

TITLE PAGE

REVIEW OF 2008-09 DMO MAJOR PROJECTS REPORT (MPR)

(ANAO REPORT No. 132009-10, 24th November 2009)



No 486 Maintenance Squadron, Pre-DRP/CSP

Maintenance Squadrons safeguarded the RAAF's independence of operations and developed the deeper-level expertise needed for the planning and introduction of new capabilities. They also provided a reserve of resources able to support emergencies and protracted operational deployments. The now dominant ethos of recently disgraced US Defense Acquisition-Procurement Czar, Darleen A. Druyan's Total System Performance Responsibility (TSPR), under its many guises including the DMO's 'de-risking of projects', is ensuring and assuring such national capabilities are being stripped from Australia's shores.

EXECUTIVE SUMMARY

The 2008-09 MPR builds upon the initial 2007-08 MPR issued by ANAO in November 2008, but shows that nothing of substance has changed for the better, apart from some more data and some promising words.

There is little, if any, evidence that critical deficiencies in the project, engineering, risk management and Independent Verification and Validation (IV&V) areas have been recognised and corrected. As a result, the Auditor General has highly qualified his Department's report.

The report contains more contract/financial detail, but still lacks clear, consistent, coherent and objective project status information. Until the root cause(s) behind DMO's capability, schedule and cost management problems are acknowledged, accepted, and corrected, the defence and security of Australia will continue to depend upon an increasingly threadbare patchwork of late, capability-deficient, and over-costly project outcomes dependent upon risk laden contracts with foreign companies for the provision and sustainment of Australia's military capabilities.

The proper management of risk still eludes DMO, with 'identified risks' now incorporating redundant and inappropriate terminology that dilutes the risk management process, for example, 'There is a possibility that..' or 'There is a chance that..'. Risks are still too often ill-defined simplistically as 'Schedule' or 'Attainment of contracted technical performance', giving no indication as to the underlying technical, financial and/or schedule management considerations that give rise to the 'identified risk', its consequences and its likelihood of materialising.

The DMO still remains focussed more upon supposedly commercial approaches and controlling financial liability to its contracts, both of which have proven ineffective, rather than managing the technical and project risks that could arise and, when not properly managed, do arise throughout projects, a result of the switch to financial/business targets at the expense of functional values.

Financial liability to a contract can best be controlled through the management and mitigation of project and technical risks before they arise. The management of risk within DMO thus remains a rearwards looking legalistic, and contract-liability-centric activity, rather than a proactive/pre-emptive project/engineering/technical management procedure.

The 'lessons learned' as presented in this MPR are still generic, recording only project management factors that should have been thoroughly recognised and catered for more than a decade ago, indeed before DAO/DMO embarked upon its first project. That these generic 'lessons' are still being put forward indicates that Defence/DMO is not a learning organisation.

While the root problem seen with DMO may be traced to the downsizing and failure to manage the consequential de-skilling of the Services, there are also organisational fault lines that dictate against Defence/DMO ever returning to being a capable organisation under the present governance structure.

These come to a point at the Military and Defence/DMO bureaucratic interface where responsibilities, accountabilities, resource allocations and professional skills come into conflict. This situation is also seen in many other Western Nations, particularly the US and the UK.

While much is made of the many changes undergone by DMO since the last MPR, these have been in process rather than improved management. DMO has also increased the numbers and levels of executive oversight, rather than acquired much needed management systems and technical skills. Other changes, such as the Enterprise Risk Management Framework and Project Longitudinal Analysis, simply miss their mark. The practice of DMO trialling new contracting approaches, such as the Alliance approach, which DMO plans to use over several projects so as to be able to assess its effectiveness, is a bizarre and extremely risky way of managing Australia's defence capabilities.

ANAO/JPCAA are, understandably, meeting continuing problems and challenges in obtaining traceable, objective and auditable data upon which clear and consistent information on the status of projects may be derived.

Within DMO, measurement of the critical performance elements of capability and schedule rest solely upon Project Maturity Scores, which, on analysis, are shown to have no firm basis, being, in the main, subjective in nature. Similarly, DMO's benchmarking is faulty, and is likely encouraging low and poor performance. Until the 'ground truth' can be firmly established through technical analysis of project status, DMO will continue to founder.

It is recommended that the NACC/JSF Project be made the subject of an ANAO management audit as it is probably the most risk laden endeavour upon which Australia has ever embarked, and carries serious implications, both directly and indirectly, for the defence and security of Australia over the next three decades or more.

Another matter of serious concern is the absence of any reporting of waste, abuse and/or fraud of Commonwealth resources in the overall reporting responsibility of the DMO on major and minor projects.

This unacceptable situation should be remedied promptly.

Finally, a major characteristic of projects managed by the Services pre DRP/CSP was a concern for and firm commitment to developing the local defence industry as a strong plank in Australia's self-reliance – the ability to maintain defence capabilities in the face of any unforeseen external disruptions as well as for reasons of whole of nation cost effectiveness and cost benefit.

This important element of project management is entirely missing from DMO project status reporting and, as advised by Industry, is absent in any positive sense within the thinking and actions of the DMO Executive. That Australian Industry development needs to be included in governance oversight activities is a self evident truth. At present, DMO's supply and long-term support contracts, in an attempt to avoid risk and transfer it to the contractor, dictate against the development of Australia's defence industry base and weaken our national self-reliance. The risks inherent in this policy do not seem to be well understood.

This analysis is aimed at providing insight into those areas that prevented the Auditor-General from

'obtaining an appropriate level of assurance in respect of the information presented by DMO', and providing background as to how this situation has arisen, how it can be addressed and thus corrected forthwith.

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THE AUDITOR-GENERAL'S REVIEW

In his review, the Auditor-General recorded his inability to assess the information contained in:

- Major Challenges in Table 1.2 and Table 4.1 (Major Project Risks) and Table 4.2 (Major Project Issues); and,
- Future dates that are 'forecast' regarding a project's expected achievement of delivery schedules and capability where included in Sections 3 and 4 of each PDS.

The Auditor-General went on to say:

“DMO's systems and processes are not sufficiently mature without considerable additional examination by the Australian National Audit Office (ANAO) to provide assurance in relation to the completeness and accuracy of the above mentioned information. In view of these factors, it was not feasible to obtain an appropriate level of assurance for the purpose of this review in respect of the information presented”.

The Auditor-General's Review can only be seen as strongly qualified, due to the lack of the consistent project status data; data that should flow directly from any robust project engineering data base at little, if any cost. The Government and the Australian Parliament should ask why such a highly qualified review by the Auditor General for Australia has been buried so deeply within the report.

DETAILED COMMENTS ON THE BODY OF THE REPORT

General.

The central aim of the MPR is given as improving transparency and public accountability through the presentation of transparent, clear and consistent information on the status of projects.

However, the Auditor-General for Australia has been unable to achieve this in either of the reports in this series.

It should be recalled that DMO's tasks were undertaken previously by the three Service Departments without encountering the serious capability and schedule problems and cost overruns

being encountered by the DMO. RAAF, in particular, specified, evaluated, selected, procured and introduced all of its aircraft and supporting systems and facilities to capability, schedule and cost with little fuss or bother, while ensuring also that all lines and levels of maintenance, in both the Service and Industry, were in place by the time the prime equipment arrived in Australia - a benchmark far more appropriate than those failed US and UK acquisition systems used by the DMO.(1)

Summary, Table 2 – Project Complexity (P17).

Much is still being made of the complexity of DMO's projects, but no lessons appear to have been learned on how best to manage complexity. Categories of complexity are still being measured by DMO in terms of their '*project and schedule management complexity*', and their '*technical difficulty*'.

However, schedule forms only one of the major elements of project management, so the solution to DMO's perceived problems with complexity lie wholly, as they always have and will, in having in place:

- *robust project management systems, supported by*
- *sound engineering/scientific competency in the technologies to be managed.*

These two functions must be in place and effective in all projects, major or minor, as they are the drivers of contract management, not the slaves. A reading of the MPR clearly shows the DMO fails to identify let alone recognise the role and importance of these functions or their proper relationship with contract management functions.

DMO's appeal to complexity seems to be more of a universal excuse than the result of reasoned and objective analysis of project problems. Given sound project and engineering management, complexity soon comes under control and ceases to be the ogre painted by DMO, and now seemingly accepted uncritically by the Government and governance mechanisms.

ANAO records DMO's position as "*The more complex the project, the greater the risk in delivering within budget, on schedule and to the required capability. DMO's experience supports the view that the more developmental in nature a project, the more susceptible a project is to schedule delays compared to MOTS solutions.*"

This elemental statement highlights DMO's core management weaknesses. *There can be no comparison between inherently complex projects and MOTS solutions unless the MOTS solution meets Australia's requirements fully in capability, schedule and cost, in which case the MOTS solution should have been considered in the first place.* It would be most unwise, as implied, to favour MOTS solutions to meet Service requirements simply because of DMO's inability to manage projects let alone complexity. MOTS solutions will often result in a progressive deterioration in a country's military capabilities by forcing seemingly unimportant changes in force structure, operational concepts, support policies and the Defence Industry base. The end result is to be prepared to fight someone else's threats in someone else's threat environment and geography, not one's own. This is a classic 'tail wagging the dog' situation. The only remedy is to recover lost

project and engineering management, and technical engineering competencies, and develop a procurement organisation that can handle complexity, as a matter of course.

Summary, Projects' Performance (P19).

Maintaining schedule is seen by DMO as the major challenge to both DMO and Industry, and so assumed primary DMO focus. This gives the impression that schedule may be regarded as an independent element that can be managed separately from capability and cost. ***However, project management processes are designed specifically to pull capability, schedule and cost together and manage them in an integrated manner so that all three objectives of the project are met.*** The Project Management Plan and its sub-plans are meant to ensure that the three elements are managed in harmony. Any attempt to give priority to one element will normally impact the other elements adversely.

In real terms, cost and schedule are transitory elements of a project while capability, the purpose of any project, is enduring.

Finally, DMO's averaging or summing schedule over-runs is largely meaningless, and potentially misleading. Each project over-run has its unique impact upon particular area(s) of Australia's force structure and military capabilities, and hence our national security. The sum of any number of schedule over-runs must be dimensioned not in DMO's simple, numerical terms but in their individual and combined effect on the force structure required to underpin Australia's defence capabilities and security – an exercise that Defence/DMO seems reluctant to do.

Summary, Schedule Performance (P30).

As highlighted earlier, concentrating upon schedule will, invariably, adversely impact capability and cost. DMO's simplistic reasons given for schedule slippages, such as *'technical factors such as design problems, difficulties in integrating different systems...or emergent work associated with upgrades.'* are disingenuous and inadequate.

Such generic factors have to be qualified and quantified on a project by project to be of any use, and then managed properly within a strong project management framework. There should be few surprises of this type in a well-managed project, and the DMO should, by now, after a decade, be well past the generic risk/problems/issues stage.

Summary, Capability Performance (P33).

The JCPAA's continuing interest in data that shows clearly each project's progress towards delivering on the key measures of equipment capability identifies a core problem. Put simply, if capability requirements are not met, then the project will generally be a waste of time, money and effort and will leave a gap in Australia's force structure, military capabilities, and ultimate security. In other words, projects which fail due to poor capability definition and/or poor project

management, incur a high “opportunity cost” by absorbing resources which could be put to better use.

However, the proper specification and management of capability within the Project Office demands a solid basis of skills and competencies in the technology involved. Such skills and competencies then need to function within robust project and engineering management systems so as to bring together and control system capability, schedule and cost in a coordinated way. Only the adoption of sound governance of a robust management structure can provide the timely, accurate and consistent status reports, across all projects, sought by ANAO and JCPAA. Analysis of MPR 2007-08 and 2008-09 shows clearly that such systems are not in place within the DMO, and have been actively and demonstrably resisted by Defence and the DMO for almost a decade.

Summary Acquisition Governance Issues Arising from the Review (P35).

