

# **NEW DEFENCE T&E POLICY: COMPLIANCE OPTIONS**

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## **ABSTRACT**

Defence is rewriting their policy on Test and Evaluation (T&E) which will provide additional guidance for both internal T&E agencies as well as Defence Industry involved in delivering new capabilities to the Australian Defence Force.

In response to recommendations made by The Senate, and agreed by one of Defence's highest committee's the Chiefs of Services Committee (COSC) chaired by the Chief of Defence Force (CDF), this new policy will form part of the new Defence Capability Development Manual (DCDM) due for release later in 2013. The new "T&E Manual" will consolidate previous T&E policy contained within a number of Defence Instructions as well as provide further information on T&E processes and procedures. A key tenet of the new policy is to provide unequivocal direction on those T&E aspects that are mandatory for all major capital equipment projects, and separate these out from T&E principles that provide good sound T&E advice. T&E training and accreditation requirements will also be addressed in the new manual, an area that has been inadequately covered in the past.

Authors will release a draft version of the new T&E Manual at SETE 2013 for broader academic and industry input accompanied by a non-refereed paper and presentation outlining compliance options for the new policy.

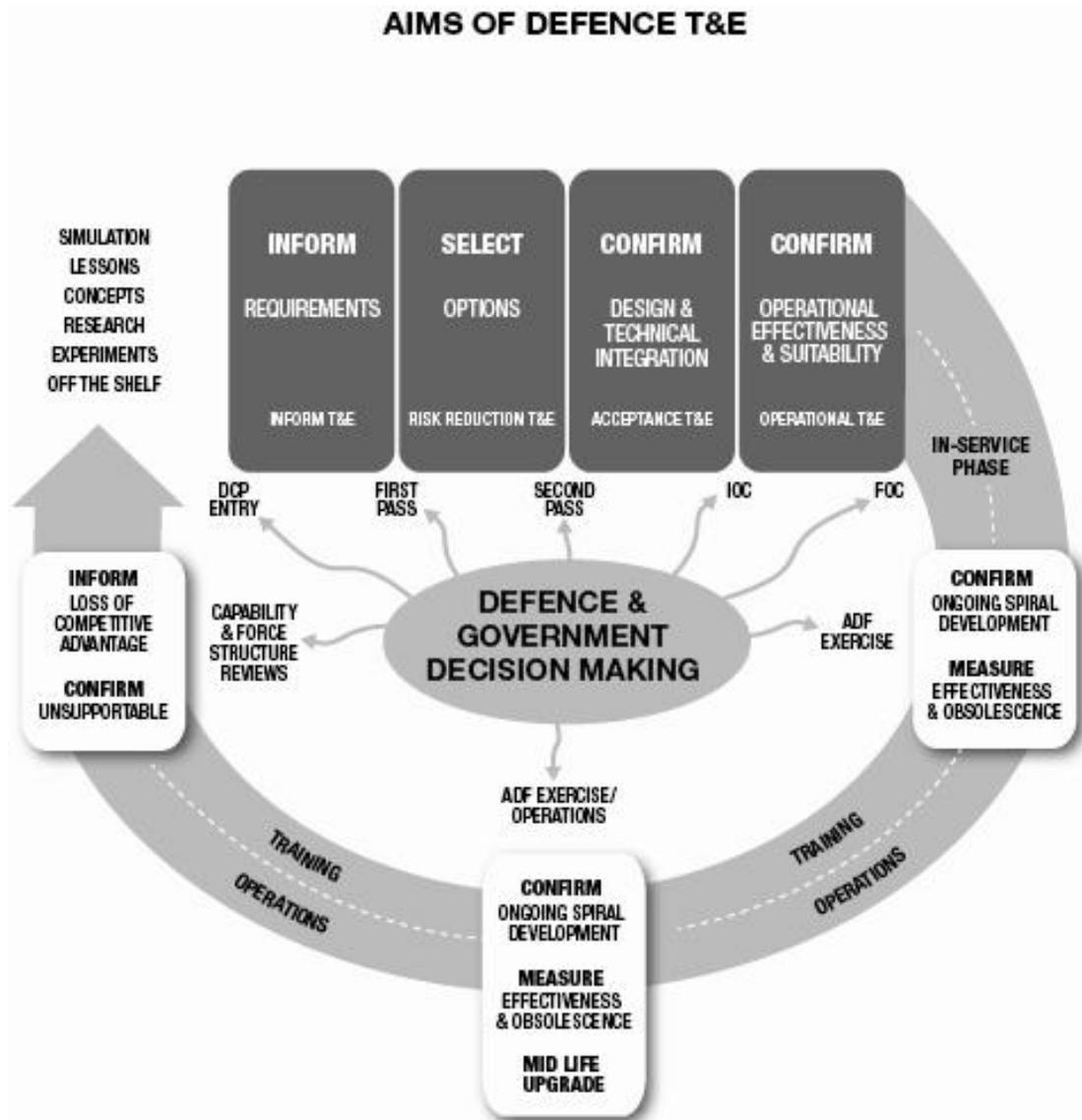
## **BACKGROUND**

In September 2012 the Australian Senate handed down a report into Defence Procurement that made nearly 30 wide-ranging recommendations. The report was compiled from an inquiry conducted by a multi-party team of senators over two years with input from industry, Defence, public and private institutions. Five of the recommendations concern how Australian Defence manages T&E to inform its decision-making. Defence agreed to nearly all recommendations, including all those on T&E.

The overarching concern from the report is compliance to T&E policy by Defence generally and acquisition projects specifically. Too many large projects are cited as not complying with Defence's extant T&E policies, failing to do the required T&E planning, consultation and actual T&E to inform risks early enough to prevent costly decisions and capability loss. Internal Defence checks into T&E plans of approved acquisition projects confirmed nearly a quarter of projects are without a T&E Master Plan and many more are not being kept current with regular stakeholder engagement especially the affected T&E agencies informing the Services on introduction to service of the capabilities they are to enable. The lack of such planning and engagement is worse in some domains and acquisition divisions than others: joint projects more often than not have no T&E plan, while land projects lack structured engagement and update in T&E.

The Australian Defence Test and Evaluation Office (ADTEO) was established in 2006 to lead T&E policy, to conduct T&E planning early in capability development, to oversee all T&E conducted prior to Government Second Pass approval (commitment to acquire), and to any conduct operational T&E for complex land and joint capabilities. Following the Senate Inquiry and Service consideration, the ADTEO has been tasked to implement Defence's plan to meet the T&E recommendations in the Senate report and in particular to ensure better compliance to T&E policy. ADTEO is supported by a network of specialist T&E units and organisations across Defence and leads a forum of T&E Principals to advise on strategic direction of T&E.

