## Steering Gate

A point at the end of each phase of an RPDE Task when outcomes and proposed budget and direction for the next phase are reviewed. For example, Steering Gate 2 presents findings of the Discovery phase and reviews the proposed budget and plan for the Options Development phase.

.....



# RPDE 2008–2010 Strategic Plan

In December 2007, the RPDE Board approved the program's 2008–10 Strategic Plan, which communicates the strategic themes and objectives that will enable it to achieve its mission over the three years of the plan.

The Strategic Plan is executed by the Management Team through annual business plans; the results are tracked via the program's balanced scorecard and reported to the Board on a quarterly basis.

The 2008–2010 Strategic Plan articulates objectives against four Strategic Themes:

- RPDE Outcomes
- Business Development
- Stakeholder Management
- Governance and Management

This report outlines achievements against these themes.

In June 2009 the Board commenced a mid-cycle review of the Strategic Plan.

## RPDE Charter

To Enhance Australian Defence Force (ADF) warfighting capacity through accelerated capability change in the Network Centric Environment.

We are a responsive organisation committed to:

- Providing an innovative way of doing business that harnesses the collective power of Defence and Industry in a collaborative way.
- Quickly solving Network Centric problems endorsed by Defence that conventional acquisition processes may not solve.
- Rapidly (within 18 months) delivering Network Centric capability for the warfighters.
- Creating an environment that encourages and maintains broad stakeholder engagement.
- Taking an approach to problem solving that takes account of all Fundamental Inputs to Capability (FIC).
- Being lean, agile and not overly bureaucratic.
- Ensuring work is allocated across the membership on a best talent-for-money basis.
- Promoting effective cooperation and/or competition for all work.



▲ The RPDE Strategic Plan

### Fundamental Inputs to Capability (FIC)

FIC is the standard list for consideration of what is required to generate 'capability.' The FIC are:

Organisation  
Personnel  
Collective training  
Major systems  
Supplies  
Facilities  
Command and management  
Support

*(Defence Capability Development Manual, 2006)*

### Warfighter

Any member of a defence force. The term is intended to be neutral regarding military service or branch, gender, and service status. For example, 'warfighter' includes frontline soldiers and commanders to desk officers and management. (Definition based on US Department of Defense)



# Strategic Theme 1

## RPDE Outcomes

In FY08–09, the RPDE Program completed 3 Tasks and 8 Quicklooks against the target of 6 Tasks and 8 Quicklooks. Those activities which directly accelerated the introduction of capability into service during FY08–09 are described in this report. A complete list of the Tasks and Quicklooks completed in FY08–09 are listed later in the report.

eHealth sponsor  
MAJGEN Paul Alexander

'RPDE provided Australia's best practice solution...that is being put before the Defence ICT Committee for approval.'



▲ The ABM-TDM prototype Decision Support Tool display of air tracks of Perth

### RPDE Accelerating Capability into Service During FY08–09

#### eHealth

The aim of the Task was to overcome:

- a lack of an electronic clinical health informatics solution at the 'point of care'
- an inability to perform an easy retrieval of a member's clinical information by diagnosis or clinical encounter
- an inability to view de-identified aggregated health data to allow commanders to view the readiness of individuals or units
- limited access to statistical data to optimise the delivery of care

Detailed analysis determined that no single Commercial off the Shelf (COTS) product, or suite of products, could provide the functionality as described in the Task question. A 'clean start' was required to develop the most effective health information system for Defence.

During the Task, the team investigated the user requirements and consulted Defence and Industry for the latest thinking and practices for architectures, health data and messaging standards. After designing a system that was compatible with the Defence Information Environment, the Task team conducted a Proof-of-Concept (PoC) activity to test the technical and usability aspects of integrating several mature software products, to form the basis of an Initial Defence eHealth System. The PoC activity proved that it is possible to provide a health information capability by integrating mature software products.

The Capability Implementation Plan, delivered by the Task, recommended a staged approach to the implementation of the Defence eHealth System, starting with a Prototype System that establishes the basic electronic health record functionality. Then—through a series of six-monthly cycles over a two-year period—the functionality and geographic reach of the eHealth System would be extended, including integration and connectivity with external health systems and Defence enterprise systems.

#### Air Battle Management – Tactical Data Mining (ABM-TDM)

The ABM-TDM Task identified data mining as a technology that could be used to provide automated assistance to Regional Correlation Centre (RCC) operators.

The aim of the Task was to improve the efficiency and accuracy with which operators of the Eastern Region Operations Centre (EROC) RCC produced the Recognised Air Picture (RAP)—which is then disseminated to other Defence users and government agencies. Producing the RAP is a complex process involving many highly trained analysts and support personnel. There was thus a requirement to assist operators in the development and maintenance of situational awareness when producing the RAP. It was hypothesised that computer-aided analysis of the data available at the RCC would assist operators to make more accurate and faster decisions regarding the RAP.

The Task developed a series of prototype Decision Support Tools to assist operators in the areas of:

- Pattern matching (match a live track to a pattern)
- Detect deviations
- Predict track location
- Correlate new track to a faded track
- Advanced search (behaviour matching)

Multiple Proofs-of-Concept demonstrated that:

- Historical data can be mined to identify patterns
- Tracks can be monitored in real time, associated with patterns and deviations identified
- Tools have utility for intelligence analysis and air planning functions

Beyond the technical lessons learned as a result of development of a series of prototypes, there were a number of higher order outcomes.