Three areas of concern have been highlighted by ANAO:

- *The nature of the information in the MPR.*
- *The maturity and reliability of the systems available for its production.*
- *The resources available for the review.*

In particular, ANAO has had to exclude some information, such as risk identification that relates to events/circumstances that may or may not occur. This problem, in the past, now, and into the future lies in DMO's approach to the management of risk. Within a competent Project and Engineering Management framework, that is, one that treats project and engineering elements of the project in an objective manner, risk is qualitatively and quantitatively assessed in objective terms by system, sub-system and in terms of programme as part of established procedures. Risk reports are then generated on a continuing basis so that project status (capability, schedule and cost) is visible, and risk mitigation measures are identified clearly, objectively and, most importantly, implemented.

Within DMO, this approach is missing. For example, the risk management General Guidance contained in the DMO document titled 'Liability Risk Assessment For (Insert Details)', issued by the Office of the Special Counsel, Procurement and Contracting Branch. This defines 'risk' as “*The possibility of an event occurring*”, and the word 'liability' is identified as '*the obligation to pay for, or to pay to rectify the consequences, of the event when it occurs*'. The guidance then includes DMO's standard risk management processes, emphasising the need for the treatment of '*extreme*' and '*high*' levels of risk to be cost effective, and '*low*' and '*medium*' levels of risk to employ analysis, intuition and experience in reconciling them.

This approach cuts across accepted project and engineering management functions and accountabilities, and suggests that contract liability is the primary focus and driver of risk management within DMO. The guidelines attempt to control contract liability rather than the (usually project/technical) risks that arise throughout projects. DMO's risk management thus appears as a contract/legal-centric activity, rather than a project-centric management process.

Such confusion and intrusion only adds to project risk, prevents the timely identification of the risk, and may explain partly the continued 'dumbing down' of internationally-accepted risk management standards and procedures within DMO – in effect, by replacing objective, outcome

focussed management with subjective, inwards looking process.

In highlighting the need for reviewing DMO's project management and reporting frameworks and the number of different frameworks in place that contribute to (or actually impede) good governance of the acquisition process, ANAO identifies a core problem also seen in this analysis. As cited in the report, DMO's governance over acquisition processes is:

“guided by policies and procedures that are regularly updated to support developments in project management and DMO's own experience. Projects are assigned to project offices that have the responsibility to manage the acquisition process. A range of systems and processes provide support to the project offices and allow for centralised reporting of key project information”.

The statement raises very important points that beg analysis. There are three main reasons behind Defence /DMO's being unable to manage major projects, or indeed any military capabilities, competently. These are:

- Firstly, ANAO and JPCAA are aware of the history behind the Defence/DMO policies and processes that have evolved from about the early 1990s, when long-established and successful project and systems engineering systems and procedures were abandoned (2). Some early DMO projects started out promisingly by following established and standard management systems. ***However, those systems and procedures found little understanding or patience within Defence, or its re-invented acquisition bureaucracy, the DMO. The result was an arbitrary abandonment of professional standards and, with them, good governance; a core problem that remains to this day.***
- Secondly, this situation was aggravated by the erosion of Service competencies resulting from the Defence Reform Program (DRP) and the Commercial Support Program (CSP), under which:
 - The Services were downsized and deskilled, lost their Engineering Branches and Support Commands, and a General List of officers was introduced. Together, these changes destroyed, in the case of the RAAF for example, some seventy years of hard won and very successful engineering and project management expertise.
 - Professional military competencies were then replaced by generalists at the higher levels of the Services and Defence/DMO who possessed wholly inadequate operational expertise, and project management and engineering competencies.
- Finally, the post-DRP higher Defence machinery required Service members to work in a subservient role within a Defence/DMO bureaucracy, a move which ignored the incompatibilities that exist between these groups. The military/bureaucracy interface was analysed at (1). In short, where management of the military, and the technology it operates and sustains, meets a civilian bureaucracy lacking in operational, technological and project management competencies, a major fault line must inevitably develop that will work against the timely and effective management of military capabilities. ***Such a situation soon becomes a fertile breeding ground for a culture of 'who is right' rather than 'what is right', a predominance of form over substance and objectivity, and the hubris of internal politics that distorts military reality. The background to this is analysed in more detail at***

Annex A.

In the absence of professional project and engineering management systems founded upon good governance, all policies, processes and reviews that have developed since Defence's arbitrary change in methodology more than a decade ago have only reinforced the deeply flawed processes adopted by Defence/DMO, both organisations consistently resisting all criticism and pressures to return to a professional, competencies-based management structure. ***There is, thus, little wonder that ANAO and JPCAA are so concerned with Defence/DMO management frameworks and the lack of assurance on the project status data that is being provided.***

At the heart of this is the practice of allowing project offices to follow a range of different acquisition systems and processes. This works against accurate, timely and relevant project management information and data being available across projects. On the other hand, project and systems management methodologies have been used internationally across all manner of projects - and simply tailored in scope and depth to meet the unique requirements of each project. ***Until DMO's projects come under sound project/engineering management, supported by the operational and engineering skills and competencies required, and with contract management taking its appropriate place in the acquisition process, the problems seen by ANAO/JPCAA will persist.***

Summary, DMO's Enterprise Risk Management Framework (ERMF) (P37).

The management of risk has presented a continuing problem for Defence/DMO, as indicated previously, because of a focus on risk in terms of contract liability rather than on project/engineering/technological risks that have to be identified, assessed, analysed and mitigated within those disciplines before their likely impact upon contract liability can be estimated with any confidence and mitigated.

Another feature of the DMO ERMF is a somewhat myopic focus on the likelihood or probability of risks materialising to the detriment and further dilution of the risk management process due, in part, to a resulting bias away from a clear understanding of the importance of the consequences.

Some of the basic tenets of modern day risk management are:

Risk Identification:

Risks should be clearly, concisely and accurately identified and discretely described. Such description of an identified risk should not include references to the likelihood of or the consequence/s due to the risk materialising. Use of such terms as 'risk' or 'possibility' or 'likely' should be avoided in the description of an identified risk.

Risk Assessment:

Likelihood of Risk Arising x Consequence/s if Risk Arises = Level of Risk

Levels of risk that are at the 'Extreme' or 'High' levels of risk are not to be trifled with since, if left untreated, will assure the activity in which such levels of risk reside will fail and, likely, in a catastrophic way.

Analysis of Assessed Level of Risk:

There is no gain without pain, no advance without risk

Risks, properly managed, equal opportunities

Extreme Levels of Risk, by their nature, require a halt to the related or effected activities till the level of risk can be reduced or a different direction that reduces or removes this level of risk has been determined. To do otherwise, assures the risk will materialise and failure will be the outcome.

Risk Treatment:

Risk treatment is an activity that should embody pro-active and pre-emptive tasks that are clearly defined with measurable effects and outcomes.

Monitoring or just watching is NOT a valid risk treatment.

Even a casual browse through the DMO Project Data Sheets reveals glowing anomalies and inconsistencies with project management norms and common sense, let alone standard risk management practices.

The proper management of risk, a continuing project management function, will always depend upon having robust skills and competencies in the technologies that must be managed. This MPR review demonstrates clearly and unambiguously that these skills and competencies are currently absent, replaced by inferior financial and business targets at the expense of functional values. In short, DMO's ERMF must inevitably fail to achieve its objectives under current Defence/DMO organisation, policies, and processes. All the qualifications contained in this section of the report point to this inevitability.

Summary, Presentation of Project Financial Information (P40).

Until cost becomes an integral part of an effective project management system, the nexus between capability, schedule and cost will be weak or non-existent. Visibility of project costs should flow directly and traceably from project management status reports. Obviously, this is not the case within the practices or processes of the DMO.

DMO Report, Project Longitudinal Analysis (P111).

"This chapter provides a longitudinal analysis that compares and contrasts performance across the 15 projects and includes an analysis of key aspects of this performance. As the number of projects included in the DMO MPR increases over time, the longitudinal analysis is expected to indicate trends and enable more systemic observations on DMO project performance".

Firstly, there are two types of longitudinal analysis:

- Retrospective analysis (RLA), which looks into the past and analyses what happened so that past problems and mistakes may be avoided to the extent possible in current projects and all future projects. This accords with sound management system information feedback practice.

- Prospective analysis (PLA), which simply accumulates 'data' from projects over time; in the DMO's case, 'is expected to *indicate trends and enable more systematic observations on DMO project performance*'. In short, this approach accepts that mistakes will be made, and that these may be left to accumulate until sufficient have been made so that '*more systemic observations can be made which provides a more holistic picture*'. Such an approach makes no provision for correcting mistakes promptly, and ensuring that they are not made on other projects. That is, they create an historical record, but do not form part of the management information feedback loop critical to each and every project.

DMO's approach is thus based upon a methodology that continues to accept mistakes simply to populate a generic 'lessons learned' data base. This perception is reinforced by DMO's evidence given before the JPCAA Hearing into the 2007-08 MPR on 19th March 2009:

"They (projects) are very complex. I would hope that over the next five or 10 years of this report you see a transition where things do not happen anymore or when we mitigate some of these risks".

This approach is also reflected in DMO's comments on the Alliance contracting methodology to be used on the Air Warfare Destroyer Project, when the CEO DMO stated that '*this new contracting approach will have to be used on a number of projects before all lessons will have been learned*'.

Furthermore, all longitudinal analyses depend for their accuracy and usefulness upon having project management and reporting systems in place that provide objective and well-defined data items that are common across all projects. Only in this way is it possible to accumulate repeated observations of the same data items over time. DMO cannot meet these requirements, because:

- each DMO project is managed differently, so that each project data base is unique. This problem was also evidenced in the 2007-08 MPR, and
- key data items, such as capability and schedule status, are based solely upon individual project manager's subjective assessments, not traceable, objective data items.

In summary, DMO's prospective Project Longitudinal Analysis can do no more than continue to record the type of low value, generic lessons that might, in the fullness of time and the allocation of appropriate resources, be 'learned', and then draw only subjective conclusions.

DMO's Project Longitudinal Analysis is more about 'reinventing the wheel, less a spoke or two each time', on a repetitive basis, 'dumbing down' its systems and processes as it goes. Such an approach never ends and will not yield the right answers.

The principal value of RLA is that it focusses upon the root causes behind the situation being encountered TODAY, from which changes in the management systems and procedures being used may be identified, specified, implemented and evaluated. The nexus between problem, cause and correction is kept as short as possible so that the effects of problems are headed off on current and future projects. This is the approach used, to the extent possible, in this and the many other analyses provided to Defence and the DMO, as well as successive Governments and Parliament.

COMMENTS ON DMO REPORT

DMO sees the key benefit of the MPR as '*reporting the evolving history of each project*'. However, the objectives of Government. JPCAA and ANAO seem, quite reasonably, to be focussed upon obtaining clear, concise, accurate, consistent and auditable visibility of the status of projects against specified requirements. Such documentation is an output of those traditional project/engineering management methodologies rejected by Defence/DAO/DMO. The information sought is thus unlikely, if ever, to become available from DMO's PDSs, as DMO's contracting and project management approaches appear designed to learn principally from experience (generic mistakes made) and the majority of mistakes made to date have been of the most elementary, as well as the very costly, types. This was demonstrated clearly at the JCPAA hearing into the 2007-08 MPR on 19th March 2009:

PA11- Lessons Learned and the Time Needed to Learn Them:

Mr Georgiou: "*My difficulty is just the notion of lessons learned. I have just skipped over three or four of them and I could just about write a template for 'lessons learned' that would cover most of the lessons learned that are outlined here*". Mr Georgiou was right - the lessons were so simplistic and subjective that even the most junior and inexperienced of managers should have known them.

DMO's response to Mr Georgiou's observation was largely an appeal to the large, complex system integrations involved, by saying: "*They are very complex. I would hope that over the next five or 10 years of this report you see a transition where things do not happen anymore or when we mitigate some of those risks*". So, after a decade or so of these fundamental and ubiquitous risks and lessons learned, the best DMO can offer is yet another decade or so of learning lessons from 'experience' in the expectation that things will improve somehow.

Further observations on 'lessons learned' are included in the comments on each PDS.

IMPROVEMENTS SOUGHT BY THE JCPAA.

Key Changes to DMO Business. (Page 51)

The changes in DMO's business that have taken place are seen, by DMO, to have arisen from:

- The Mortimer Report, and
- The Strategic Reform Program.

The Mortimer Report.

"Reforms that flow from the Government's response to the Mortimer Review cover the complete life cycle of capability systems, and follow two themes":

- Improving commercial discipline on Defence procurement and sustainment process, and

- Making DMO more businesslike.

