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PUBLIC SUBMISSION TO REVIEW OF THE DEFENCE ANNUAL REPORT 2012-13

Thank you for the opportunity to prepare a public submission on those aspects of the Defence Annual Report 2012-13 relevant to QinetiQ. The full QinetiQ submission is enclosed; the Executive Summary follows below.

Executive Summary

Despite Government undertakings to increase the defence budget over time to 2% of GDP, while making no further cuts, Defence is going to have to tighten its belt. Many commentators, most notably Dr Mark Thompson of ASPI believe that the forward equipment programme is unaffordable¹. Recent announcements to procure Triton Unmanned Aerial Vehicles and confirmation of the order for 58 F35 Joint Strike Fighters further restrict the room for manoeuvre left to the policymakers writing the 2015 Defence White Paper. At the same time the proportion of the annual budget spent on personnel costs has risen to around 40%² of the total spend. It seems certain that Defence is going to have to take a hard look at structure, personnel and business process to work out how to deliver greater efficiency and productivity from the shrinking discretionary element of the budget. And it is going to have to look closely at how to bring personnel costs back in line with capital and running costs.

We believe that it is time for Defence to work with industry to identify those functions that have to be managed in house, and those that might be better delivered by expert providers outside the Department. This will allow defence to free up personnel resources and re-direct them to where they are essential, while generating headroom where they are not. Recognising that such a process will rightly lead to a competition to identify the right industrial partners; at the Enclosure we have highlighted some Case Studies as examples of areas where we believe that there is scope to initiate this conversation:

- Gate Reviews and project scrutiny processes.
- Asset Management – looking at Maritime and Land Ranges.
- Test and Evaluation support through life of capabilities.
- Human factors in cyber security.

¹ The Cost of Defence 2013-14 page vii.

² Ibid, page 121.

QinetiQ Australia is a global consulting and engineering services provider delivering independent and trusted advice. Our success is founded on the technical expertise, deep domain knowledge, application and commitment of our people. With over 250 employees in Adelaide, Brisbane, Cairns, Canberra, Melbourne and Sydney, we have people with the know-how to solve our customers' most complex problems.

Our consultants specialise in concept definition, acquisition/sustainment support, capability assurance, project/program management and protective security services. **Our engineers** also specialise in structural integrity, health usage monitoring, life of type/ageing audits, mission planning, non-destructive testing, robotics, safety assurance, training and simulation and weapons systems integration. **Our point of difference** is that our independence from the Supply Chain allows us to work with Government using the strength of our people to build enduring "Partnerships with a capital P" that are based on trust. Our advice is agnostic of product, platform or capability.

We are the Australian Defence Force's only commercial Authorised Engineering Organisation in Aircraft Structural Integrity, Explosive Ordnance and Ranges; we also operate the Defence Science and Technology Organisation's mechanical and electronic design and manufacture workshops.

QinetiQ Australia is currently delivering 560 programmes and contracts. Of these, approximately 520 are for the Commonwealth of Australia Department of Defence. Key Defence contracts currently range from:

- DGTA Aircraft Structural Integrity Engineering Support.
- DSTO Workshop Port Melbourne.
- Research assistance and cyber applications for DSTO.
- Commercial support services to the Landing Helicopter Dock (LHD) SPO.
- Change management advice to the Defence Human Resource Development Project.
- Mechatronics Range Upgrade of small arms ranges in Western Australia.
- Engineering support to Woomera Test Range systems.
- Engineering and planning support to Maritime SPOs.

QinetiQ Australia stands ready to expand on, or provide any further information related, but not limited to the example case studies we have used in this submission.

A N WOOLFORD
Chief Executive Officer

Enclosure:

1. Submission to the Joint Standing Committee on Foreign Affairs, Defence and Trade.

*Submission to the Joint Standing Committee on Foreign Affairs,
Defence and Trade, Defence Sub-Committee
by QinetiQ Australia*

“Over the last 40 years numerous second-order or partial reviews of the Department of Defence, undertaken every few years, have consistently failed to improve accountability, rein in burgeoning bureaucracy or eliminate wasteful expenditure”¹

QinetiQ – Our Views

QinetiQ Australia is grateful for the opportunity to comment on the Defence Annual Report 2012-13. This submission addresses a range of matters raised in the Report 2012-13 including, but not exclusive to those contained in the Committee Media Release of 26 March 2014. QinetiQ believe that:

- Many of the governance and scrutiny processes in procurement involve internal reviews, albeit with independent members. QinetiQ believe that the engagement of expert independent external bodies in gate reviews and scrutiny processes can significantly reduce risk in procurement projects.
- Defence is expending manpower, effort and resource on asset management that could be employed elsewhere. There is scope to streamline this by contracting managed services from expert technically astute providers. As an example, we continue to free up highly sought after manpower through the provision of land and maritime range services for the UK Ministry of Defence.
- Major projects such as the Air Warfare Destroyer (AWD) would benefit from greater investment in Test and Evaluation to reduce integration risk - before final approval. QinetiQ have a proven track record and strong heritage in providing Test and Evaluation support on complex programmes. This not only contributes to de-risking of the entire programme, it can substantially assure capability delivery and project schedule.
- Countering the cyber threat is one of Australia’s highest security priorities. We believe that while the Australian Signals Directorate (ASD) working with industry and other agencies provides comprehensive cover in the ‘hard’ and ‘software’ domains, considerable work needs to be done on human factors, or ‘warmware’. QinetiQ is a leading provider of services in this area for Government, Defence and other Commercial clients.

Background

It is clear from the commentary in both this and earlier Annual Reports that reform and continuous improvement play an important role in driving cost out and efficiency in to the way in which Defence aims to deliver its outputs. This reform agenda has been motivated in part by a number of piecemeal reviews across Defence in response to cost and schedule failures in procurement, crises of availability, Australian National Audit Office (ANAO) Reports, or more generally aimed at improving process, structure and accountability.

But what have they achieved? A survey of five major reviews commissioned between 2003 and 2012² reveals a number of common threads running through the 119 major recommendations.

¹ The Coalition’s Policy for Stronger Defence, September 2013, page 7.

² Kinnaid 2003, Mortimer 2008, Black 2011, Rizzo 2011, Coles 2012.

These can be broken down into five categories: Governance and accountability (40 recommendations); business process (28 recommendations); suitably qualified and experienced personnel (23 recommendations), risk management (14 recommendations) and structures (14 recommendations). What seems clear, particularly from Coles' most recent observations is that while Defence has made huge strides in putting in place structures, procedures and governance mechanisms, the "lack of suitably qualified experienced personnel..."³ particularly in DMO still poses a risk. Elsewhere, observers such as the Australian Strategic Policy Institute (ASPI) express concern that these same processes have resulted in both the growth and enrichment of manpower and management overheads in the Australian Defence Force (ADF) and Australian Public Service (APS).

"...the engagement of the various think tanks and industry tends to follow a decision not inform it".⁴

Case Study One: Defence Materiel Organisation and Capability Development Group – Gate Reviews

A range of Defence reviews have commented on the need for contestability in advice during project scrutiny to help drive out cost and schedule over-runs and assure that capability is delivered on time. Mortimer, Black and the ANAO made recommendations to Defence underscoring the need to ensure its quality assurance frameworks are strengthened and maintained.⁵ These recommendations emphasise that to be valuable, such assurance frameworks must be founded on independent assessments that identify and remediate the technical and process risk that threaten project performance.⁶

So how independent is the assessment of project risk? The DMO Gate Review process mirrors similar procurement processes in other nations and is an acknowledged strength of the current system. However, while reviewers have all endorsed the process, there remains a concern that all of the players in the process institutionally 'have skin in the game', including the Capability Investment and Resources Division (CIR Division) and the Defence Science and Technology Organisation (DSTO). The principal question is the extent to which any review body housed within the organisation under review will be able to deliver independent scrutiny and contestable opinions.⁷

One option to allay these concerns would be to constitute a scrutiny process and structure that equips the reviewers with the authority and autonomy necessary to allow them to provide robust, frank and fearless assessments and recommendations.⁸ This could be built around the existing Gate Review process but founded on an Independent Review body with authority and access to project data from across the Defence/industry Enterprise and responsible to the Minister for Defence [through] the Secretary and CDF.⁹ The idea of an Independent Review Board to conduct verification and validation of project performance is not new and reflects the vision of the "scrutiny community" envisaged by Bernard Gray in his 2009 Review of UK Ministry of Defence acquisition.¹⁰

³ Collins Class Submarine Sustainment Study, Progress Report, March 2014, page ii.

⁴ P 161 para 10.67

⁵ Foreign Affairs, Defence and Trade References Committee, Procurement procedures for Defence capital projects, August 2012, pages 135, 143 and 152.

⁶ Department of Finance and Administration, Guidance on the Gateway Review Process – A Project Assurance Methodology for the Australian Government, Financial Management Guidance FMG 20, August 2006, p12.

⁷ Foreign Affairs, Defence and Trade References Committee, Procurement procedures for Defence capital projects, August 2012, page 163.