**For Defence:**

- The Royal Australian Air Force (RAAF) recognises that data mining techniques can be applied to the Air Battle Management domain—previously thought to be ‘human only’ activities.
- Australian Defence Force (ADF) and Industry spatio-temporal data mining expertise has been greatly enhanced.
- The RAAF is in a position to proceed with capability implementation knowing the risks associated with technology have been greatly reduced.

**For Industry:**

- A number of RPDE Participants were able to showcase their IP and capabilities via the demonstration of innovative approaches to solving the problem.
- Industry is better placed to respond to future requests for tender.

Defence sponsors have accepted RPDE’s recommendations and are confirming the most appropriate implementation vehicle for the capability.

**Maritime Operational Analysis Centre – Information Management System (MOAC-IM)**

The outcome of the MOAC-IM team’s work was the development of the Combined Operational Analysis and Training Information Management System (COATIMS) Reference Architecture. When implemented, the system will provide logistics support for—and gather information during—naval exercises and operations to enable the analysis and reconstruction of naval training serials, joint and combined exercises and guided weapon firings.

The Task gap analysis highlighted the current situation involves a high level of manual tasking and places a significant workload on the personnel involved, introducing a large scope for error—particularly in the area of record collection. Current practice also introduces large delays between an event and the subsequent analysis of the collected data. This significantly reduces the effectiveness of the analysis and results in inefficiencies.

The MOAC-IM solution description encompasses the development of an information management system whose architecture will support current and predicted future ADF communication bearers/systems.

The MOAC-IM Task identified and described a solution to support Maritime Operations Analysis (OA)/Operational Research (OR) technological IMS deficiencies through:

- improved data collection techniques that will reduce both the workload on the operational personnel as well as reducing the potential for errors in the recording process
- improved data transmission techniques that will reduce the delay between a trial taking place and the analysis of the data from that trial
- improved data management techniques that will provide a centralised data repository with advanced search and correlation capabilities, improving access to the available data
- improved ‘on board’ analysis capability that will enable a quick-look assessment of trials in progress, enabling rapid feedback on ongoing verification and validation programs. This minimises the likelihood of undetected faults impacting on the successful conduct of an ongoing trials program

RPDE’s Task has successfully developed a Graphical User Interface and Defence-endorsed architectural framework, which is necessary in the implementation of a more efficient, automated and improved Information Management System for Navy. Navy recognises the significant potential that COATIMS offers and the RPDE documentation will be used to initiate a Navy Minor Project.

**Track**

The prescribed ground path over which an air vehicle moves during the execution of its mission.

*(Source: NATO, AAP-6 (2009))*

**ABM-TDM sponsor  
AIRCDRE Warren Ludwig**

‘RAAF is in a position to proceed with capability implementation knowing the risks associated with technology have been greatly reduced.’

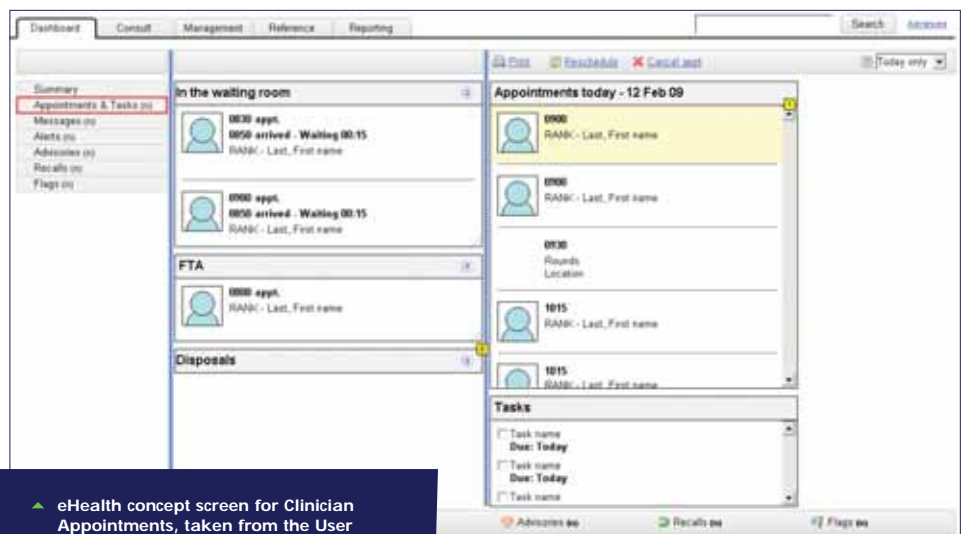
▼ Force protection exercise in Jervis Bay during Exercise Ocean Protector, 2006. The COATIMS outcome will improve the data gathering of such exercises  
*(Source: Defence Image Gallery, 2006)*