The Mortimer reforms are seen by DMO as ensuring that high level strategic and capability advice is provided to Government, and to increase the rigour with which projects are assessed for inclusion in the Defence Capability Plan. Changes are also aimed at strengthening the accountability of capability managers. *'Defence will implement a framework through which the Capability Managers provide greater oversight and coordination of all elements necessary to introduce a capability into service. Mechanisms (processes) will be included to ensure that DMO, the Capability Managers and the Capital Development Group work together to agree the baseline scope, risk and schedule against which delivery of equipment can be measured'*.

Comment:

A key characteristic of this approach is the diffusion of accountability. Mortimer, like so many others who recommend that DMO adopt a more 'business-like' approach, did not specify clearly what he meant and what specific commercial/business changes were thought necessary. The two themes of the Mortimer 'reforms' are wholly commercial, that is, contract management centric, and ignore the core project and engineering management systems, skills and procedures that are critical to ensuring that the supporting contract management is made as low risk and successful as possible. The problems identified by ANAO arise directly from the absence of these project related systems, and will persist so long as these systems are not in place. The Mortimer 'reforms' will thus not result in any improvement in DMO's ability to provide high quality advice to Government, or increase the rigour with which projects are assessed, for the same reason – the skills and competencies needed are not there. As a result, the capability development and acquisition phases will continue to be inadequate, with the resulting effects on the defence and security of Australia being obvious.

'Strengthening the accountability of the Capability Managers' will also provide no improvement as the Service Chiefs are neither organised to accept such accountability nor do they now have the skills and competencies base required in their supporting staff organisation. This is reflected directly in the poor requirements baselines that have plagued projects repeatedly, and the intractable problems associated with understanding the technology involved and its integration. Hence, DMO's reforms will merely become additional processes, serving only to make the current situation worse as well as far more costly.

No recognition is made in the Mortimer Review of the need for objective project management and technical expertise relevant to the technologies being managed within DMO. No mention is made of the Project Management Plans, the Systems Management Plans, the Configuration Management Plans, the Maintenance Analysis Plans, the Risk Management Plans, the Test and Evaluation Master Plans, or the Support Analysis Plans, and so on, that must drive every project. Contractors may be used to provide input to them, but these cannot be outsourced to contractors without incurring the very generic 'risks', 'Issues', and 'lessons learned' that populate the DMO's PDSs.

The Flight to Process.

The improvements promised at Para 1.28 of the MPR represent wishful thinking, as they are all

built upon adding processes to an already process-constricted organisation. Every review into Defence/ DMO to date has led only to more process, and now DMO plans to add the following:

- *'A Project Directive will provide top-level direction from CDF to the Service Chiefs to introduce the full operational level capability into service by the date agreed upon by Government'*. Firstly, wasn't this a primary DMO function? Secondly, as stated above, the Service Chiefs are no longer able to do it; they no longer control the activities or the budgets or have the competencies needed to discharge that responsibility.
- *'The Memorandum of Arrangements between the Secretary, CDF, and the CEO DMO, as well as Materiel Acquisition Agreements, will be reviewed in terms of responsibilities and accountabilities'*. This may make the deck chairs look more orderly, but will achieve nothing of importance.
- *'DMO will introduce two delivery milestones – Initial and Final Materiel Release'*. DMO has already departed from internationally-accepted definitions for these milestones, for no justifiable reason, and no reason has been given for departing further from international, project management standards.
- *'DMO will increase the commercial acumen of its staff by employing more commercially experienced and skilled personnel at SES level and has started recruiting an SES3 General Manager – Commercial'*. The deficiencies in DMO's competence to manage major projects lie in failures in Project Management, Engineering (both recognised as being the controllers of complexity), Risk Management, and IV&V, and so it is difficult to see how this move will result in any better performance.
- *'A Project Charter will also be raised for 'complex and demanding projects' detailing the authority, responsibility, and accountability of the Project Manager. This Charter will hold him to account for meeting both financial and non-financial performance targets. Charters will also apply to the System Sustainment Managers'*. This is again a process (administrative) driven approach to management which will have no meaningful effect so long as the Project Managers and Sustainment Managers have inadequate project and engineering management skills and competencies as well as not being provided with the requisite authorities and resources to discharge their responsibilities.
- *'Gate Review Assurance Boards will be instituted to examine complex and demanding projects before critical points in the project's life cycle'*. This is an activity well covered by standard project management processes and one that should have been in place in 2000, as recommended by Industry. The fact that a 'Gate Process' was not implemented immediately non formation of the DMO indicates that the DMO has little, if any, worthwhile project management expertise.

Comment.

The practice of adding additional and higher layers of process simply passes problems up the line to people who have even less immediate knowledge of the problem and its solution than those below, ensuring that judgements and decisions are taken at the higher level on grounds other

than what is best for the project. Woven throughout this maze is the principle of non-acceptance of mistakes and the diffusion of accountability. Such a construct has proven to be inappropriate for the management of Australia's military capabilities and national security. Unfortunately, Australia's governance mechanisms, seemingly due to limited comprehension or lack of political will, are not up to the task of turning things around.

None of the changes in process listed above will redress the effects that flow inevitably from the failure of Defence/DMO to follow standard project, engineering, risk management, and IV&V systems and procedures, or add to its ability to manage projects through contracts. The management approach reflected in the 2008-09 MPR has failed and will continue to fail until major structural changes are imposed.

The Strategic Reform Program.

The Defence Strategic Reform Program (4) is *'a response to government seeking greater accountability transparency in the way Defence manages its budget, and the quality of advice it provides'*. A need is also seen for substantial reform. However, the review will proceed on the basis of eight internal, 'Companion Reviews', all of which have been sheltered from any transparency and open debate or the consideration of 'evidence-based' observations and analyses that have been provided by independent experts. Furthermore, the review will be managed by a Defence Deputy Secretary of unknown qualifications. The review will thus be driven internally and be responsive to, and controlled by, Defence executive imperatives.

In addition, the Department has already identified exactly how much must be saved in eight specified areas of activity, which means that management in those areas will be required to trim their budgets (i.e. activities) to meet the financial objectives that have been set. Because of the maze of organisational, functional and financial interfaces that now exist within and between the Services and the Department that supports them, there is little probability that the cascade effects of these 'economies' on other areas will be considered – the Services will just be told to live with them.

Pre-DRP/CSP, such economy drives were known as *'Money must be saved at any cost!'* exercises. Fortunately, at that time, the Services were organised and resourced such that they were able to retain core capabilities, competencies and standards while trimming activities to meet the passing financial constraints imposed. Defence today has no ability to do this, so the Strategic Review will carry an extreme risk of further debilitating Service capabilities and degrading further Australian defence and security.

A similar strategic review was conducted in the UK (3) with disastrous results, where it was found that *"In defence, since there is no measurement of output, a cut in one area often cascades throughout the operation with unseen negative consequences"*. The UK has also learned that such consequences can lead directly to loss of life and equipment. This was exemplified in the loss of an RAF Nimrod aircraft and its entire crew in Afghanistan. Some of the findings from the very thorough review that followed are:

Organisational Trauma 1998-2006.

"The MoD suffered a sustained period of deep organisational trauma over this period, beginning

with the 1998 Strategic Defence Review. Financial pressures and cuts drove a cascade of multifarious organisational changes, which led to the dilution of the airworthiness regime and culture within the MoD, and distraction from safety and airworthiness issues as the top priority”.

While the RAAF may have an Airworthiness Board, Australia's problem lies in the loss of the three Services' Technical Services Branches which implemented those engineering and maintenance policies, systems and procedures which ensured that the activities that underpin airworthiness / seaworthiness / battleworthiness were in place and working across the whole Service.

Returning to the Nimrod Review:

“There was shift in culture and priorities in the MoD towards 'business' and financial targets, at the expense of functional values such as safety and airworthiness. The Defence Logistics Organisation, in particular, came under huge pressure. Its primary focus became delivering 'change' and the 'change programme' and achieving the 'Strategic Goal' of a 20% reduction in output costs in five years and other financial savings. Airworthiness was a victim of the process started by the 1998 Strategic Review”.

Two senior personnel who presided over the Defence Logistics Organisation during the critical period were appropriately named in the UK review as bearing particular responsibility.

'The switch to financial and business targets at the expense of functional values' mirrors well the situation that has been allowed to develop in Australia and now drives the Defence/DMO organisations.

“There is no doubt that the culture of the time had switched. In the days of Sir Colin Terry you had to be on top of your airworthiness. By 2004, you had to be on top of your budget if you wanted to get ahead”. (Air Chief Marshal Sir Colin Terry, Chief Engineer, RAF, 1997 – 1999). Here we see money being used for organisation control, rather than an organisation resource, and then only one of many of equal or greater value.

Dilution.

“The continuous organisational change during the period 2000-2006 led to a marked dilution of the safety and airworthiness regime and culture in the MoD for three reasons. First, during this period there was an inexorable shift in the MoD from a safety and airworthiness culture to a 'business culture'. Second, the organisational changes in the MoD led to a safety and airworthiness regime which was organisationally complex, convoluted, confused and 'seemingly dysfunctional'. Third, meanwhile, there was also a steady dismantling of some of the important features of the safety and airworthiness regime which had previously existed: (Selected items)

*Abolition of the 'Chief Engineer RAF';
Dilution of air technical support services;
Dilution of aircraft engineering skills.”*

The Nimrod disaster review should be made compulsory reading for all Defence executives and

senior Service officers involved in the current Defence Strategic Review.

The Defence Strategic Reform now being undertaken should thus be approached with great caution and suspicion.

Project Maturity Scores. (Page 55)

DMO's Project Maturity Score *'quantifies the maturity of a project by way of an objective score based on the Project Manager's judgement at defined milestones in its capability development and acquisition phases. This score is then compared against an ideal or benchmark score for that milestone'*.

These scores attempt to replace the milestone reports that are the backbone of sound project management, but without the auditable, objective data items that project management reports require.

The soundness of DMO's Project Maturity Scores rests wholly and solely upon the Project Manager's judgement, which, by definition, can only be subjective (that is, *'based upon personal feelings, tastes, or opinions'* – Oxford English Dictionary). It is impossible for any subjective assessment to become an objective assessment as DMO suggests (that is, one *'not influenced by personal feelings or opinions'* – Oxford English Dictionary). ***DMO's Maturity Scores are thus not objective scores as stated, but simply unsupported opinion, likely biased in the interests of self and/or career preservation. To then compare them with an 'ideal benchmark' is merely more magical thinking.***

DMO invokes US and UK Defence acquisition systems as benchmarks, but both have extremely poor records; records that have been assessed as failures. The US system, for example, has been the subject of trenchant criticism since the mid-1980s when Congress decided that its Department of Defense and its Defence Procurement Organisation were broken, and undertook a range of reforms under the Goldwater-Nicholls Act of 1986. Regrettably, these reforms were sabotaged by very strong vested interests, and so the problems remain even more deeply entrenched today. However, the US national security situation has now reached the point where the President's State of the Nation Address declaration *"Well, I do not accept second-place for the United States of America"* has a hollow ring. The final confrontation between the US Department of Defense and Congress will most probably arise in the near future when JSF Project governance reports are tabled.

That DMO should see the UK Ministry of Defence (MoD) procurement organisation as a suitable performance baseline is surprising, as that organisation has been the subject of severe criticism for repeated failures to bring capabilities in on time, capability or cost. In the sustainment area, the organisation has been similarly criticised. As a result, the MoD has been accused of causing the unnecessary deaths of many UK Service personnel.

A recent paper titled 'UK Defence Needs' (3) records the MoD acquisition organisation as having an average equipment programme over-run of five years (many going over a decade), and very high cost over-runs. Current projects are some £35bn over budget. The paper gives details and

references to other substantial analyses undertaken into the UK MoD procurement organisation.

In comparison, of the 15 DMO projects covered in the 2008-09 MPR, eight project schedules slipped by a total of 378 months: including HF Modernisation (74), Collins RCS (72), FFG Upgrade (65), Wedgetail (48), ARH Tiger (42), Armidales (33) and Bushranger (26).

If DMO is prepared to accept the US and UK procurement organisations, and some Australian civil engineering projects, as performance baselines, it is difficult to accept that this organisation could ever construct an 'ideal score'. The bar is being set far too low for the defence and security of Australia.