The aims of Defence T&E relative to the capability life cycle are shown in the figure below. This will help readers with later focus on compliance to T&E policy in different phases.



Group Captain (Dr) Keith Joiner is the Director General of T&E and Wing Commander Dave Hockley is the Deputy Director for T&E Policy within the ADTEO. In this paper they set out options to achieve better compliance within T&E policy, especially overall planning and coordination. The paper is the views of the authors and not the Department of Defence. Furthermore, T&E policy must be agreed by a multitude of Services and Groups in Defence through 2013 and may not achieve any of the options outlined: such an outcome is not a failure of the authors or of Defence, rather a reflection that compliance can be achieved by many means and that the forces for those canvassed are not yet sufficient. Readers are encouraged to look to the general trend in Australian T&E policy and reflect advantages and disadvantages.

## OPTIONS FOR BETTER COMPLIANCE

### Regulation

Government regulation has historically been used for compliance in industries or services where there is a confluence of public safety or health and cost pressures from say high competition. Areas to be regulated have included air transportation, food preparation, pharmaceuticals, sanitation and vehicle

safety. In such regulated areas, a Government authority with independence from commercial influence oversees a well-published set of clear regulations, with a balance of effort applied to refining and adapting regulations to account for changing circumstances and activities to ensure compliance in the industry. Regulation can be a significant overhead, particularly when it competes for funding without reference to that industry that it supports. Hence regulation requires a political influence within Government to be established and sustained. For example, aircraft crashes, food poisoning outbreaks or industrial work deaths provide impetus in some regulated areas.

Defence inherited a culture of compliance to orders and policy from the British military staff system. Many of today's senior officers began their careers in a highly structured environment of technical, administrative, financial and operational orders. However, beginning in the late 1980's massive efficiency reforms in Defence removed expertise in areas like manufacturing, design, supply, quality assurance, instrumentation and facilities in favour of contracting to industry when required. For example, Air Force traded in aircraft depots, supply depots and calibration centres. More recently, contracted outsourcing has extended to personnel and operational support. Orders and policies have been simplified and rationalised to a higher level direction at organisational level, leaving prescription and procedure to working-level arrangements and standard operating procedures.