# RPDE FY08–09 Tasks and

Tasks Completed in FY08–09			
TASK	STATUS/ DURATION	COST (Million)	CAPABILITY OUTCOME FOR TASK
Task 20 Air Battle Management –Tactical Data Mining (ABM-TDM)	September 2007 – May 2009	\$1.147	This Task examined the question ‘What technologies or processes can be applied to improve situational awareness (SA) in developing the Recognised Air Picture (RAP) at Eastern Region Operations Centre (EROC) Regional Correlation Centre (RCC)?’ The Task provided a Technology Readiness Level 4 prototype.
Task 21 Maritime Operational Analysis Centre – Information Management System (MOAC-IM)	August 2007 – February 2009	\$1.255	This Task addressed the question ‘How can Navy better manage its information associated with the conduct of Maritime Operations Analysis and Operations Research (OA/OR) to improve fleet operational effectiveness?’ The Task examined organisational structure, business processes and technology in developing costed options for Navy to improve maritime OA/OR effectiveness.
Task 29 eHealth	September 2008 – May 2009	\$0.469	The scope of this Task was to identify possible solutions for an initial eHealth system to provide Defence Health with a clinical health information system and electronic health record.



▲ eHealth concept screen for Clinician Appointments, taken from the User Interface Design

# Quicklooks Summary

▼ The Public Defence Capability Plan 2009, which included feedback from Industry, as facilitated by RPDE

(Image courtesy of DMO)



## Quicklooks Completed in FY08-09

QUICKLOOK	COMPLETED	COST	CAPABILITY OUTCOME FOR QUICKLOOK
QL29 Non-Lethal Attention Gaining Devices (NLAGD)	July 2008	\$41 000	The purposes of the QL were to: identify industry options for 'Non-Lethal' Attention Gaining Devices, which should be a systemic approach to provision of a staged solution, and identify requirements for appropriate doctrinal implementation and relevant safety considerations. The QL Report reviewed Australia's capability in NLAGDs and included recommendations for appropriate procurement activities.
QL30 Armed Reconnaissance Helicopter (ARH) Data Links	August 2008	\$72 000	Project JP2089 Ph3 was scoped and approved to fit Variable Message Format (VMF) to the ARH Tiger. Capability Development Group and the Defence Materiel Organisation determined that the best course for wide industry involvement for the identification and development of options to provide VMF capability to the ARH was to engage RPDE. The RPDE Quicklook report described viable option sets for VMF fitment to the ARH. The QL deliverable will inform a plan that will enable technically viable and cost effective sets to be prepared for senior Defence committee consideration. Following Sponsor acceptance of the Quicklook report, RPDE was tasked to deliver a series of Proofs-of-Concept.
QL33 Tactical Common Data Link	February 2009	\$79 000	The Quicklook report provided information to assist Defence develop high level guidance (including an over-arching architecture) for the implementation and use of Common Data Link/Tactical Common Data Link (CDL/TCDL) technologies within the Australian Defence Force (ADF).
QL35 Electronic Warfare (EW) Capability	February 2009	\$63 000	This Quicklook provided information to Project Phoenix (and subsequently Navy) in order to assist the project to identify and rectify any shortcomings in current tactical EW capability. The outcomes of the Project Phoenix recommendations will have a major influence on the direction of Navy EW capability for the fleet in being and well into the future.
QL36 UHF and VHF in Urban Environments	March 2009	\$61 000	This Quicklook activity sought information and advice from industry to address the effect of the urban Electro-Magnetic Environment on multiband radios operating in the UHF/VHF bands. It reported on the feasibility of modifying existing systems and the specification of future systems and also advised what performance specifications should apply to UHF/VHF multiband radios to be acquired for operations conducted in the urban environment.
QL38 Defence Science and Technology Organisation (DSTO) Management Tools	June 2009	\$28 000	This Quicklook assessed the effectiveness of the DSTO Task Management System through comparison with industry practices and systems. Recommendations were made to better align the Task Management System with DSTO's business practices.
QL39 Review of the Content/Form of the Public Defence Capability Plan (DCP) 2009	March 2009	\$21 000	This Quicklook elicited from Australian industry the types of information that they would like to have provided in the public version of the current DCP as well as their comment on changes to the DCP content, as recommended in the Mortimer Report. The industry responses provided Defence with suggestions on how to improve the presentation and content for the DCP document.
QL40 Development of the Network Centric Warfare (NCW) Roadmap 2009	March 2009	\$33 000	This QL involved Defence engaging directly with Australian industry as part of the Roadmap review process. This provided the opportunity to industry to inform and potentially shape the development of the NCW Roadmap 2009 with respect to insights provided by experimentation/implementation, and the emergence of technologies that offer unforeseen opportunities.