The development of Project Management Scores may be seen as an inevitable result of putting generalists in management positions that require professional competencies and skills in Project and Engineering management. The scores and their benchmarking give an illusion of project management, but, in reality, have the substance of vacuous smoke and mist.

Project Lessons Learned from the DMO MPR. (Pages 58 and 122)

In this section of the report, DMO records the many and various ways in which lessons learned are absorbed and used, but despite defining project complexity in terms of technical difficulty, this critical aspect does not rate a mention. The responses of the CEO of the DMO to 'lessons learned' are expressed wholly in contract or process terms.

Of particular interest is the statement that *'the effects from any major change to contracting practices would not be evident until a range of new projects has used the new practices and sufficient time had elapsed to assess the effectiveness of the changes'*. Common sense management would suggest that if you do not know what you are doing, then do not do it! However, Defence seems happy for DMO to use capability procurement as a trial and error contracting game, just to see what systemic changes to contracting processes might be needed.

The corrective actions listed as responding properly to the lessons learned from the DMO MPR will merely add further layers of process and will not get to the core management problems that caused the problems in the first place. Corrective actions such as:

- Management Action Plans.
- The Central Audit Recommendations Management System.
- The assignment of DMO officers to reporting implementation progress.
- The use of Councils to *'consider business improvement initiatives in response to business needs'*.
- The Quality and Environment Management System.
- The series of Check Lists based on lessons learned to assist staffs.
- Modifying manuals, training courses, and processes.
- Regularly updating contracting templates.

will only further bog down an already process-constricted organisation that refuses to adopt proper and proven project management systems and procedures.

DMO still focuses upon 'lessons learned' that are, in fact, only common, generic project management problems, those which took Mr Georgiou only a few minutes to classify at the JPCAA review on 19th March 2009. To repeat: *“My difficulty is just the notion of lessons learned. I have just skipped over three or four of them and I could just about write a template for 'lessons learned' that would cover most of the lessons learned that are outlined here”*. The real lessons and their root cause(s) have not been identified and corrected after ten years of DMO's purported 'lessons learned', and so remain.

Major Project Risks. (Page 59)

Regrettably, DMO's latest PDSs show quite clearly that the roles that risk management plays in a project are still not understood or applied. Risk is still anchored in contract administration, and focussed upon contract liability. Within a properly managed project, very few risks should reach the contract in terms of Commonwealth liability. The vast majority of risks will relate to technical or schedule matters which are normally resolved by appropriate and timely project / engineering / IV&V management actions.

IN RETROSPECT - THE NACC/JSF PROJECT.

The New Air Combat Capability / Joint Strike Fighter (NACC/JSF) Project, in retrospect, should have been included in ANAO's DMO MRPs, or made subject to a separate study, as this aircraft probably represents the most risk laden project ever undertaken by Australia; one which, if it proceeds, will entrench Australia, at best, as a second rate minor military power both in our region and on the world scene, a nation whose defence planning is clearly beyond its competencies.

As the project ran into inevitable capability, schedule and cost problems over the years, we have seen the aircraft's capabilities extolled well beyond the limits of physics, credence, or even common sense. The aircraft was designed to face threats that are now more than a decade old, and by the time the aircraft enters service it will be at least two full generations behind the threats it will have to face.

However, successive Governments, Defence Ministers and the DMO have chosen to ignore or denigrate the substantial technical criticism of both the aircraft and the way in which it is being mismanaged that has been provided by local expert analysts as well a series of highly critical US governance reports.

In brief, the aircraft to which Australia has mortgaged its military future is: (5)

- Not a competitively stealthy aircraft,
- Not a 5th Generation aircraft.
- Not survivable against current referenced threats.
- Not a lethal aircraft system in face of these threats.
- Not an affordable aircraft system.
- Not a supportable aircraft system.

The few risks acknowledged with this project were to be taken up by the Minister for Defence

Materiel, Mr Greg Combet, during his visit to the USA, but he returned a convert, seemingly having experienced a Damascene conversion along the way, now convinced that the JSF is the best choice for the RAAF's next generation air combat capability, stating:

“On all relevant issues – that is, the capability of the JSF, its cost and the schedule for delivery, and Australian industry participation – I came away with great confidence”. In particular, he noted that the US is determined that it will succeed. *“From the most senior levels in the Pentagon, this message was emphasised to me”*. Mr Combet, after speaking with the manufacturer and the Pentagon, became an unqualified supporter of the JSF, words and extravagant claims apparently carrying more weight in his mind than US governance reports and robust analyses from around the world, including Australia, indicating that the JSF is a project showing characteristic signs of terminal failure.

Instead of becoming an avid salesman for the JSF, probably seen as necessary politically to steady the nervous Europeans, and to show solidarity with our American cousins, Mr Combet should have concentrated upon his primary, good governance responsibilities and thought deeply about the gap that now exists between the President's commitment to the US remaining the leading world power, and those policies emanating from the US Department of Defense that are working in direct contradiction of that policy, primarily to protect the careers of senior bureaucrats responsible for past mistakes. He should then have spent time considering how Australia will best fit into a world of steadily diminishing US military power and, as a consequence, diplomatic influence.

Mr Combet should also measure his enthusiastic, 'expert' capability assessment of the JSF against the recent report of the US Director Operational Test and Evaluation into the F-35 Lightning Joint Strike Fighter (JSF), and then review the warm and unqualified assurances that he was given during his visit, and has passed on to government.

Importantly, Mr Combet's support for the JSF, which resulted in the Government's decision to approve the DMO to start negotiations to purchase the aircraft unnecessarily early, means that the Minister and the Rudd Government have now accepted ownership of and responsibility for all of the Howard Government's much criticised F-111 early retirement, Super Hornet and JSF New Air Combat Capability planning and procurement decisions.

Of greatest concern is that Mr Combet and the Minister for Defence have weighed their decision to commit to the purchase of the JSF against Australia's air combat capability requirements over the next three or more decades, and found in favour of the JSF. In effect, this decision commits RAAF personnel to carrying responsibility for maintaining Australia's regional air superiority with an aircraft that has been demonstrated not to have that capability. In short, that decision will put Australia's RAAF crews at high risk over the next three or more decades, and Government and Parliament have stood by and allowed this to happen.

On a Lighter Note.

The absurdity of some of the claims made for the JSF, for example its ability to penetrate modern Integrated Air Defence Systems and defeat SAM batteries unescorted, and its claim to be an air dominance capability, are reminiscent of the extravagant claims made by Milo Minderbinder in Joseph Heller's sequel to *Catch 22*, when marketing his new aircraft to the US Defense

Department(ref):

Milo: *"You can't hear it and you can't see it. It will go faster than sound and slower than sound".
"Is that why you say your plane is sub-supersonic?"*

"Yes, Major Bowles".

"What do you call your wonderful new airplane? We'll have to know that."

"We call our wonderful new plane the M&MEA Sub-supersonic Invisible and Noiseless Defensive Second-Strike Offensive Attack Bomber".

General Bingham: *"You're not the only one after this you realise? Strangelove is one. He has this thing called a Strangelove All-purpose Do-It-Yourself Defensive First Second or Third Strike Indestructible Fantastic State of the Art B-Ware Offensive Attack Bomber".*

After deciding to back Milo, Bingham says: *"Just give me some good sales copy so that we'll know what we are talking about when we talk to people about what you've been talking about to us today. Not much detail, or we might have trouble. Just a few glowing paragraphs of very hard sell and maybe some drawings in colour to give us an idea of what it's going to look like. They don't have to be accurate, just impressive".* (Joseph Heller, 'Closing Time-the sequel to Catch 22, Chap 6).

For those with more of a Monty Python bent, the JSF status is reminiscent of the famous dead parrot sketch. Certainly, this JSF is a DEAD Parrot!

The Political Contribution.

It should be recalled that Labor's Plan for Defence, one of its Policy Documents for Election 2007, roundly condemned the Howard Government's failings, including those in Defence management, Defence Industry policy, and Defence procurement. *"The Howard Government has wasted billions of taxpayers' dollars through its gross mismanagement of Defence procurement"*, Mr Rudd thundered.

Despite this, all we have seen is the Labor Government confirm and commit Australia to every Howard Government Defence decision, including those procurement decisions recommended to Government by the very same senior officials in the DMO today. The Minister, in reference to the Strategic Review, now states that he believes that the problems perceived with the management of Defence/DMO are due to administration and inconsistent record keeping. While superficially there is some truth in this, the root cause(s) lie in the failure of Defence/DMO to follow well established management systems and procedures designed specifically to overcome poor administration and inconsistent record keeping, as well as avoid the very problems long encountered in Defence/DMO capability and procurement decisions. His statement is symptomatic of a department that cannot, or will not, face reality and has a governance mechanism that does not work.



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09 March 2010.

References:

1. E.J. Bushell, 'Rebuilding the Warrior Ethos', Air Power Australia Analysis 2008-10, 27th December 2008.
2. E.J. Bushell, R.G. Green, B.J. Graf, 'The Decline in the Management of Defence, and Defence Capability Development, Acquisition, Preparedness and Sustainment', Air Power Australia Analysis 2009 – 03, 5th September 2009.
3. Air Commodore Andrew Lambert and Allen Sykes, 'UK Defence Needs', published by the United Kingdom National Defence Association, February 2009.
4. The Strategic Reform Program 2009 – Delivering Force 2030.
5. 'F-35 JSF Program: Assessment of Top Level Programmatic Risks', Airpower Australia NOTAM 19th November 2009.

- ANNEXES: A. Evolution of Management Approaches.
B. Comments on US/Australian Announcements on the JSF Project.

ANALYSIS OF PROJECT DATA SHEETS

A number of the projects covered by DMO MPR 2008 - 09 were included in the author's analysis of the ANAO DMO MPR 2007 – 08.

References:

E.J. Bushell, '*Unsolicited Submission Regarding ANAO Defence Materiel Organisation Major Projects Report 2007 – 08. An Analysis*', 18th March 2009. Copies to ANAO and the JPCAA Secretariat.

E.J. Bushell, '*Comments on the JPCAA Hearing of 19th March 2009 into the ANAO Report into DMO Major Projects*', 15th April 2009. Copies to ANAO and the JPCAA Secretariat.

Note: Analysis of some projects has been brief as the data included in the PDSs is repetitive and only elicit the same comments and observations.

AIR WARFARE DESTROYER BUILD

General.

Comments on this project were included in the author's analysis of the 2007-08 DMO MPR, although the project was not included in that MPR. These included:

- Operational analysis of longer-term threats suggests that the project's capability expectations are overly ambitious when emerging regional air power and anti-shipping missile (supersonic cruise and ballistic) capabilities are factored in.
- The solution seen by Defence/DMO as ensuring that this project avoids the fate of earlier major projects has been the establishment of yet another layer of bureaucratic review – the establishment of an Air Warfare Destroyer Alliance Principals' Council.

Summary Comment on 2008-09 MPR:

The Air Warfare Destroyer Project is in extreme danger of failing for the following reasons:

- The decision by Defence/DAO/DMO to abandon due diligence in the management of major projects, which led to proven Project/Engineering/Risk/IV&V Management systems and procedures being avoided, 'dumbed down', and made subservient to contract management, left Defence/DMO open to pressures from manufacturers and open to subjective decisions taken at ministerial and departmental levels. This is a generic problem common to all projects now managed by Defence/DMO.
- The adoption of a new contracting methodology that has not been proven to be appropriate for high technology military systems. This will introduce yet another data base from which DMO and ANAO will have to try to retrieve meaningful project status data.
- A critical dependency upon developing and commissioning a new dockyard from a 'green site' to meet project milestones.
- The absence of an agreed Certification Basis and agreed Certification Plan at the time of contract signature, without which no project should proceed to contract signature.
- The reliance upon a higher review organisation lacking in required competencies, and an 'external facilitator'.

Comment on PDS Content.

Although listed as an Acquisition Category 1 project, which means that it will require extensive project and schedule management, and have very high levels of technical difficulty, there is no mention of just how these challenges will be managed, resolved, and reported in an objective, accurate, timely and auditable manner.