An outbreak of aircraft crashes in the ADF from 1988-92 led to a regime of aerospace technical regulations which has since extended to maritime and land technical domains. Some difficulties with operations in aviation led to complimentary operational airworthiness regulations in about the year 2000. These regulations are not passed by legislature and thus are always given a 'lower-case' reference. These regulations mirror upper-case legislated regulations in civil equivalents like the Civil Airworthiness Safety Authority (CASA) or vehicle design regulations, but the lower-case regulations carry weight only through military command and Defence policy. Where regulations differ from other Defence policy, is that they generally appoint a contiguous chain of responsibility and accountability through Defence's modern matrix of Services and Groups and they clarify very clearly what is 'absolute' from what is guidance or good practice. Several Boards of Inquiry have reviewed compliance to these regulations, but are not believed to challenge their legal basis. Such military 'lower-case' regulation has been an appropriate response to large-scale outsourcing, decreased expertise-levels and sometimes confused accountability lines.

So what about regulation in T&E? Aviation has provided the only Australian example in military lower-case regulation, with the appointment of two flight test authorities to control developmental T&E and a regime for control of operational T&E (regulations 4.1 and 4.2). The structure of airworthiness management plans (upfront) and airworthiness board review prior to type certification (full operational release), are excellent examples of forcing functions to T&E planning and raising and tracking to closure issues from T&E. The Australian National Audit Office (ANAO) review of maritime projects (2010) recommended a similar structure for sea-worthiness. However, so far similar T&E regulation in maritime and land regulation has not occurred. Also, while the aerospace domain has provided good example now for over a decade, the representation of aerospace projects within the Senate Report Chapter 2 (2012), would suggest that the presence of a modicum of T&E regulation within technical regulation, is not sufficient alone or the full root of the problem.

The Senate Report Chapter 2 provides the reflection of the necessary political outrage to enable regulation, whether lower-case or upper-case. For example, the Senate Report notes the increase in project cost of 28 major projects by \$7.8 billion since the projects received second pass approval across a decade is attention grabbing. The highlights in the report where T&E could or should have provided earlier decision-making shows a Government interest in possibly regulating for real credible T&E to inform accountable decision-making 'nearly always' rather than the current 'most-of-the-time'. The US Government has imposed Title 10 'upper-case' regulation of T&E on its Defence acquisitions and this oversight is tailored somewhat to the class or size of the project. An entertaining background to why this regulation was pursued is in the skit called Pentagon Wars that is often shown

in Defence management classes. ADTEO meets at least annually with its nearest equivalent for T&E policy in the US – the Director of Operational T&E in the Office of the Secretary of Defense. Such interaction highlights the difference between the process in Australia of facilitating and ‘badgering’ for good T&E planning early and the US structured mandatory gateway approval system for T&E plans from inception through to operational release by consistent independent T&E regulatory authorities.

While the power of upper-case or lower-case regulations is attractive, it is worth pausing first to see why an acquisition project might fail to conduct T&E planning or fail to consult regularly with affected T&E agencies. Possible reasons are:

- Lack of education, training or experience in T&E.
- A belief that T&E can be outsourced almost completely and reliably to contractors.
- Short-term focus on cost or schedule, providing pressure to test later.
- A culture of self-belief in the inherent overall benefit of the capability and of the operators to work around issues (later).
- Difficulties in coordinating participation by Service T&E agencies in a structured way.
- No dedicated T&E manager and hence reliance on an overworked systems engineer to make it work.
- Reluctance from Service T&E agencies to ‘sort out’ issues in a project before they get the capability (usually resource constrained).
- Insufficient travel funds to properly engage T&E agencies.
- In some domains, T&E expertise in the DMO that does not (or cannot) force inclusion of OT&E agencies.
- Some acquisition projects that plan T&E over the finish line through OT&E while others withdraw to an earlier line of materiel release (contracted line).
- A belief that T&E policy is guidance and that the project manager or director can approve a focus on other aspects, or at least prefer other milestones and issue drivers (i.e. lack of recognised single accountable T&E authority).
- Insufficient internal Defence audits or Gate Reviews of projects or at least a lack of T&E focus in these audits or gate reviews.