## Tasks in Progress for FY09–10 (as at 30 June 2009)

TASK	CURRENT STATUS	PROPOSED CAPABILITY OUTCOME
Task 23 Electronic Support Measures (ESM) Interference Remediation	Solution Development phase	The Task is currently conducting laboratory, harbour and sea trials to determine the improvements in capability by replacing the current modems in the Maritime - Advanced SATCOM Terrestrial Infrastructure System (M-ASTIS). The outcome from this phase of the Task is to improve mutual operability of M-ASTIS and existing ship-fitted sensor systems. This current phase is aiming to provide a mid-term solution and further development will be required to reduce interference to a more desired level. A short-term solution has been provided to the RAN fleet since RPDE clearly characterised the level of interference in 2008.
Task 24 System Assurance	Solution Development phase	This Task is currently developing an integrated Proof-of-Concept which will be presented and transitioned to Defence co-incident with SG4 in October 2009. Task 24 is expected to deliver to Defence, the 'ways-and-means' for the definition, integration and application of a quantifiable system assurance program to capability development and the capability lifecycle.
Task 25 Improvised Explosive Device (IED) Detection	Solution Development phase	Task 25 is currently developing a Proof-of-Concept to demonstrate the ability to detect IED emplacements through the fusion of Friendly and threat force track information employing change detection technologies and techniques. The effective and timely fusion of data will be the key enabler, reducing false positive detections and to assessing the Operational viability of such an approach. Several field trials are being conducted with support and guidance from the Counter IED Task Force (CIED TF) and the employment and measurement of performance of various sensors will be assessed. This Task will identify whether this approach to IED Detection is feasible, and if so, the subsequent activity required to bridge the identified Defence capability gap. The outcomes of this phase will be presented to the Steering Group in December 2009.
Task 26 Management Information System–Operations (MISO)	Solution Development phase	The Task is in the early stages of proving a methodology, or approach, to addressing information management for operations. The Task is seeking to develop an iterative approach to address a complex problem space. The target area of interest is on personnel information and the technology, integration, organisational and administrative considerations to support improved management of that information. The Task is working closely with Headquarters Joint Operations Command (HQJOC) and Chief Information Officer Group (CIOG) to address each of those considerations. The Task is planning to achieve SG4 in October 2009 with subsequent implementation of the Task outcomes post this steering gate.
Task 28 Armed Reconnaissance Helicopter (ARH) Data Link	Solution Development phase	Task 28 has already completed the development of two Proofs-of-Concept to demonstrate the 'Interim Solution', which enables the integration and implementation of a limited Variable Message Format (VMF) capability to the ARH Tiger platform. The deliverable suite now resides with Army for their further action and prosecution for implementation as required and desired. Task 28 is now totally focused on the second aspect of the Task, which is to investigate 'mature' options and options that could support 'future-proofing' of the ARH Tiger platform. The artefacts developed in support of the mature option definition will be transitioned to the implementation sponsor at the currently planned SG4 in December 2009.
Task 30 Land Track Management Proof of Concept	Solution Development phase	The Task has achieved SG3 approval and is working on conducting a Proof-of-Concept (PoC) activity on an architecture to generate a Recognised Land Picture (RLP), which can be used to improve situation awareness in the land battlespace. The PoC brings together existing systems to provide, interface, correlate, fuse, manage, distribute, and present a graphical representation of entities in the land battlespace. The Task is combining efforts from industry and Defence to realise the PoC.
Task 31 Mine Counter Measures (MCM)	Discovery phase	The Task has conducted a user workshop at HMAS Waterhen to elicit a better understanding of the capability gap in terms of activities associated with Uninhabited Underwater Vehicles (UUV) functions in support of Amphibious Task Group (ATG) operations. Industry was also canvassed to explore their ability to contribute to any subsequent activity to bridge the capability gap. This Task shall provide a clearer understanding of how best to employ UUVs as part of deployable MCM capability.



Looking for and clearing booby traps in an abandoned building, as part of EOD  
 ▲ (Source: Defence Air Force News, 2003)

### Quicklooks in Progress for FY09–10 (as at 30 June 2009)

QUICKLOOK	PROPOSED CAPABILITY OUTCOME
QL42 System Integration Performance Monitoring	The aim of this RPDE Quicklook is to seek advice as to how System Integration can be measured and evaluated. The Quicklook will consider all phases of a project from entry into the Defence Capability Plan through to Acceptance into military service. It will cover and explore how industry measures and monitors the progress and health of a project or program, from a systems engineering and systems integration perspective.
QL43 Explosive Ordnance Disposal (EOD) Data Logger	<p>The purpose of this Quicklook is to identify industry solutions for the data capture and fusion of sensory inputs supporting an EOD Task. The requirement is to address a capability deficiency in capturing and fusing sensory information to facilitate Post exploitation and operational training.</p> <p>The Quicklook report is expected to inform the Australian Defence Force (ADF) of current and emerging capabilities, technologies and practices from industry with respect to a solution, and future procurement of a capability. It is likely that this Quicklook will develop into a Task and be required to deliver a prototype to Defence.</p>
QL44 Simulation Support for EOD Training	The purpose of this Quicklook is to seek industry advice as to options for supporting the training of EOD operators in the context of current operations. The Quicklook is also expected to provide clarity on the current simulation capability and organisations within the ADF that relate to EOD training and awareness.
QL45 Forward Operating Base (FOB) Surveillance (iFOB)	The purpose of this Quicklook is to identify industry solutions for persistent surveillance over a localised area to protect ADF FOBs on operations. This Quicklook is developing a solution that will enable Defence to more readily observe patterns of activity. By providing ongoing surveillance, this will allow Defence to detect changes and therefore be better prepared to anticipate a follow-on event. This Quicklook has progressed very well and is likely to develop into a Task and be required to deliver a prototype to Defence.
QL46 ADF Electronic Warfare (EW) Industry Engagement Requirements	This Quicklook will refine and confirm information to be provided to the One Star Electronic Warfare Steering Group (EWSG) in order to develop a Defence EW Industry Engagement Plan. This plan will propose technology excellence and will engage with the EW Industry. This outcome, in turn, will direct Defence expenditure towards improving EW Industry capability in the context of future Intelligence, Surveillance and Reconnaissance (ISR) and Network Centric Warfare (NCW).