Defence/DMO has chosen to trial an Alliance-based contracting methodology for this project on

the basis of its having been used successfully on a museum and a highway project. Just how this approach is seen to be appropriate for a high-technology naval capability, with its unique systems engineering integration challenges, is not explained. The additional organisational and functional interfaces that will have to be negotiated must only add to project risk

Alliance contracting has become a popular funding model for government infrastructure projects, aiming to share the risk of cost over-runs between government (the taxpayer) and the private sector. In practice it seems to simply shift financial risk back to the taxpayer. A recently-commissioned Victorian Treasury study found that so-called alliance contracting costs blew out between 48% and 55%, the highest of the three funding models studied.

This finding is not surprising, as any contract, particularly those involving high technology systems, are prone to cost over-runs if the customer does not have the required project and engineering management competencies appropriate to the technology involved. Governments, and DMO, fall into this bracket, as they focus upon the wrong risks. Not having the project and engineering competencies required, they fail to manage properly the risks associated with capability, schedule and cost. They concentrate upon the risk (liability) to the contract without understanding that risks are embedded mainly in the technical (capabilities) and schedule areas.

This new contracting approach will, as stated by DMO, *'have to be used on a number of projects before all lessons will have been learned'*, so will be in a trial mode. This approach must be assessed as only adding new and unidentified risk to those projects upon which it will be used.

Within the complex management structure devised for this project, it is difficult to identify the project and other management skills and competencies that DMO will bring to the table.

Major Challenges.

The six major challenges listed are so elementary as to be hardly worth mentioning. DMO should, at this stage of the project, and after some ten years of experience, be able to better qualify and quantify those major areas requiring project, engineering and risk management focus.

Schedule Performance.

DMO states: *"Progress to achievement of planned in-service dates for the three ships and their support system is as scheduled"*.

Capability Performance.

DMO states: *"The current status is that planned capability will be achieved"*.

Both schedule and capability assessments must be considered as being prematurely optimistic, subjective, and of little value, particularly in view of the significant, if unqualified and unquantified, problems lurking under 'Major Project Risks'.

Major Risks, Issues and Linked Projects.

The items included in this section are too broad and are seen primarily from a contract aspect. Most

are merely generic risks, lacking in capability, schedule and cost focus. The project would be difficult enough to manage if it were built in an experienced, working shipyard, but to expect a new and competent shipyard becoming available from scratch to meet project milestones, is beyond optimism. The skills and competencies that must put in place have been greatly underestimated.

Finally, any project that *'does not have an agreed Project Certification Plan and Certification Basis'* should not proceed as it embeds certain and indefinable risks. The absence of such basic pre-requisites for executing a minor, let alone major capital equipment procurement contract was the root cause of the SEA 1411 Super Sea Sprite debacle, the Collins Class Submarine misadventures and the continuing challenges within the Wedgetail AEW&C Project, to name but a few.

Have these lessons been learned? Clearly not.

Key Lessons Learned.

While hardly classifiable as a 'lesson', this section is important in that it warns *"that it takes time and effort to develop the culture necessary to achieve improved outcomes"*, and advises that an invaluable external facilitator has been engaged to help make the Alliance work. This attitude seems to fit into DMO's *'..hope that over the next five or 10 years of this (MPR) report you see a transition where things do not happen anymore or when we mitigate some of those risks'*, as given in evidence at the JPCAA hearing into the 2007-08 MPR on 19th March 2009. Australia can hardly be expected to accept a continuance of these 'things' which impact directly the country's security.

Project Maturity Score and Benchmark.

See body for analysis for an assessment of the usefulness of these scores.

BRIDGING AIR COMBAT CAPABILITY
(Refer also body of this analysis and Annex B)

General.

The background to this project re-writes some of the history of its birth, but does classify it as a '*directed government solution*'. However, it is important that this project be seen as part of Australia's New Air Combat Capability (NACC).

The Super Hornet, an aircraft rejected by other Western nations as a fighter replacement, was marketed robustly by the maker to Defence and Government and was purchased abruptly as a 'no brainer', against the advice of Air Force. Both Government and Defence had been provided with substantive data and analysis that showed that the aircraft would not be able to guarantee regional air superiority, as required by government policy. However, Manufacturer's promises were accepted without question, even where they conflicted with the basic laws of physics.

As a result, the decision was criticised severely by the Leader of the Opposition and the shadow Minister for Defence before the last election, both promising to rectify what was wrong, and many hoped that this would occur.

The new Minister for Defence, Fitzgibbon, soon initiated a two-part review of Defence/DMO New Air Combat Capabilities planning – the first covering the decisions taken in regard to the unnecessarily early retirement of the F-111 and the decision to purchase the Super Hornet – Part 2 would later review the Howard Government's JSF decisions.

Part 1 of the review was conducted internally by Mr Neil Orme of Defence. Mr Orme was provided with substantial personal and written submissions by individuals and Air Power Australia, which analysed and detailed the areas of risk associated with the New Air Combat Capability decisions being taken by Defence, including the JSF Project. He also had the many US governance reports issued over the years to guide him. These submissions and reports were simply unacknowledged and totally ignored, despite continuing assurances that Defence welcomed open discussion of its plans and programs. The failure of Defence/DMO to take note of the extreme risks associated with the aircraft may be measured by comparing the content of the Orme Report and the presentations made.

Since then, Government, Defence, and DMO have been kept abreast, in detail, of the many areas of risk associated with the JSF Project, but no risks have been admitted by Defence/DMO or apparently by the over fifty 'specialists' involved with the JSF and NACC projects. All Defence/DMO statements have merely repeated the clearly discredited statements emanating from the manufacturer and the US Project Office which have always marched in 'lock step'. The JSF Project is analysed in more detail in the body of this analysis.

The Minister's decision to remain 'Hornet Country', an aircraft ignored by other nations in search of a high capability air combat aircraft, and Defence/DMO's blind commitment to the JSF will not only enshrine Australia's inability to exercise air supremacy in our region, but will condemn Australia's management of defence capabilities in the eyes of the world. This subject is analysed further at Annex B.

Lessons Learned.

The Key Lessons Learned simply record basic knowledge that the RAAF possessed some 70 years ago.

Collateral Damage.

The Super Hornet Project continues the destruction of Australia's military capability skills base:

- First, Australia lost the high technology skills and competencies base that had been built up at Amberley, QLD, to support the F-111 Fleet, including systems integration and embedded software/hardware development, when the aircraft was prematurely retired. These core skills, which were critical to the support of Australia's future air combat capability, were abandoned by Defence.
- Second, similar albeit much less developed support facilities and competencies established at Williamtown, NSW, for the F/A-18 Fleet will be largely disbanded as the Super Hornet, with its overseas support contract, comes into service and the current A/B models deteriorate. This will leave another hole in Australia's air combat support capabilities.
- Finally, when the AP-3C Orion is replaced by an aircraft supported by overseas contractors, Defence will direct that the Edinburgh, SA, support facility be disbanded, and with that will go the last of Australia's major local support capabilities.

This is the inevitability of Defence/DMO policy to let supply and long term support contracts to foreign companies having no business reason to set up support facilities in Australia. Defence/DMO policies are based upon a perceived reduction in cost and risk, which will, in the end:

- Greatly increase cost.
- Result in the further debilitation and de-skilling of the Services and Australia's defence industry.
- Lead to the collapse of Australia's defence self-reliance.
- Greatly increase risk to Australia's security.

Guaranteed!

MULTIROLE HELICOPTER

General.

This project has been entered into too early and planned inadequately due to a lack of in-depth experience with helicopter technology and an absence of sound project management disciplines. This parallels problems observed in Europe with the same basic NH90 design, detailed in the February, 2010, disclosure of the highly critical BundesWehr Luftlande- und Lufttransportschule (Airborne and Air Transport School) operational suitability assessment report, which recommends “using alternative aircraft whenever possible in an operational scenario”.

This is highlighted in, for example:

- The immaturity of the design, requiring costly retrofit to achieve the required capability.
- A lack of understanding of the role and functions of configuration management in identifying and quantifying support requirements accurately and timely, for example, spares and technical documentation.
- An inability to coordinate project milestones, evidenced by the inadequate flying effort achieved, which has also impacted Service flying training.
- Failure to analyse system and equipment reliability against the configuration baseline as it matures, a basic function of project management which drives requirements for manpower, skills and training, technical documentation, repairable items and breakdown spares, facilities, tools, test equipment, and so on, to meet the unique support needs of the Service operating the equipment.

This project seems to have been driven by schedule at the expense of capability and sustainability.

Maturity Scores and Benchmark.

A total score of 57 against a benchmark of 57 hardly reflects reality. The question of the value of these scores is analysed in the body of this paper.

Risks.

Although mostly identified as “There is a chance...”, the major risks listed do give a better insight than many projects. However, they are still at too high a level and are all problems that should have been identified and managed (fixed) under standard project engineering procedures.

Each 'risk' begs the question:

'How and why did this happen?'

The answers to that question would have led to the real 'lessons learned' being identified and the appropriate corrective action taken for that project and for future projects.

Finally, the remedial actions given for each of the 'risks' identifies a lack of understanding and application of the standard project/engineering management procedures that must be applied

rigorously and consistently on every project. In the absence of responses to the question raised above, the lessons learned provide no insight as to why these 'risks' and 'issues' occurred and how they might be corrected for the future.

AIRBORNE EARLY WARNING AND CONTROL AIRCRAFT

Capability Performance.

Comments on this project were included in the author's analysis of the 2007-08 DMO MPR.

“Integrated system performance is currently not meeting specification. ... However, remediation of all radar performance shortfalls is not expected to be achieved by final delivery of the system”.

The project is some four years behind schedule, so should be able to provide many useful 'lessons learned'.

Major Project Risks.

As for so many other projects, the risks recorded are generic and have not been tested by the simple question: *“How and why did this happen?”* so as to get to their root cause(s) and identify the corrective action needed.

Lessons Learned.

All 'lessons learned' fail to provide answers that can be used to modify management systems and procedures to prevent future occurrences, as they are couched in subjective, generalist terms rather than objective, management terms. The project still reflects inadequate management systems and technical expertise.

Contractor Support - Good Value for Money?

Considerable concern is felt in regard to the Minister's recent statement regarding the Wedgetail Through Life Support Contract. The fundamental question relates to how DMO determined that the contract provided good value for money. When the RAAF managed its own operating, intermediate and deeper maintenance facilities and contractors, determining contract scope and value for money was relatively straightforward and accurate. As DMO cannot fall back on that hands-on experience, the way in which DMO determines whether Australia is getting value for money needs to be better explained and made transparent.

A first look by an ex-RAAF engineer officer with project and maintenance management expertise points out:

- The contract for \$A800 million for provision of *“Services including logistics, training, spares management, aircraft deeper maintenance, engineering and supply chain management”* for six Wedgetail aircraft over five years comes nominally to about \$A26.7 million per aircraft per year.
- In contrast, the Boeing F-111 Weapon System Business Unit contract provided services, including logistics, training, spares management, aircraft deeper maintenance, engineering and supply chain management, including numerous SME sub-contractors, plus capability enhancements, at a total average support contract cost of about \$A100 million per year. For the fleet of 27 aircraft, this amounted to about \$A3.7 million per aircraft per year. With, say,

an average of 12 mission-ready aircraft on line, this amounted to about \$A8.7 million for each aircraft per year. Even going down to the six aircraft on line during later years, the cost comes to \$A16.7 million per aircraft per year.

While some may argue with the comparative scope and costs quoted, the figures give a reasonable comparison of value for money. It is up to DMO to explain transparently just why it considers the AEW&C Contract to be good value for money. One has also to factor in the reduced visibility and control of activities that impact directly force capability readiness and sustainability that come with DMO's support contracts, as well as the dwindling skills base of the Services and our defence industry base, and Australia's self-reliance.

AMPHIBIOUS DEPLOYMENT AND SUSTAINMENT (LANDING HELICOPTER DOCKS)

Status.

The Project Summary states that the project is within budget, on schedule, and delivering the required capabilities. The project thus gives itself a maturity score of 45 against a benchmark of 45.

Major Risks.

However, the optimistic Summary above has to be read against the five major risks being encountered, covering potential regulatory changes, changes in requirement, inability of the combat system to meet performance requirements, possible damage to propulsion pods, and inadequate funding for sustainment.