These potential causes highlight the difficult project environment in Defence. The DMO amalgamated three Service-oriented acquisition organisations and then their sustainment organisations as well, all in a very short period. The ANAO audit report on maritime projects (2010) found that some 11000 DMO baseline positions have contracted over a decade to some 7000, when the amount of materiel and the acquisition budgets have increased. Hence, efficiencies are being driven. The same ANAO report found large civilianisation of the acquisition workforce in this period, particularly in technical workforce from the Navy. The focus on schedule and contract-level clarification of its deliverables is due to resource pressure not a lack of good intention. Such resource pressure accords with the general finding of regulation in such industries, if not the confluence of public safety.

Regulation of T&E in acquisition would have a positive effect on the divisions and projects that are deficient. Based on ADTEO estimates some 25% of projects would be held to a higher, acceptable standard. However, in a resource-constrained environment, such regulation would to some extent be an additional burden on the 75% already doing an adequate or excellent job in T&E. If public safety were at risk, then no doubt regulation would be applied, but Defence’s T&E agencies and the Services are finding the deficiencies eventually and where appropriate developing work arounds, just sometimes not early enough to save cost and significant capability. So should regulation be applied to save the loss of Defence funding (taxpayers money)? Whole-of-Government financial regulation aims to prevent fraud and misuse. If \$7.8 billion in project cost increases over ten years could have saved as much as a third by utilising earlier T&E (\$2.6 billion) and that was amortised, could an office with a budget of \$25 million in T&E regulation and auditing be warranted to save \$235 million per annum?

Regulation is inherently externally attributed, in that it forces compliance rather than having acquisition staffs reflect, know and want to do better (internal attribution). The extent you can appeal to internal attribution is based on organisational culture and the professionalization employed therein. There has already been argument the Defence acquisition environment is more resource-constrained, schedule-driven, near-term-focused and less customer-aware (through civilianisation), and these are all factors working against reflection, culture and professionalization. No-one wants more overheads for the majority doing T&E planning, consulting and conduct well, but trends here and in allies make T&E regulation likely soon.

Before turning to alternatives to T&E regulation, it is worth reflecting on how much T&E regulation might be appropriate. ADTEO proposed twenty T&E regulations to Services and Groups for comment, less if you count the one appointing T&E regulators. These regulations were simple and included:

- Each acquisition project must have an approved TEMP before materiel contract.
- All affected T&E agencies (i.e. AT&E and OT&E) must approve the TEMP.
- The TEMP must be updated and reapproved annually
- T&E Planning Groups must be held for each project at least twice a year involving all affected T&E agencies.
- Options for preview T&E (try-before-you-buy) must be offered in all Government capability submissions.

These are what should be called ‘soft’ regulations, in that they seek to force good organisational practice and consultation, option-development and planning. Such regulations only seek to draw out those projects without any plan or regular consultation and force engagement with T&E agencies before too much harm is done. Such regulations are offered in lieu of the stronger US model of direct oversight of TEMP content, test reports and the annual ‘outing’ in public reports of T&E issues.

### **Audit and Gate Reviews**

The 1970’s saw the development of Quality Management in Australia and the US, with its aim of structuring good practices and higher purpose into sound and sustainable practices and procedures. Many industries and public service areas adopted quality management, such as ISO 9001 including internal and external accreditation. Quality management remains in much of aerospace, many Defence suppliers and all T&E agencies. Agencies that adopt quality management have well-documented procedures, have internal and external audits for compliance to their procedures, and as a result they tend to work more seamlessly together and deliver more consistent approach. Auditing is best done as part of standard practice rather than randomly or by exception on projects of concern. Random auditing is often resented, while for projects of concern auditing often contributes to a spiral of attention too late to have good preventative effect. Auditing of projects is best done as part of gate reviews as it checks the project at logical milestones as part of a constructive achievement and reflection. With that in mind, this paper will now look at ‘Gate Reviews’ as a good place to do compliance auditing of project T&E.

Gate reviews have been a standard part of capability development at least since the inception of the ‘Two Pass Government Approval’ process, even though it was only a recent initiative to name the main committees that do gate review for project initiation and for Government passes with that term in the title. The permanent membership of DG T&E on these capability gate review boards since 2006 has been a major factor in ensuring adequate early T&E planning. In the four year tenure of the first DG T&E (2006-2010) only four projects are known to have passed gate review without a fully endorsed test concept document or no such document. In the two years so far of the second DG T&E only two have not had test concepts fully endorsed. Such rigour in the capability gate reviews has

already led to better rapid acquisitions for Afghanistan where the benefits were realised sooner but it will take a decade to see the full benefit across all projects.