Air Combat Officer - Air Battle Management, Flying Officer Phil Laverty, 23, in the operations room of the Control and Reporting Centre (CRC) at Camp Palomino, Kandahar Airfield

(Source: Defence Image Gallery, 2009)



# Potential RPDE Activities for FY 09–10

SUBMISSION TITLE	DESCRIPTOR	CANDIDATE TYPE
Joint Terminal Attack Controller (JTAC) Training and Certification	The aim of this Quicklook is to ascertain industry capacity as to what tools or systems currently exist or could be rapidly developed to address the Commonwealth's requirements for JTAC training and certification. The outcome of the Quicklook will inform Defence planning to extend, upgrade or replace current simulation systems that support JTAC training and certification.	Quicklook
Technology path in support of Counter Rockets, Artillery and Mortars (CRAM)	In support of LAND 19, this Quicklook will include technology assessment and maturity, integration challenges and considerations, risks, and industry capacity to support. The QL is focused on two distinct areas—firstly, the sensing and warning aspect of CRAM, and secondly, the intercept systems. The activity is looking to understand where the technology is going, when will it mature, how effective it really is, and what risks there are.	Quicklook
Air Combat Officer (ACO) In-flight Instructor Aid	School of Air Warfare instructors need to increase student throughput to meet new capability goals. Current in-flight training is time intensive, and lacks many of the representative systems students need to have familiarity with prior to operational conversion. This Task would look at incorporating a range of off-the-shelf and new applications to meet the current capability gap, increase learning outcomes, and improve ACO throughput. It will also de-risk elements of AIR 5232.	Task
Ground Based Air Defence (GBAD) Battlespace integration	The activity will examine how to integrate our GBAD into the Recognised Land Picture/Common Operating Picture, as well as direct datalink environment. It is a critical capability gap at the moment, and needs urgent addressing.	TBD
Battlespace Communications System – Land Forces	To seek industry input and advice with regard to the implications of utilising middleware (proprietary or open) in a Land C3 environment.	Quicklook

NOTE: This is a point in time extract of activities in discussion with sponsors. It provides an indication of focus areas for Defence with RPDE at the time of publication (October 2009). Activities in discussion with Defence change on almost a weekly basis—for information on current activities in discussion please contact the Analysis Capability Manager on 02 6127 4908.

# Strategic Theme 2 Business Development

## Engagement with 'End Users'

Maintenance of a healthy back order of potential Tasks and Quicklooks is a key indicator of RPDE's penetration into Defence and the degree of confidence that Defence personnel have in the program. An unanticipated indicator of that confidence has been the willingness of projects, already funded to deliver a capability for the Australian Defence Force, to contribute funding to RPDE to overcome key deficiencies or to bring forward plans to enhance the operational utility of that capability. The RPDE investigation into Armed Reconnaissance Helicopter (ARH) Data Links started life as a Quicklook and morphed into a Task aimed at delivering an enhanced operational capability for the Army's newly acquired ARH fleet. The ARH Project—through the Defence Materiel Organisation—agreed that the proposed way forward identified by RPDE would not only provide an interim capability but could then be further developed to deliver a mature solution that would enable the ARH to be fully integrated into the Army operational order of battle. The question posed—and the solution delivered—both held tightly to the RPDE vision of delivering enhanced capability in the Network Centric Environment.

RPDE continued its activities beyond the Canberra precinct and engaged Defence at its operating bases. Presentations and problem solicitation took place across Australia and included direct engagement with staff from all three services and from a substantial number of operational bases and support facilities. When provided the opportunity, RPDE conducted a number of very successful 'solution demonstrations' to key decision makers from across Defence, including the Chief Information Officer (CIO), the Surgeon General and the Vice Chief of the Defence Force to name a few. The approach demonstrated by RPDE in addressing the more complex Tasks and issues drew the comment from the CIO that "what RPDE does, should be 'business as usual' for all of Defence"; it is difficult to see how RPDE's efforts could be given higher praise.

## Whole of Government Engagement

Following a successful FY07–08 effort to promote the tenets of RPDE across government, FY08–09 saw further acceptance that the program truly did offer something that all of government might wish to replicate. In October 2008, the then Parliamentary Secretary to the Prime Minister—the Hon. Anthony Byrne, MP—delivered the keynote address to the RPDE Biannual Meeting of Participants. Mr Byrne reaffirmed that only through collaboration between government departments and those sectors of industry that support them, can progress be made towards meeting the government's agenda. Mr Byrne's address preceded later presentations delivered by Dr Richard Davis of the Department of Prime Minister and Cabinet, and Mr Ian Laverock of the Australian Customs Service. Dr Davis identified similarities between the efforts of RPDE and the National Security Science and Technology Branch, within the office of National Security that could at some future point see collaboration on issues of importance in the area of national security. Mr Laverock delivered a frank but favourable account of how working with RPDE delivered an outcome for Customs on their future patrol vessel capability that had eluded them for more than eighteen months.