⁸ Ibid.

⁹ The Thread Through Theory: Partnering for the Assurance of Stronger Defence, QinetiQ, January 2014.

¹⁰ Gray, Bernard, Review of Acquisition for the Secretary of State for Defence, an Independent Report by Bernard Gray, October 2009, page 37 and 139.

The ANAO notes that the current through life process involves multiple separate Defence groups administering isolated quality assurance review processes characterised by differing terms of references and to differing standards.¹¹ This system of reviews does not appear to provide the long-term continuity throughout the capability lifecycle required effectively to identify and advise on the impact of decisions on risks to cost, schedule, fitness for purpose, sustainment or disposal.

There are well-established practices in similarly complex areas and Helmsmann, Rizzo and Coles all highlight the importance of professionalising this facet of the business alongside the adoption of relevant asset management¹² and other practices.

The assurance of capability delivery could benefit from a single independent review process that spans the capability lifecycle, commencing from project start-up to system disposal. This holistic and horizontally integrated approach is likely to realise the higher order technical and project benefits falling out of a robust quality assurance framework.¹³ The ability to drive out costs and drive in efficiency then, stems not only from an enhanced ability to de-risk capability delivery, but also in the reduction of administrative overheads associated with the management of multiple review boards.

Case Study Two: Asset Management –Maritime and Land Ranges

The Coles Review has highlighted the value of taking an ‘Enterprise’ approach to the delivery of complex capability. For example, maritime signature management is an area where a similar ‘Enterprise’ approach can bring significant operational benefit while at the same time reducing the management and bureaucratic overhead for Defence. An essential part of maritime capability generation and operational risk reduction, signature management assurance for the Royal Australian Navy (RAN) is delivered across seven fixed (and two mobile) ranging facilities. These are run by a mixture of four Defence agencies in conjunction with at least six industry partners, which creates inefficiencies, through multiple lines of responsibility, ownership, non-attributable and repeating costs.

The current signature management process can appear ad-hoc and dependent on the timing and alignment of scarce resources and expertise to enable monitoring and corrective action. As a result, it is possible for platforms to deploy operationally without a clear understanding of their signature and hence risk profiles.

The introduction of two new classes of large warship; the Landing Helicopter Dock (LHD) and the Air Warfare Destroyer (AWD), will add five complex and sophisticated platforms to the Fleet. However, despite the increased requirement for ranging activity that they bring, neither project is funded for any increase to range capacity or capability.

QinetiQ has extensive Maritime Range and Signature Management expertise. Working in partnership with other capability stakeholders in an ‘Enterprise’ arrangement, we believe that it will be possible to provide a managed service that will enhance range capability, streamline management and programme availability. This will deliver design services and support around: hydrodynamics, signature management and model test and evaluation to meet the current and future operational needs of the Commonwealth.

Land and weapons ranges are subject to a similarly complex management arrangement that adds risk to complex projects and military capability. Range test and evaluation (T&E) services for testing

¹¹ Australian National Audit Office, Gate Reviews for Defence Capital Acquisition Projects, 26 June 2012, page 45.

¹² International Organisation for Standardisation, ISO 55001, the International Standard for Asset Management, 2014.

¹³ The Thread Through Theory: Partnering for the Assurance of Stronger Defence, QinetiQ, January 2014.

of weapons or the survivability assessment of land platforms is managed between the DMO (Monegeetta's small arms range complex), JLC (the proof ranges at P&EE Graytown in Victoria and Port Wakefield in South Australia) and RAAF-AOSG (Woomera test range). The scale of test capability extends from small arms to complex guided weapons; however, the T&E services are unique in Australia with no or, at best, very limited commercial equivalents available to support industry.

Industry regularly requires access to these ranges for complex T&E programs supporting acquisitions and product development. However, with a number of Defence agencies involved and priorities for test services varied, the process to gain access is difficult and introduces unnecessary risk and cost to the Defence program. Industry has at times had to resort to sending land platforms overseas for survivability testing; a more streamlined commercial access programme would allow the same work to be done in Australia, with obvious cost benefits for Defence as the customer.

QinetiQ regularly work with all three ranges and we believe that an Enterprise approach with a technically capable commercial partner would provide more robust T&E of complex capabilities and de-risk large acquisitions. At the same time a commercial partner would be able drive in efficiency across the Enterprise reducing 'down time', easing access for other industry partners and with the increased usage and revenue generation allowing for increased investment in and robust sustainment of these unique sovereign testing facilities.