Each of these should have been qualified and quantified in terms of problem or risk, and appropriate project/engineering/risk management actions planned and taken. The piecemeal remedial actions proposed will prove to be inadequate in the absence of such management actions.

Major Project Issues.

The integration complexity highlighted will almost certainly test the management of this project, but the remedial action proposed does not generate confidence that the management of engineering complexity is understood. The project, at this stage must thus be given a low probability of succeeding.

ARMED RECONNAISSANCE HELICOPTER

General.

Comments on this project were included in the author's analysis of the 2007 – 08 MPR. This project has experienced the range and type of difficulties that usually stem from incoherent project/engineering/risk management.

It is noted that \$A6.5 million has been 'harvested' from this project, but whether this forms part of the Defence Strategic Reform Program is not revealed, nor have the impacts that will arise from the cuts.

The detail on this important project does not make good reading. It reinforces the impression that the project was scoped inadequately, and not resourced and managed properly. Where 'project planners' are mentioned, it appears that their functions relate more to contract administration than coherent project/engineering/risk management.

Major Challenges.

The major challenges listed reflect tasks that should have been handled in the project management sphere, the systems engineering sphere, and the support engineering field respectively.

For a project that is said to be 27 months later than originally planned, with some major elements up to 62 months late, has been re-baselined, and is still facing considerable challenges, to be assessed as *“still expected to deliver the required capability within the approved budget”* stretches credibility.

Risks, Major Issues and Lessons Learned.

Again, these sections give insufficient insight as to how and why these risks and issues arose, and the lessons learned do not get to the nub of the problems so as to be able to correct them in a timely way and feed changes back into management systems to ensure that they are managed properly on future projects.

AIR TO AIR REFUELLING CAPABILITY

General.

“Airbus Military's ability to meet the contracted schedule milestones continues to be the greatest challenge due to an underestimation of the overall scope and complexity of work and system improvements introduced during the development”.

This situation is indicative of a project that was embarked upon when inadequately scoped, planned and resourced with the required skills and competencies, and proceeded without sound project / engineering / risk management systems and procedures in place. The usual over-reliance upon contract management and contractor support for tasks that must be managed by the customer is also evidenced.

Major Risks, Issues, and Lessons Learned.

The risks and issues listed provide better than generic statements and highlight a number of risk/problem areas that should normally have been identified in time and mitigated through standard project/engineering/risk management procedures before they emerged as real risks/ problems/issues.

There is still a confusion between risks, problems, and 'issues', the latter term these days being used to describe any number of unqualified and unquantified 'things'. The word 'issues' should be discouraged at all levels in project management.

Again, the risks and issues listed have not been tested to identify the root cause(s), and so the 'lessons learned' are not of much use in the practical project management sense of ensuring that they do not cause problems for future projects.

HORNET F/A-18 UPGRADE – PHASE 2

General.

Comments on this project were included in the author's analysis of the 2007 – 08 MPR. This project faces several 'risks' which seem to be managed through an amalgam of project office and contractor activities.

The key lessons learned reinforce this impression, as the majority of the activities listed for contractors and Product Teams are normally core project management functions that rightfully belong to the customer, the DMO Project Office. This arrangement also highlights the many different approaches adopted by DMO, which are more contract than project management focussed, gives rise to the problems faced by ANAO/JCPAA in trying to get objective and consistently accurate and comparable project status information across projects.

A key concern with this project, as well as Phase 3.2 of the Hornet Upgrade Program, is the cost effectiveness of the work being done as an element in Defence's NACC planning, faulty as that planning might be.

Notable by its absence is any mention of the failed approach taken by the DMO in Air 5376 Phase 2.3 in, against strongly founded technical advice from within Defence and Industry, the then Head of Electronic Systems Division of the DMO with the support of the then Undersecretary of the DMO, ensured the selection of an extremely high risk solution Radar Warning Receiver (RWR) System (the ALR-2002) over the recommended ALR-67 Version III RWR system, which is only now being installed into the F/A-18 Hornet aircraft.

This decision resulted in over 5 years and some (estimated) A\$440 million dollars of project capital budget funds being wasted, along with the commensurate personnel, travel and subsistence, and related costs associated with the 'project management' of this fraught solution. An estimate of the overall waste of Commonwealth resources would put the amount, conservatively, at well over half a billion dollars.

Major Risks and Issues.

Two major risks/issues are recorded for both Phase 2 and HACTS under '*There is a Chance...*'. Remedial action in all cases is contract centric. Under project management procedures, each 'risk' would be classified as a problem or a risk and if a risk, the classification of that risk and the manner in which it will be managed under project management procedures.

Key Lessons Learned.

These generally relate to what contractors are to do and contract management activities. Many of the activities recorded are DMO Project Office functions, as DMO carries accountability for the visibility and control of all project/engineering/risk/IV&V activities.

C-17 GLOBEMASTER HEAVY AIRLIFTER

General.

This project lost about a year because essential operational equipment was not delivered with the aircraft, as it would normally have been under pre-DRP/CSP RAAF management.

This failure indicates poor or absent project management procedures in that support requirements were either not identified in the operational requirement and/or support requirements specification, and were not included in the project management support plan.

Again, the risks stated and the lessons learned do not identify just how and why these things happened and how they might be avoided on future projects.

It should not take "*a couple of years to develop up the sustainment*" as DMO advised the JPCAA Hearing of 19th March 2009. Pre-DRP/CSP, RAAF showed how sustainment requirements can be integrated into Project Planning and managed such that all sustainment requirements are in place by the time an aircraft/system arrives in country.

Finally, the support contract entered into for this aircraft should be tested to see whether it provides value for money. The USAF certainly found its contract far too expensive and sought changes. Is DMO's contract costing too much?

GUIDED MISSILE FRIGATE UPGRADE IMPLEMENTATION

General.

Comments on this project were included in the author's analysis of the 2007 – 08 MPR. This project experienced serious problems which DMO failed to identify in nature, extent, and impact, so that timely and effective action was not taken and the real lessons learned were not identified and used to good effect on future projects.

Delays in achieving Initial Operational Capability (IOC) are recorded as being 55 to 71 months, and Final Operational Capability (FOC) from 48 months to 65 months, and then only after reaching a '*pragmatic agreement with Navy*', the nature and impacts of which are not revealed.

Major Risks and Issues.

Although all assets are recorded as having reached their FOC during December 2009, this section reports that "*There is a chance that...*"

- The Combat System Software may not meet contracted requirements.
- Upgraded systems may not have effective software support and configuration management in place.
- Upgraded systems may not have acceptable reliability and maintenance data which will impact capability and support.
- The Warfare Systems Support Centre may not be ready.
- The project may not meet current Navy Technical Regulatory requirements under the contract.
- The required Electronic Support System performance may not be met.
- The Torpedo Defence Systems integration and performance may not be met.
- The Hull Mounted Sonar may not meet performance requirements.

The remedial actions given are largely contract and outsourcing orientated. They reflect no sense of any firm project management control; for example, there is no sign of those core project management functions that relate to project planning, developing and managing the design and configuration baselines, or support requirements determination (there are many others of course). Against this background, a maturity score of 57 against a benchmark of 57 would, *prima facie*, seem difficult to justify.

Key Lessons Learned.

These lessons, as for the other projects reported, list the most basic competencies, without which no project should ever proceed. They are all indicative of a lack of even a basic understanding of project management and the competencies required. Peppered throughout this list are what contracts should contain and what contractors should do – hardly a word about what DMO should be doing to overcome the perceived 'risks and issues'; nothing about project/engineering/risk/IV&V management deficiencies within DMO. This project, like many, failed because it wasn't managed properly by people with the required management structures and competencies – it was managed by generalists using contract and business processes.

There is much to learn from this project, especially with the Air Warfare Destroyer Project coming along, as well as early planning for a Collins Submarine replacement. However, with DMO not being a true learning organisation, and being focussed on contract administration and process rather than project management and engineering, what is seen in these PDSs can be expected to continue.

HORNET Phase 3.2

General.

The comments relating to the Hornet Upgrade Phase 2 Project relate also to this project.

Major Risks and Issues.

The Major Risks and Issues recorded relate to the unknown impact of fatigue damage and the lack of maintenance managed items to support the new aircraft configuration. The latter points to the failure to maintain close attention to the changes taking place in the aircraft's configuration baseline – a project management responsibility, to calculate the variations to fly away kits and maintenance pipelines, and ensure that timely notice is given of the new supply requirements- all tasks previously done by RAAF as a matter of course.

Of major longer-term concern is the fatigue state of RAAF aircraft and the soundness of future fatigue monitoring programmes as a result of DMO policy to include fatigue management in the maker's sustainment contract. RAAF and DSTO had an enviable reputation for the fatigue management of Australia's military aircraft, a function now dispersed and outsourced. Defence/DMO will, hopefully, learn quickly that aircraft manufacturers face a problem in monitoring the unique fatigue spectra, fatigue damage and fatigue lives of each RAAF aircraft. The results can, in the extreme, impact flying safety (airworthiness), as well as Australia's air combat capability. Fatigue management of Australia's military aircraft should remain in Australia and be managed closely by Australians.

Key Lessons Learned.

These miss somewhat the objective of recording lessons learned for use in refining/changing management policies, systems, and procedures.

BUSHMASTER PROTECTED MOBILITY VEHICLE

General.

Comments on this project were included in the author's analysis of the 2007 – 08 MPR. The Critical Design Milestones for the Vehicle Initial Review run from 12 to 26 months late, depending upon vehicle type. System Integration now runs from 6 to 26 months late, while contractor Test and Evaluation progress is from 6 to 37 months over time.

Major Risks and Issues.

As reported, “*There is a chance*” that delivery of operational capabilities may be delayed by:

- Changes due to operational feedback (now retired).
- Delays in processing Engineering Change Proposals (ECPs).
- Changes required by the need for sustained towing.
- Complex requirements in the specifications for the development of the Protected Mobility Air Defence Variant due to new operational requirements and the effects of foreign sales.

The remedial actions given consist mainly of contractual activities and enlisting 'stakeholder' involvement. However, standard project management procedures should drive approved operational and technical requirements in a closely coordinated way, and in turn monitor contractor performance in meeting those requirements at specified milestones. Variations to project planning, including those recorded as risks and issues, are then coordinated controlled through the project management system, which in turn drives any necessary contractor/contract activity. This project seems to suffer from inadequate or ineffective project management, allowing the contractor to control the project.

The fact that “*Thales has provided an undertaking to consult the Commonwealth where any potential schedule conflict arises from other customer inquiries*” reinforces this impression.

Major Project Issues.

These relate to:

- The unavailability of wiring harnesses.
- The late construction of facilities, which raises the question as what advantages accrue from having Defence Support Group become involved in a project in which they have no specialist competencies.
- Delays in processing ECPs.
- A shortage of headsets compatible with the alternative wiring harnesses procured.

Three of these four would be expected to have come under standard project management procedures. The fourth, the lateness of the facilities points to one of many unnecessary and risk-laden interfaces that exist in all Defence/DMO processes.

Key Lessons Learned.

The three key lessons learned are as recorded, as follows:

- *In the early planning phases of the project, the operational concept and functional performance requirements were not clearly defined, making it difficult to understand and undertake appropriate cost-capability trade-offs.*
- *Cost Estimating – there was a lack of industry capability to provide adequate cost estimates and inability by Defence to evaluate the validity of the cost data.*
- *Testing program – significant contingency planning should be conducted for compliance testing of a new capability.*

These all indicate a lack of the most basic competencies required before a project can even be considered, and a total absence of any project management framework. That this project was allowed to proceed with these deficiencies is damning. It was planned to fail. In short, too much reliance upon contract administration and inadequate project/engineering/risk management, and no IV&V!

HF MODERNISATION

General.

Comments on this project were included in the author's analysis of the 2007 = 08 MPR.

Although this project records a delay of some 74 months for both Initial and Final Operational Capabilities, and 127 months for the Mobiles, the project still earns a DMO Project Maturity Score of 54 against a baseline of 55 – whatever that means.

Major Risks.

The two additional risks included in this report relate to the Fixed Network's failure to meet the contracted Grade of Service and Speed of Service, as well as inadequate software design documentation. Both problem areas are to be managed by '*working closely with, and monitoring, the contractor, both passive activities*'. There is no sign of any active project management here.