In the acquisition phase gate reviews and T&E plans have not yet achieved the same rigour as capability development, mainly because gate reviews have only recently been applied by the DMO. Certainly DMO is yet to include a T&E entity or personage on such boards. The ANAO report on maritime projects (2010) noted that it can be up to 18 months after Second Pass before a project produces a T&E Master Plan (TEMP), and when it does so, the T&E plans can be heavily constrained by the materiel contract which is normally concluded within just six months of Second Pass. ANAO recommended, and Defence agreed, to produce TEMPs before materiel contract. This initiative is yet to be put into policy but when it does and if complied with, it will be the check of T&E planning at every project's first major gate review.

The DMO project gate reviews are a recent initiative of the CEO DMO and are intended to be conducted annually on most major projects by a panel of experienced, independent persons. The initiative was strongly supported by the Senate as a means to guide projects before and during issues. Earlier initiatives to gate reviews involved applying the Prince2 methodology to phase projects and create a stakeholder approval board at each logical stage, including exception reporting when outside Board-approved tolerances of acceptable project risk. Such initiatives were further supported by 'red teaming' where peers from independent projects looked for the unseen risks and war-gamed the possibilities of possible courses of action. Projects like JP2070 Lightweight Torpedo were born into these initiatives and at times were well phased and well 'red-teamed'. For example, Phase 1 was to include a real trial demonstration of candidate torpedoes funded in the project definition studies, yet no trial occurred and the project proceeded into its Phase 2 integration phase without disclosing a fundamental mismatch in expected versus real technological readiness. The JP2070 transition from integration to warstock occurred without any integration T&E being completed and despite a thorough 'red-teaming' recommending against it. So in and of itself, gated phasing with red-teaming are not sufficient to prevent bad decisions. Why is that? In part JP2070 is also a good indicator why. JP2070 operated for over ten years without T&E planning with the first approved TEMP being in 2010 as a very late pre-requisite to introduction to service. T&E milestones were not scaffolded into the project as key decision drivers and as such all gates were open to subjecture, where the pre-eminent authority will be a contractor with a fundamental self-interest in further phases without scrutiny (i.e. absolute commitment & limited disclosure costs). Had any trial been done on the technological readiness of candidate torpedoes, or even partial build-up integration T&E, the dire warnings of the red team would have had reality and contractual merit to perhaps see a different outcome in 2005 and today.

The preceding example shows that gate reviews must be informed by independent T&E to have merit. The Service T&E agencies are specialists in sceptical review of contractor tests, or the lack thereof, and they should highlight where assertions and project milestones are getting ahead of real results. So long as this scrutiny and advice is done within the annual project gate reviews, then it should be constructive for Defence. If the project director has a current endorsed TEMP underpinned by T&E planning groups with affected T&E agencies, then separate audit or input to the annual gate review should not be a surprise. Good examples of the type and level of input that should be given to a Gate Review by T&E agencies are contained in the US DOT&E annual reports to Congress on T&E of major acquisitions, albeit that report is public. The candid disclosure of problems being fixed in T&E for the Joint Strike Fighter and Submarine Sonar projects are good leads on Australia's remaining risks in taking such acquisitions.

The practicalities of including a T&E focus to DMO's gate reviews must include the T&E network if it is to have independence. If the ADTEO were given notice of the review and a copy of the latest TEMP, it could coordinate incisive comments for the Review Board with input from all affected Service T&E agencies (often more than one) and a cross-check where appropriate with foreign sources

like the US DOT&E annual report. Over time, projects who fail to heed T&E direction or disclosure will at least be no surprise to Service T&E agencies if the projects make it to transition into service.

So far the question of audit has been at the gate-review or macro-level, not on review of actual T&E reports and detailed T&E plans. Many DMO contracts deliver such contractor plans within just 30 days of the test commencing and that is insufficient time to get Service T&E agencies to review, if indeed they have been forecast, tasked and agreed to review. Large projects too often overlook embedded or dedicated T&E managers and the resources to manage qualified review. As a rule-of-thumb, ADTEO now looks in early Test Concept Plans for all projects above \$250 million in acquisition cost to have a funded and dedicated T&E manager separate to the systems engineer (see Professionalisation below). Carrying such early T&E concepts through to implementation and ensuring they are complied with requires some independent T&E input to gate reviews.