QinetiQ has extensive experience of a similar arrangement, under which we provide range services and expert T&E facilities to the UK Ministry of Defence under the Long Term Partnering Agreement (LTPA). This agreement also provides for support to original equipment manufacturers and other industry partners, while using these facilities we already provide training to Australian range personnel, under a Government to Government arrangement.

The Woomera Test Range is a critical enabler of Australia's sovereign military capability and crucial to the safe and effective delivery of military capability that underpins foreign and Defence policy. The implementation of the Hawke Review recommendations included the Bill to support the co-existence scheme, which will balance Defence's war materiel testing and evaluation needs with non-Defence user access to the Woomera Prohibited Area. Respect for the traditional land owners and co-ordinated dual use between Defence and the resources sector are essential components of defence, economic and social policy. We know that Defence has very real concerns about the practical implications of legislative proposals to open up Woomera to mining and exploration under the co-existence model.

QinetiQ has been working with DMO Electronic Systems and the Royal Australian Air Force in providing sustainment support with priority upgrades to the Woomera Range Control and Safety System (RCSS) and investigations of remediation options with critical Range instrumentation sensors.

The RCSS gives Defence the ability to share Woomera with non-Defence users including Indigenous communities, mining companies, and commercial entities. All of the Ranges we manage or support around the world are dual use or multi-use. We operate these ranges in a congested environment, safely and efficiently. In one case, Aberporth Range in Wales more than 1.5 million tourists visited the range area in 2013 alone. Some operators, mainly in the United States, choose to shutdown dual use Ranges for days or weeks at a time for complex trials, while we facilitate a joint usage framework, including sharing airspace with the Civil Aviation Authority (equivalent to CASA).

Opening Woomera up to more non-Defence users will create new jobs and reinvigorate the South Australian economy and that of the surrounding regional townships. The RCSS has been built from the ground-up with dual usage in mind. The flexibility and integrity of the system gives Defence the

ability to share parts of Woomera with commercial users while protecting native title and the environment. At the same time, the continuity provided by this system will eliminate the risk of a reduction in range capability, or a critical gap in availability.

Case Study Three: Capability Development Improvement Programme Initiatives and Test and Evaluation Support

The 2009 RAND Corporation review of UK Acquisition recommended that “...as part of the Smart Acquisition framework ...as a “rule of thumb” 15% of total spending be spent during the Assessment phase (i.e., prior to Main Gate approval) in order to sufficiently de-risk the project and establish a robust envelope for Performance, Cost and Time prior to commitment of further funds”.¹⁴

Translated to the Australian context, this would have seen around \$1.27bn of a programmed \$8.455bn in the Air Warfare Destroyer (AWD) project spent during Phase 1 and 2 of the project to de-risk Phase 3 prior to ‘Second Pass’ approval. In fact the ANAO observe that “AWD Program expenditure for Phases 1 and 2 amounted to some \$262 million...directed towards establishing a sound design” and that “there remained significant untested expectations about the quality of the detailed design documentation to be provided by Navantia”¹⁵. More importantly that “...the program is approaching the complex stage of systems integration when, historically, cost and schedule risks tend to rise”.¹⁶ The programme has gone some way towards mitigating integration risk through the shore based AEGIS test facility, however the fact remains that ‘Australianisation’ of the design and systems will continue to present integration risks throughout the remainder of the build, entry to service and the entire lifecycle of the programme.

QinetiQ provides vital infrastructure to support the Royal Navy through a 10 year Maritime Strategic Capabilities Agreement (MSCA) and a 25 year Long Term Partnering Agreement (LTPA). Operating across the full platform life-cycle, these facilities support design and development, through acquisition to ‘in service’ support. One key benefit to the end user has been the corporate knowledge and continuity provided throughout the life cycle of a project by a partner who can quickly access IP and know-how while remaining agnostic to the broader capability acquisition and contracting arrangements.

Looking forward to SEA 5000 (Future Frigate) *QinetiQ* believe that there is already sufficient maturity in sensors, weapons and combat systems embodied in the Anti-Ship Missile Defence (ASMD) upgrade of the ANZAC Class to allow the establishment of shore based test facilities not only to support these platforms through life, but to de-risk their replacements. This would mirror the approach taken for the Royal Navy Type 45 Air Defence Destroyer and the Type 23 to T26 General Purpose and Anti-Submarine Warfare Frigate migration process.

Case Study Four: Cyber – Human factors

The ubiquity of the internet and the availability of cheap and portable computers has lowered the barrier of entry for malignant actors into cyberspace. Modern society is “highly dependent on computer and information technology to drive critical industries such as aviation; electricity and water supply; banking and finance; and telecommunications networks. This dependency also makes us potentially vulnerable to cyber-attacks that may disrupt the information that increasingly lubricates our economy and system of government”¹⁷. To précis Communications Minister Malcom

¹⁴ Transforming the UK's Defence Procurement System, February 1998.