Major Project Issues.

The addition items included in this report covered:

- The Contractor's failure to meet the schedule has been 'fixed' by revising the schedule.
- Fixed Network software development had not achieved the agreed schedule.
- Contractor delays will delay completion of Mobiles upgrades beyond current project date.
- As a consequence of delays to final system acceptance, and the inability of Navy to provide needed operators, the project has had to get the contractor to fill the gap.

These are all indicative of a less than robust project management system.

Key Lessons Learned.

These remain unchanged from the 2007-08 MPR.

This project is symptomatic of one starting without an adequate requirements baseline, inadequate or missing project management planning, inadequate engineering skills and competencies, inadequate risk management, and no IV&V plan. Despite this, the project was allowed to proceed, relying solely upon contract administration.

ARMIDALE CLASS PATROL BOAT

General.

Comments on this project were included in the author's analysis of the 2007 – 08 MPR.

The project seems to have been an attempt by DMO to be a 'smart' buyer by acquiring a commercial design that, seemingly, had only to be modified to meet RAN operational requirements. The chosen vessel however also required Navy to change its traditional crewing policy to fit the constraints of the commercial design.

The vessel has encountered serious design defects which have led to it being virtually 'black balled' by RAN sailors on both operational and safety grounds. Needless to say, Defence/DMO and the RAN hierarchy have lauded the vessel.

Despite this, DMO's PDS states that “*All vessels continue to meet Navy's operational requirements*”.

Progress to FOC.

The project is now 33 months late, due to outstanding defects. FOC is now estimated to be 2011.

Major Risks and Issues.

These are recorded, as follows:

- *Navy standards are different to commercial standards resulting in a risk to customer acceptance.*
- *Contractor inability to provide support vessels throughout the life of the in-service phase of the contract (performance risk).*

One would expect Navy to have had such risks well in view and under tight control at least ten decades ago!

Lessons Learned.

Both of the Key Lessons Learned are simply generic, and are symptomatic of a failure to follow established project management, engineering management, risk management, and IV&V methodologies from the beginning of this project to the end. This project highlights the the capital risks accepted by DMO in embarking on a project of medium complexity, relying wholly upon contract administration for its management. The project has cost Australia much in time, money, and compromised and late capability requirements, but there is no sign in this PDS that any real lessons have been identified and digested.

COLLINS REPLACEMENT COMBAT SYSTEM.

General.

Comments on this project were included in the author's analysis of the 2007 – 08 MPR.(1)

The project is recorded as now being six years behind schedule, which represents a significant part of the boat's life of type.

The operational capability of the Collins submarine depends upon the quality and reliability of its Combat System. One would thus expect everything possible would be done to select and commission the best system available. Unfortunately, for Australia's security, and the risk to those RAN members who will man and operate these boats, and be exposed to the hazards of war when required, the management of the Collins Combat System has to be condemned.

In response to the dilemma, DAO/DMO had reached in relation to the Combat system originally specified, an innovative South Australian SME accepted the risk and developed a combat system for the Collins submarine that was provided to Defence and has been installed on one of the boats for years.(2) This Australian designed combat system has never failed, can do more than the system selected, and costs a fraction of the very expensive American system. (3)

However, the locally designed system was ignored. Defence, DMO and Navy selected the American design because the US Navy threatened to cut off Australia's access to intelligence information if they did not commit to the American system. The American system has cost Australia hundreds of millions of dollars in addition to the hundreds of millions of dollars wasted on the original failed system. The system selected still fails to meet requirements, even after these were downgraded to 'help it across the bar'.

In the case of the Collins Combat System, Defence/DMO have weighed in their balance whether to accept a second rate combat system at remarkably high cost so as not to ruffle the feathers of our sister nation (or one of its Services), against accepting a locally-developed system that has proven to be far more capable and reliable than the US system, far less costly, and able to be developed further and supported in Australia. That they have selected the former alternative indicates clearly that the security of Australia and the safety of our Naval crews run a poor second on their scale of values.

References:

- (1) E.J. Bushell, *Unsolicited Submissions Regarding ANAO Defence Materiel Organisation Major Projects Report 2007-08, 18th March 2009. Copies sent to ANAO and JPCAA.*
E.J. Bushell, Comments on the JPCAA Hearing of 19th March 2009 Into the ANAO Report Into DMO Major Projects, 15th April 2009. Copies sent to ANAO and JPCAA.
- (2) <<http://www.acres.com.au/favicon.ico>>
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**ANNEX A TO
REVIEW OF DMO MPR 2008-09
Evolution in Management Approaches**

**EVOLUTION IN MANAGEMENT APPROACHES
- THE PRODUCT VERSUS THE PROCESS-**

The Evolution of Management.

Over the past 30 years or so, Western businesses have changed their focus from manufacturing to marketing, calling for a change in the thinking of their workers and the education system that provides them. The product has become less important than process and process is optimised by means of management techniques that function on a level different from those used for production.

“The contemporary office thus requires the development of workers ready for 'Teamwork', rooted in shared habits of flexibility rather than strong individual character. At issue in the contrast between office work and the manual trades is the idea of individual responsibility, tied to the presence or absence of objective standards.”(1) To 'manual trades' may be added any activities involving the operation, sustainment, or replacement of technology.

The development of modern, knowledge-based management methodologies and their conflict with objective job satisfaction and the sound management of technology has been well analysed by Matthew B. Crawford, who has experienced the problem both as a manager and a worker, in his book *'Shop Class as Soulcraft – An Inquiry into the Value of Work'* (1). The following observations and conclusions draw upon his findings, quoting from his book.

“Those who work in an office often feel that, despite the proliferation of contrived metrics they must meet, their job lacks objective standards of the sort provided by, for example, a carpenter's level, and that as a result there is something arbitrary in the dispensing of credit and blame. The rise of 'teamwork' has made it difficult to trace individual responsibility, and opened the way for new and uncanny modes of manipulation of workers by managers, who now appear in the guise of therapists or life coaches. Managers themselves inhabit a bewildering psychic landscape, and are made anxious by the vague imperatives they must answer to. The college student interviews for a job as a knowledge worker, and finds that the corporate recruiter never asks him about his grades and doesn't care what he majored in. He senses that what is in demand of him is not knowledge but rather that he project a certain kind of personality, an affable compliance. Is all his hard work in school somehow for show – his ticket to a Potemkin meritocracy? There seems to be a mismatch between form and content, and a growing sense that the official story about work is somehow false”.

On the other hand, those who manage technology, and the technicians who work to keep it functioning efficiently in support of most human endeavours, *“must reckon with the infallible judgement of reality, where one's failures or shortcomings cannot be interpreted away, His well-founded pride is far from the gratuitous 'self-esteem' that educators would impart to students, as though by magic....His experience of failure also tempers any conceit of 'mastery”*. The

technologist's work is thus based upon a real understanding rather than the 'fantasy of mastery' that permeates much of our thinking today.

The objectivity standards of the technologist also stand in contrast to the marketeers, those knowledge workers skilled in the art of persuasion, and demagogues who offer magical hopes. Plato pointed to the difference between technical skill and rhetoric on the basis that rhetoric "*has no account of the real nature of things, and so cannot tell the cause of any of them*".

Aristotle also made a point in regard to experience, another characteristic of a skilled technologist:

"Lack of experience diminishes our power of taking a comprehensive view of the admitted facts. Hence those who dwell in intimate association with nature and its phenomena are more able to lay down principles such as to admit of a wide and coherent development, while those whom devotion to abstract discussions has rendered unobservant of facts are too ready to dogmatise on the basis of a few observations".

Crawford sees that the vulnerability of managers today is reflected in their highly provisional manner of feeling and speaking, which is characterised by an imperative towards abstraction designed to help them cope with the physic demands of their job. Importantly, authority is seen to be embodied in those up and down the hierarchy with whom he works; indeed, his career depends upon these relationships where the criteria of evaluation are ambiguous. Managers thus spend much time managing what other people think of them, with the result that much of the job consists of "*a constant interpretation and reinterpretation of events that constructs a reality in which it is difficult to pin blame on anyone, especially oneself.*"

This has given rise to the art of talking in circles, presenting mutually contradictory statements persuasively and forcibly, allowing the manager to 'stake out a position on every side of an issue, or burying what he wants done in a string of vaguely related descriptive sentences. What people say in such an organisation is generally accepted as always being provisional. Nothing is set in concrete – objectivity is the first victim. Within groups, the boss's 'deniability' must be protected by using empty or abstract language to hide problems, thereby keeping the field of subsequent interpretations as wide as possible.

"When a manager's success is predicated on the manipulation of language for the sake of avoiding responsibility, reward and blame come untethered from good faith effort. He may then come to think that those beneath him in the food chain also can't be held responsible in any but arbitrary ways".

Technology and its proper management is in fundamental conflict with the management approaches that have evolved in both public and business organisations, as well as the system of education that supplies these organisations with suitable workers – '*those pliable generalists totally unhampered by any specialist skills*'.

The Military/Bureaucratic Interface.(2)

Mr Smith, just before taking up the position of Secretary for Defence, spoke of the military / departmental interface in the following terms:

“It is self-evident that the very different natures of military and civilian service produce different cultures, and it is important that those differences be recognised and understood if the two groups are to work together effectively. To mention just a few of these differences, civilians are, for instance, generally more readily able to tolerate, and even be comfortable with, unclear lines of command, divided authority, and open-ended guidance or ambiguous instructions. They are also tend to be willing to offer judgements and opinions on the basis of less hard data than their uniformed colleagues, and to accept that outcomes can't always be readily predicted or easily influenced. Again, the question of 'ownership', so important to military commanders who very understandably want to 'own' or have command of the assets needed to do the tasks for which they are responsible, is much less important to civilians, who are generally more comfortable about being dependent on others to deliver results. Approaches to careers and service are also, inevitably, different and so of course are conditions of service and expectations from the service of which they are members.”

Military professionals will see immediately the incompatibility between the characteristics of the military professional, who depends upon high levels of skills, sharply-defined tasks, clear accountabilities, objective measures of performance, and sound management of the resources needed to achieve them, and the civilian approach. How can the military exist or perform professionally in an organisation that accepts vague, tolerant, unclear lines of command and divided authority, as well as open-ended guidance and ambiguous instructions? The military is about conducting its tasks professionally and on time, with least risk, learning from mistakes and accepting accountability for the results; the civilian bureaucrat is about burying problems, diffusing tasks and obscuring accountability. Within such an organisation, transparency and public accountability soon become victims. Unfortunately, the civilian approach now permeates the Services, especially at the senior levels, as well as the activities of Defence/DMO, and must be judged a failure.

Those familiar with the management of technology – its operation, sustainment, and replacement - will recognise that the principles underlying professional military management are much the same as used to manage technology. Both rely upon high levels of skills and competencies, robust management systems, procedures, and plans having effective feed-back loops, the continuing management of risk and the positive use of mistakes to learn, clearly stated accountabilities and objectives, and auditable reporting mechanisms. All of these are incompatible with the non-military and non-technical management methodologies that have grown up in business and public organisations over the past several decades.

The Root Cause.

Where the military and the management of the technology it operates and sustains, meets an unskilled civilian bureaucracy entirely unversed in the management of technology, a major fault line must inevitably develop which will fail repeatedly to meet the need for effective and professional management of Australia's Military Services and National security.

It is proposed that such a fault line has been allowed to develop in Australia's higher defence organisation and is the root cause for the problems being encountered by Defence and DMO.

References:

1. Matthew B. Crawford, 'Shop Class as Soulcraft – An Inquiry into the Value of Work', Penguin Books, 2009. Crawford is a philosopher and mechanic. He has a PhD in political philosophy and served ad a postdoctoral fellow at the Institute of Advanced Studies in Culture at University of Virginia.
2. E.J. Bushell, 'Rebuilding the Warrior Ethos', Airpower Australia Analysis 2008-10, 27th December 2008.