▲ Commercial Manager Rodger Phillips and Operations Manager John Davidson discuss RPDE with two former Deputy Chiefs of Air Force AVMs (Ret'd) Alan Titheridge and John Blackburn at the RPDE stand at the Defence + Industry Conference

## Relationship Agreement

Is an agreement executed by the Participants, which governs the operation of the RPDE Program. It defines the obligations between all Participants while the Standing Offers provide the mechanisms for the Commonwealth to acquire Services. The Policies define the operational processes of the RPDE Program.



Mr Laverock emphasised how direct engagement with industry, without the business development 'spin' was both refreshing and constructive and that Customs would consider a similar approach for future capability decisions. These examples and other references to RPDE from across the innovation environment in both government and the private sector alike, indicate that RPDE is establishing itself as a desirable model of how to achieve positive results through engagement and collaboration. RPDE will continue to develop its relationships with the Commonwealth Scientific and Industrial Research Organisation (CSIRO), with the Defence Materials Technology Centre, with the Operational Response Group of the Australian Federal Police's International Deployments Group and other government organisations and departments. Finally, the delivery of a proposed solution to the Defence eHealth Task, significantly raised RPDE's profile with health authorities at both state and federal level and providers of health related systems. It is possible that some state authorities may replicate the architecture and approach contained within the RPDE model.

## Niteworks

Niteworks is an innovative and agile enterprise for military capability-based acquisition and evidenced decision support, in which the Ministry of Defence (MOD) and the UK defence industry work in partnership to address and resolve MOD's high-priority issues.

*(Source: Niteworks website)*

## International Engagement

The level of international engagement continued to climb throughout FY08–09 and culminated with a series of briefings being delivered by the General Manager to a broad Defence and Industry audience in Ottawa, Canada in June 2009. RPDE's efforts to sell the message of our success were heard widely, and have been heeded not only in Canada but also in Sweden and to a lesser extent in the USA. RPDE's operating model, originally adapted—loosely—from the UK Niteworks program, is now the subject of interest from that very organisation. Niteworks continues to liaise and exchange ideas with RPDE, and is seeking to enhance their own ability to deliver solutions for the UK Ministry of Defence. In Canada, the ACCORD program—Analysis of Concept and Capability for Requirements Definition—will leverage the lessons learned in both the UK and Australia to inform the proposed development of an RPDE-like organisation for Canadian Defence. In the USA, Joint Forces Command continues to promote and support the efforts of RPDE to establish the exchange of information on operational analysis and capability development. In that vein, RPDE contributed to the second Virtual Symposium between the USA, UK, Canada and Australia. RPDE's contribution drew positive comments and led to a commitment from all parties to continue to build the forum and the level of participation from the four nations' respective Defence Forces and Departments.

Throughout the year, RPDE hosted or briefed many representatives from across the world. The majority of visitors took away the message that the RPDE Program can work and duly followed up their exposure with enquiries on how they might replicate our success. This is despite some continuing to express surprise at the success enjoyed by RPDE at achieving genuine collaboration between Defence and industry and equally, between different companies within industry.

# Strategic Theme 3

## Stakeholder Management



▲ HMAS Waterhen  
(Source: Navy)

### Regional Regimen

Since its inception in early 2008, the Regional Regimen has provided a useful forum for Participants to engage with the RPDE Management Team, and through them, to engage the RPDE Board and One Star Steering Group. Participants from across Australia have taken advantage of this access, to express their views and opinions on key elements of the program and its operations. The meetings have been well-supported in most areas, with a major drawcard being the presence of Defence representatives from System Program Offices (SPOs), Force Element Groups and local Defence units.

Participants have established Regional Regimen meeting formats that are both unique and suited to: their region, the Participants regularly in attendance and the level of Defence support for interaction.

Without exception however, the seven regions independently came to the same conclusion that greater emphasis needed to be placed on securing a strong commitment and presence of regionally located Defence representatives. The RPDE Management Team is considering how this can be achieved and will be the subject of stakeholder engagement planning for the coming twelve months.

### Operational/Regional Defence Engagement

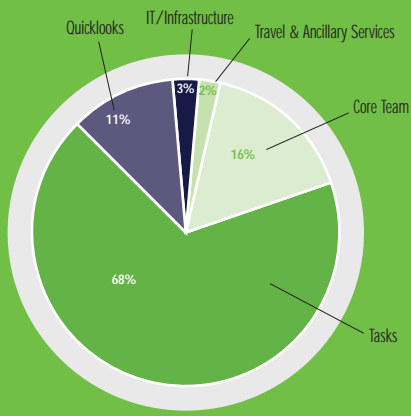
Throughout FY08–09, RPDE's Stakeholder Management Strategy has continued with a focus on awareness at the operational, support and sustainment, and training levels of Defence. Working through each of the Environmental Commands (Fleet, Land, and Air Headquarters), the Defence Materiel Organisation (DMO) and the respective single-service training authorities, RPDE has raised the level of awareness amongst those units and offices most likely to contribute questions for RPDE address. Of significance was the high level of interest shown by elements such as the Airborne Early Warning & Control SPO based in Williamstown, the Mine Countermeasures and Clearance Diving Force Element Group at HMAS Waterhen (Sydney), Headquarters 1 Division in Enoggera (Brisbane), and from representatives from the ADF and the Department of Defence on courses at Weston Creek and at Australian Defence Force Academy (ADFA). RPDE also took advantage of showcasing its capabilities at events such as the Defence Science and Technology Organisation (DSTO) Industry Day, the 2009 Avalon International Air Show and at the Defence + Industry Conference.