¹⁵ ANAO – Air Warfare Destroyer Audit, Mar 2014, para 5.14. page 176.

¹⁶ Ibid. pages 22-23.

¹⁷ Kevin Rudd MP, Quoted in Cyber Security Strategy, page 1.

Turnbull's remarks at ASPI¹⁸, "there's no such thing as a digital economy, the economy is digital", so cyber security is increasingly one of the Australian Government's highest national security priorities and will stretch the available technical resources of the relevant responsible agencies. However, while it's easy to focus on the hardware and the software, it's also important to recognise the human factors that play in the cyber domain, the so called 'warm-ware'.

The Australian Strategic Policy Institute (ASPI) report on: Cyber Maturity in Asia-Pacific Region¹⁹ states that the "Australian Defence Force (ADF) possesses strong cyber capabilities, but is lacking a policy position to guide its and the wider Defence Department's approach to cyber threats. The 2013 Defence White Paper²⁰ highlights Defence's "...increasing reliance on networked operations..." and notes that "Reducing Defence's vulnerability to cyber-attacks or intrusions in a crisis or conflict will remain a high priority".

For such a strategically important subject, the Defence Annual Report is light on detail. Given the nature of the subject this is understandable in part, however, we believe there are three areas worthy of greater exploration:

Firstly, it is going to become increasingly important to understand where cyber crosses and blurs domain boundaries in conventional military operations. This sits firmly in the 'joint warfare' arena, but is likely to require a level of joint integration, particularly in the area of threat identification and effects coordination that we believe sits outside any existing joint policy or doctrinal framework. Secondly, the cyber domain will cross the civil-military boundary in the same way that it crosses conventional military domain boundaries. This was recognised in the 2009 Australian Government Cyber Security Strategy which identified the need to "partner with business to promote security and resilience in infrastructure, networks, products and services"²¹. It was in part addressed by the creation of the new Australian Cyber Security Centre which "...will also focus on the nature and extent of the threat posed by the full spectrum of malicious cyber actors, from cyber criminals and lone hackers through to nation states"²². However, there is a strong case to suggest that Defence, working with industry will need to take the lead in this area in order to establish the policy framework and 'rules of engagement'. Finally, cyber security is as much a 'people' problem as it is a technical problem. Understanding human factors is just as critical and will become increasingly important for two reasons: partly because of the difficulty of identifying the next Edward Snowden or Bradley Manning; and partly because Defence, Industry and Government will all be trying to draw on the same limited pool of human capital to drive their part of the cyber enterprise. *QinetiQ* have extensive experience of working with government and industry on human factors in cyber. We feel that there has been significant investment in technical and procedural fields in Australia as elsewhere. However, we also believe that organisational culture, the analysis of risk factors in the 'human terrain' of our workforce, cyber awareness, social and professional network risks are all important in building understanding of the cyber vulnerabilities faced by government and business alike. We do not believe that it is possible completely to eliminate these risks, but we do believe that it is possible to analyse and understand the risk factors and through training and education affect the cultures and behaviours that will help to mitigate and minimise them.

¹⁸ Turnbull, Malcolm, speaking at ASPI – Cyber Maturity in the Pacific Region 2014 launch, 15 Apr 2014.

¹⁹ <https://www.aspi.org.au/publications/cyber-maturity-in-the-asia-pacific-region-2014>.

²⁰ http://www.defence.gov.au/whitepaper2013/docs/WP_2013_web.pdf.

²¹ <http://www.ag.gov.au/RightsAndProtections/CyberSecurity/Documents/AG%20Cyber%20Security%20Strategy%20-%20for%20website.pdf>.

²² Defence Annual Report 2012-13, Feature, page 55.

The pool of qualified and experienced personnel in this field is limited and in high demand. In 2013 the UK Government announced plans to establish a “Joint Cyber Reserve”²³ in order to maintain a standing work-force of technical expertise available to the Ministry of Defence. Australia will likely face similar resourcing challenges and will need to work with industry to identify shared access to people with the appropriate technical qualifications and expertise when they are needed.

People Who Know How

“They are vital to achieving an enduring Enterprise that does not have to rely on the heroic efforts of individuals to sustain benchmark performance”²⁴

²³ <https://www.gov.uk/government/news/reserves-head-up-new-cyber-unit> .

²⁴ Collins Class Submarine Sustainment Study, Progress Report, March 2014, page 14.

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