**ANNEX B TO
REVIEW OF DMO MPR 2008-09
"Where Fantasy Meets Reality"**

**COMMENTS ON US/AUSTRALIAN ANNOUNCEMENTS ON THE JSF PROJECT
'WHERE FANTASY MEETS REALITY'**

PART 1 – THE GATES ANNOUNCEMENT

On 1st February 2010, US Secretary for Defense Gates announced a restructuring of the JSF Office, stating:

1. *"Progress and performance of the F-35 over the past two years has not been what it should, as a number of key goals were not met."*

Progress and performance of the F-35 Project had been the subject of highly critical reports from several US governance agencies, as well as highly reputable defence analysts, over the past decade. These included:

- The Government Accountability Office (GAO)
- Congressional Research Services (CRS)
- Centre for Strategic and International Studies (CSIS)
- Director, Operation Test and Evaluation Reports, 2007, 2008, 2009
- US Air Force Association

These reports all pointed to serious problems with the manner in which the project was being managed, but all criticisms were either ignored, denied, waved aside, downgraded, denigrated, or professed to be under control. These responses indicated a serious breakdown in project management and US governance mechanisms. During this period, it is clear that the Secretary, his department, the Project Office, the Manufacturer and several foreign partners were all speaking with one mind, but just where that one mind resided has yet to be established. The two years referred to by Gates was simply the last time that the project was rescheduled.

2. *"It's clear that there were more problems than we were aware of when I visited Fort*

Worth.”

During his visit to Fort Worth on 30th August 2009, Gates received 'up beat progress reports from both Lockheed and the Military', went on to make highly publicised endorsements of the F-35, and praised work on the program.

On 16th September 2009, Gates continued his unqualified enthusiasm for the F-35 at the Air Force Association's *Air and Space Conference and Technology Exposition*. He recognised the F-22 as far and away the best fighter ever produced, and confirmed his commitment to it, but stopped its production at 187 aircraft. Finite defense resources, he said, compelled the Pentagon to favour the F-35, “*an all-purpose aircraft that will cost less than half as much as the F-22*”. He referred to the F-35 as “*the longest piece of the 'US Air-dominance portfolio'*”. In January 2010, Gates' department announced that more F-35s would be produced, claiming the aircraft to be '*comparable to the F-22*'. Other statements coming from Defense and the Maker refer to the F-35 as being '*a fifth generation, stealth aircraft with remarkable ability to penetrate enemy air defences*'.

In view of the history of the project and the string of governance reports critical of the project, it is hardly credible that the Secretary and his department were unaware of the problems surrounding the program when Gates went to Fort Worth, but Gates seemingly accepted every word of a grossly misleading presentation without question, and went on to laud both the aircraft and its project management.

The reality is that:

- 187 F-22s will be completely unable to provide the air dominance sought by the US, given the capabilities of new foreign aircraft like the PAK-FA or Su-35S
 - Finite defense resources is not the correct decision baseline to use when deciding whether to produce the F-35 or the F-22. The correct baseline is which aircraft is best able to ensure the air dominance upon which all US force capabilities depend. The short answer is that the F-35 will never be able to fulfil that role.
 - To say that the F-35 is a '*fifth generation, stealth aircraft with cutting-edge capabilities in EW and suppressing enemy air defences*' has been shown to be completely false and misleading.
 - Gate's claim that the F-35 will cost half that of an F-22 has been shown to be grossly incorrect, and shakes any confidence that he knows what he is saying.
3. *Gates decided to replace the Pentagon's Project Manager with a higher ranking, three star officer.*

The tendency in both the US and Australia is to increase the level of executive oversight whenever a project gets into trouble. This approach will only be successful if that officer has the competencies required to achieve what is required. In the case of the F-35, these competencies must include sound project management and a broad/deep understanding of the technologies involved, and he must have the backing necessary to tell it as it is. These competencies have been missing to date.

Another prerequisite for success is a willingness on the part of government to ensure that governance systems are made to work.

4. *“To now move forward in this program in a realistic way, one cannot absorb the additional costs that we have in this program and the delays without people being held accountable.”*

The core problem with the F-35 program has been poor management and the avoidance of accountability at all levels, both allowed to continue by a failure of governance mechanisms. The US Department of Defense has been declared broken since 1986 and despite many efforts to reform it, its performance has continued to decline. Today, the actions of the Secretary for Defense stand in direct conflict with the policies of both the State Department and the President, and unless the conflict between Congress and the Executive is resolved, all Gates' and the Manufacturer's words and good intentions will amount to nought.

Additional Factors.

The 80% Solution?

Confusing the whole F-35 restructuring move to resolve cost, schedule and performance problems, is the statement made by the Head of Defense Procurement, Ashton Carter, on November 2009 that *“The Pentagon needs to arrive at an '80 percent' solution and continue to manage the program intensively”*. Given the JSF's cost, schedule and capability problems, this may be interpreted as meaning that 80% of key performance indicators will be satisfactory, a proposition that, if correct, sets the precedent that failed projects should simply be accepted regardless of utility.

The Core Problems.

The core problems with the F-35 Project lie in far too much executive intrusion into the initial definition of the project and its subsequent engineering management, and the evaluation and test areas; that is, in getting the design to production standard and then testing it to ensure that it meets the operational requirements. Now, with the design, development, test and production phases of the project overlapping deeply, and weapons carriage and release trials pushed out beyond the production phase, risk to cost, schedule and capability have been allowed to escalate to the point where coherent management of the project is virtually impossible. The solution to all the problems now being faced requires predominantly engineering and test and evaluation effort, effort that must be managed as an iterative, coherent series of activities with very clearly set objectives. The pace and direction of these activities will be governed solely by physics, and any attempt to force them will simply make a very bad situation much worse.

This is aside from the now unavoidable reality, that inappropriate initial definition of this aircraft will see it become obsolete and operationally irrelevant before it even attains IOC, whatever manner that IOC may be defined in.

Furthermore, Gates' restructuring can be expected to aim at achieving a political 'quick fix' to counter mounting criticisms, but such an objective can only be achieved by further distorting project and engineering management processes, implementing the 80% solution, and 'cooking the books'. Such a move would hammer the last nails into the F-35's coffin.

Gates' announcements amount to the fireman Secretary stoking the boiler as furiously as possible as the F-35 train accelerates towards a big brick wall.

The Strategic Problem.

Unfortunately, Secretary Gates' announcement can be expected to achieve little, if anything, in recovering the project's present, risk-laden position. On the contrary, his proposed actions have the potential to accelerate entrenched risks to the point where the project will fail before it might otherwise have. This may, in the end, be a good thing as it will force a re-think of America's role in world affairs and lead to a reassessment of the military capabilities required to fulfil that role.

Gates' actions in closing down production of the F-22 and boosting F-35 numbers actually cuts the ground from under the President's State of the Union undertaking when, after outlining the advances taking place in other nations, including China, he announced:

“Well, I do not accept second place for the United States of America”.

The problem with Gates' defense planning is that there will be too few capable F-22s and too many incapable F-35s to ensure that the US will be able to retain air dominance or even air superiority into the future, which in turn will mean that army and navy forces should best stay at home.

The President's address is also important in that he made much of the war on terrorism before he moved on to nuclear capabilities, but he made no mention of the deterrent capabilities that must be in place if military choices are not to be constrained solely to the use of either anti-terrorist or nuclear solutions. Such a strategic deterrence capability, which must sit between the anti-terrorism and nuclear options, has been missing from US defence planning for several decades, while those nations not having to invest heavily in anti-terrorism capabilities have stolen a march on the US, developing strong strategic deterrence capabilities that US planning will not be able to counter.

PART 2 - DEFENCE MINISTER FAULKNER'S STATEMENTS

1. *"The Australian Government welcomes the decisive action taken overnight by the US Government to reduce risk in the F-35 JSF Program".*

The Minister's opening statement at least belatedly acknowledges that there are major risks with the JSF Project. Up to now, senior officials in Defence/DMO, despite being warned, have strenuously denied that such risks existed, in line with the mantra coming from the Manufacturer, the Project Office and the US Department of Defense.

2. *"The President's budget for FY 2010 reflects the US Government's strong ongoing commitment to the JSF Program as the backbone of the future tactical aircraft inventory for the US Air Force, Navy, and Marine Corps, and partner countries, including Australia".*

The Minister's unquestioning acceptance of Gates' assertion that *"The JSF represents the backbone of the future tactical aircraft inventory"* is also ill-founded. The aircraft has been shown clearly to be not competitive in the face of current and emerging threats. That the Minister and Government are still being advised to the contrary throws doubt upon the advice coming from the Defence bureaucracy/DMO and the fifty or so in the NACC Project Office, or indicates an unwillingness to take heed of warnings.

3. *"The US Department of Defense...has realigned development and test schedules...along with a strategy to stabilize its cost and schedule".*

The urgency now demonstrated by Gates probably stems from the 2009 JSF report submitted recently by the Director, Operational Test and Evaluation, in which the real situation in regard to the Program's status is laid bare. However, the problems that have been identified in this, and the many reports that preceded it, may be summarised as having resulted from:

- A wilful distortion or neglect of sound project management processes.
- A belief that problems grounded in science and physics can be made to yield to executive will.
- A failure of traditional governance check and balances.
- The triumph of marketing over management.

This statement should be sounding very loud warning bells to the Minister and Government, as it implies that F-35 test and evaluation processes will be tailored to accord with the cost and schedule objectives of the Department. See also 'Additional Factors' under Secretary Gates' announcements above.

4. *"In restructuring the JSF Program to deal with cost and schedule issues...Gates has withheld a considerable amount of performance fees from JSF prime contractor Lockheed Martin.*

Gates has directed a change in the leadership of the Program Office and has elevated the level of the Program Manager to that of a Three Star Officer”.

The payment of performance fees to a manufacturer that has performed so poorly for so long should be raising the question as to how Australia's investment is being spent and for what purpose. The raising of the level of executive oversight of the project has been covered at item 3 of Gates' announcements.

5. *He went on to mention Secretary Gates' commitment to the JSF Program and the critical role it will play in the future defence of our nation. “We have been working with the Secretary...on a plan to get the program back on track and are committed to stabilizing the F-35 cost, affordability and to fielding the aircraft on time”.*

As indicated, the JSF will be unable to play any critical role in the defence of the US or Australia, and it does our friends and allies no good to pretend that it will. Australia would be of greater service to the US by taking on a critical review role rather than just being a part of the marketing spiel.

6. *Secretary Gates made it very clear “That all procurement programs will have accountability and we support that position. We understand what's expected. There is a clear set of performance milestone criteria and we are confident we will achieve them”.*

Accountability has been the subject of report after report, but without effect. Measured against past Defense Department performance, Gates' late call for accountability has a very hollow ring.

7. *“Lockheed Chief Stevens told financial analysts last week he had readily agreed to forego some of the Company's 'Award Fees', incentive payments the Company had not yet earned, so that the funds could be used for development and testing”.*

Award fees and incentive payments? Window dressing!

8. *“The Australian Government's staged acquisition approach to the JSF, commencing with the acquisition of 14 aircraft, has strongly mitigated risk in relation to this vital program. As part of the Government's acquisition strategy, significant cost and schedule buffers were built into Australia's project in anticipation of the steps announced in the US today”.*

How the Minister can claim to have mitigated risk by recommending to government the unnecessary procurement of 14 aircraft from early production runs needs to be better explained. He has, in fact, convinced government to move from a position where the project could be monitored while keeping Australia's options open – a very safe and reasonable position that avoided committing to a capability that will not meet our needs, while minimising our financial exposure.

He has, in fact, not mitigated any risks but has crystallised and matured every risk being faced by the project, and at great cost to Australia, both in monetary terms and being locked into a failing

project that will not meet the Government's professed policy of retaining/regaining regional air superiority.

Again, the Minister has been very poorly advised, as a result, so has government.

“The JSF will continue to face risks and Australia will continue to work closely with the US to manage these risks and ensure success of the JSF Program”.

The Minister's final statement is simply window dressing of the worst type. He refers vaguely to risks that his department and DMO have refused to recognise as existing since the project was entered into, despite being advised in detail of those risks and their impacts by independent expert analysts and US governance bodies.

In short, Australia is now in the process of procuring 14 risk-laden aircraft that will require continual, expensive rework and updating to reach their final capability baseline – whatever that might be. At present, there is no indication of what the aircraft will cost, except that it will approximate or exceed that of the far superior F-22, there is no indication as to when it will be available in operational form, and there is no indication as to its final capabilities, except that it will inevitably be uncompetitive if or when it is finally introduced into service.