### Force Element Group (FEG)

The highest organisation unit within an armed service, with its own unique role. For example, the Air Lift Group as part of the Royal Australian Air Force.



▲ RPDE representatives attended the Avalon International Air Show 2009 exhibition  
(Source: Defence)



▲ RPDE Task and OL Spend v Overheads for FY08-09

## Strategic Theme 4 Governance and Management

### Value for Money

The RPDE Program is funded from Project Definition Funds (PDF) within the Defence Capability Plan (DCP). The program's budget for FY08-09 was \$12m. Financial Year 2008-09 activities of 3 Tasks and 8 Quicklooks were achieved and the target of budget spent on Overhead (Management and Core team) versus Task and Quicklook activities of three-to-one was exceeded. RPDE achieved a near four-to-one spend ratio for FY08-09, which means that for every \$3.67 RPDE spent directly on Tasks and Quicklooks, it spent \$1 (or less) on Overhead. The spend ratio is summarised in the pie chart, which shows 79% of the budget was expended on outputs and 21% on operating costs.

Revenue	Amount FY07-08	Amount FY08-09
Capability Development Group	\$11.376m	\$10.577m
Defence Materiel Organisation	\$0.000m	\$0.902m
Other	\$0.000m	\$0.070m
<b>Total</b>	<b>\$11.376m</b>	<b>\$11.549m</b>

Expenditure	FY07-08 Actual	FY08-09 Actual
Tasks	\$7.797m	\$7.832m
Quicklooks	\$1.395m	\$1.226m
Core Team	\$1.556m	\$1.846m
IT and Facilities	\$0.143m	\$0.323m
Travel and Ancillaries	\$0.485m	\$0.322m
<b>Total</b>	<b>\$11.376m</b>	<b>\$11.549m</b>
<b>Overhead Ratio</b> Outputs to Overheads	<b>4.2 to 1</b>	<b>3.67 to 1</b>

# RPDE Participation

Since mid-2008, at the request of the Board, RPDE has tracked the involvement of RPDE Participant organisations in RPDE activities. The table below outlines the quantitative involvement of Participants during 2008–2009.

Participation Activity	No. of Participants
Attended at least one Regional Regimen in the past 12 months	48
Attended at least one Biannual Meeting of Participants in the past 12 months	68
Responded to at least one service request in the past 12 months	57
Attended at least one workshop in the last 12 months	52
Participant companies supporting ongoing contract positions (Core, Task, or QL team and Graduates activities) on 9 July 2009.	35
Requested foreground intellectual property in the past 12 months	24



## What's New — Information Management System

During FY08–09, RPDE has implemented the Information Management System (IMS) as a means to improve in-house recruitment and financial functionality, and allow Participants interactive access with RPDE.

The IMS consists of a password-protected Extranet web page that contains both static pages and a Participant Domain. The Participant Domain is an interactive online database for RPDE Participants to:

- ensure their company information is up-to-date for RPDE correspondence;
- view potential activities;
- view recruitment opportunities for core staff, activity staff and workshops; and
- submit Service Offers.

The IMS provides RPDE with a centralised repository, which allows for reporting at the Management and Board levels, and enables the simplification of processes within the organisation.

The recruitment component provides a single system, which facilitates the recruitment process from release to Participant response, through to the assessment and selection of the preferred candidate and subsequent commercial activities.

The IMS also includes a financial component, which provides the organisation with a 'single source of truth' with respect to our financial performance and reduces the internal reporting workload on the organisation.

In the months so far of operation, the Extranet and Participant Domain have already curtailed a number of labour intensive and tedious workarounds that were practiced by RPDE staff.

The way that the Participants have embraced the new way of doing business has been encouraging. The workload of the support staff at RPDE has reduced significantly. More importantly, RPDE now have reliable, accurate information with which we are better able to manage the RPDE Program.

A view of the Hopper in the Participant Domain



# RPDE Participants

Acacia Research Pty Ltd.  
 Accenture Australia Holdings Pty Ltd  
 Acumen Alliance (ACT) Pty Ltd  
 Advitech Pty Limited  
 Aerospace Concepts Pty Limited.  
 Agent Oriented Software Pty Ltd  
 Aircservices Australia  
 AMW Professional Services Pty Ltd.  
 ASC Pty Ltd  
 Atamo Pty Ltd  
 ATEK Pty Ltd  
 ATSA Defence Services Pty Ltd.  
 Aurecon Pty Ltd  
 AUSPACE Limited  
 Australian Aerospace Ltd  
 Australian Marine Technologies Pty Ltd  
 BAE Systems Australia Limited  
 Bayly Design Associates Pty Ltd  
 Bellinger Instruments Pty Ltd  
 Blue Glue Pty Ltd  
 Boeing Australia Limited  
 Booz & Company Limited  
 Business Improvement Software Pty Ltd  
 CAE Australia Pty Ltd  
 CAE Professional Services Pty Ltd  
 Calytrix Technologies Pty Ltd  
 Capstoneblack Pty Ltd.  
 Catalyst Interactive Pty Ltd  
 C-E Solutions Pty Ltd  
 CEA Technologies Pty Limited  
 CES Computers Pty Ltd  
 Charles Darwin University  
 Chemring Australia Pty Ltd  
 Cirrus Real Time Processing Systems Pty Ltd  
 Cistech Solutions Pty Ltd  
 Clarinox Technologies Pty Ltd  
 Cobham Flight Services and Operations Australia  
 Codarra Advanced Systems Pty Ltd  
 Communications Design & Management Pty Limited  
 Compucat Research Pty Limited  
 CSC Australia Pty Ltd  
 Curtin University of Technology  
 Daronmont Technologies Pty Ltd  
 Deakin University  
 Defence Communications Industry Pty Ltd  
 Dimension Data Australia Pty Ltd  
 DSpace Pty Ltd  
 EDAG Australia Pty Ltd  
 EDS Australia Pty Limited  
 Electronic Warfare Associates – Australia Pty Limited  
 Embedded Technologies Corporation Pty Ltd  
 Engineering and Scientific Systems Pty Ltd  
 Envista Pty Limited  
 ERDAS Pty Ltd  
 Ericsson Australia Pty Ltd  
 ESRI-Australia Pty Ltd  
 Evalua Pty Ltd  
 Fastwave Communications  
 Flight Data Systems Pty Ltd  
 Formation Design Systems Pty Ltd.  
 Frame Group Pty Ltd  
 GKN Aerospace Engineering Services Pty Ltd  
 Hawker Pacific Pty Ltd  
 Hewlett-Packard Australia Pty Ltd  
 Hyder Consulting Pty Limited  
 IBM Australia Ltd  
 Igatech Consulting Pty Ltd  
 Innovation Science Pty Ltd  
 International Seal Company Australia Pty Limited  
 Jacobs Australia Pty Ltd  
 Jenkins Engineering Defence Systems  
 KAZ Technology Services Pty Ltd  
 Kellogg, Brown & Root Pty Ltd (KBR)  
 KoBold Group Ltd  
 KPMG  
 L-3 Communications Australia Pty Ltd  
 L-3 Nautronix Ltd  
 Leadership Solutions Australia Pty Ltd  
 Learning Systems Analysis Pty Ltd  
 LISAsoft Pty Ltd  
 Lockheed Martin Australia Electronic Systems Pty Ltd  
 Lockheed Martin Australia Pty Limited  
 Lockheed Martin Australia STASYS Pty Limited  
 Longreach Group Limited  
 Madry Technologies Pty Ltd  
 McGrathNicol + Partners  
 Mediaware International Pty Ltd  
 Melix Pty Ltd  
 Microsecure Corporation Pty Ltd  
 Microsoft Pty Ltd  
 MilitaryTech Pty Limited  
 Mincom Limited  
 Mobicon Systems Pty Ltd  
 MSC. Software Australia Pty Ltd  
 NetMap Analytics Pty Limited  
 Nova Aerospace Pty Ltd  
 Ocean Software Pty Ltd  
 Optus Networks Pty Ltd  
 Pacific Noise & Vibration Pty Ltd  
 plm Services Pty Ltd  
 Point Trading Group  
 Prism Defence Pty Ltd  
 QANTAS Airways Limited  
 Qinetiq Consulting Pty Ltd  
 Qinetiq Novare Pty Ltd  
 Quick Strike Defence and Aerospace Pty Ltd  
 Raytheon Australia Pty Ltd  
 Relegen Pty Ltd  
 Rockwell Collins Australia Pty Ltd  
 Rosebank Engineering Pty Ltd  
 Royal Melbourne Institute of Technology (RMIT)  
 RSM Systems Pty Ltd  
 Saab Systems Pty Ltd  
 Seal Solutions Pty Ltd  
 Signal Processing Know-how Pty Ltd  
 Sikorsky Aircraft Australia Limited  
 Simplexity Communications Pty Ltd  
 Sinclair Knight Merz Pty Ltd  
 SMS Defence Solutions Pty Ltd  
 Sonartech Atlas Pty Ltd  
 Specialty Coatings (Aust) Pty Ltd  
 SPYRUS Pty Limited  
 Sun Microsystems Australia Pty Ltd  
 Sydac Proprietary Limited  
 Sypaq Systems Pty Ltd  
 Tectonica Australia Pty Ltd  
 Tenfold Network Solutions Pty Ltd  
 Thales Australia Limited  
 Tough Pty Ltd  
 University of Adelaide  
 University of New South Wales (ADFA)  
 University of South Australia  
 VIPAC Engineers & Scientists Ltd  
 YTEK Pty Ltd  
 Zylotech Ltd

The RPDE Management Team: (l-r) Rodger Phillips, John Davidson, Cecilia Ridgley, Ian McKenzie, David Welch (as at October 2009)