In summary, having a T&E presence on acquisition gate reviews would ensure T&E planning and consultation policy is being complied with, in turn having T&E agencies consulted would ensure contractor T&E plans and reports get qualified review and therein, if deeper audit is required, it can then be arranged.

### **Clarity and Access**

The current Defence T&E policy begins in three Defence Instructions (General):

- one that standardises acceptance into operational service across Services and with joint capabilities (DI(G) OPS 45-2),
- one that standardises T&E conduct across T&E agencies (DI(G) OPS 43-1), and
- one to authorise conduct of Defence trials by ADTEO (DI(G) ADMIN 6-1).

The latter superficially seems specific to ADTEO but it has been instrumental in facilitating:

- early preview T&E (pre-2<sup>nd</sup> Pass) to de-risk projects,
- joint T&E involving partnering T&E from multiple Services,
- direct in-theater T&E of rapid acquisitions not fielded first in Australia, and
- generally scope T&E gaps separate agencies do not.

T&E specific to the crucial acquisition phase is managed by DMO's Standardisation Branch. For the first four years of ADTEO (2006-2010), the DMO maintained a liaison officer in ADTEO to ensure consistent T&E policy but resource pressure has seen this initiative fold for a more 'as required' collusion. If ADTEO does gain a formal role in gate review input of TEMPs, this embed position will need to resume to coordinate the review. The DMO Standardisation Branch should be commended for its work in simplifying and centralising its policies and templates from different Divisions. Unfortunately, too many projects take a completed and dated plan from several years earlier on a different project and adapt that. Few projects seem to know (or care) that the template for TEMPs was simplified to avoid repetition and improved to better address off-the-shelf acquisitions. Similar difficulties exist in rolling new test concept documents out in capability development. One important initiative done cooperatively between DMO and ADTEO was to align the Second Pass Test Concept Document with the TEMP template and call it an Early Test Plan (ETP), essentially a TEMP version zero. Second Pass is appropriate to shift from a concept to a plan, since it is informed by industry solicitation. Where only a single option and sole-source is pursued from first to second pass, this document will be a TEMP. This ETP initiative will make it easier for DMO after Second Pass and before materiel contract to issue an approved TEMP. Such initiatives take a long time to embed and realise benefits, with no project modifying its solicitation phase yet to specifically populate an ETP.

The in-service T&E policy documents governing OT&E are now increasingly embedded in capability realisation planning which covers that tumultuous period from Initial Operating Capability (IOC) to Final Operating Capability (FOC). This period is typified by increasing numbers of equipment, trained personnel, spares and safe role expansion and force interoperability/networking. Here the DI(G) OPS 45-2 has had excellent effect, with each Service either improving existing processes for this phase (i.e. RAN up-issue of the ABR 6205) or issue of a new instruction (such as Army's DI(A) OPS 44-1). These efforts to define capability realisation unique to each domain, but within the consistency of the higher policy, includes appropriate T&E. Such policy does not warrant modification as it is yet to fully mature.

So the challenge in the new T&E policy is to provide overarching guidance for T&E across the capability phases, fill those gaps like T&E in the joint domain and pre-second pass, but not detract from sound efforts at reform, standardisation and planning within each of the capability development, acquisition and capability realisation phases. Put differently, the challenge is to make the synthesis and control of T&E across life cycles and groups clear, while reinforcing T&E policy centers of excellence specific to those phases. This is readily achievable.

The capability development processes for early T&E planning will be contained in the new Defence Capability Development Manual Part 2 (DCDM Pt 2) alongside sibling early systems engineering document policy; namely, Operational Concept Document (OCD), Functional Performance Specification (FPS), and the Technical Risk Assessment (TRA). Such early test planning draws from these documents and iterates good T&E risk mitigation strategies. For example:

- the OCD identifies the critical operational issues (COIs) that will shape the OT&E in the capability realisation phase,
- the FPS identifies the critical technical parameters (CTPs) that will shape the AT&E in the acquisition phase,
- the TRA identifies the technological maturity of the system and operational concepts and thus what, if any preview T&E (i.e. prototypes, demonstrations or evaluative studies) should be done before Second Pass to reduce program risk and ensure the feasibility of the capability before final contract, and
- the acquisition strategy, which increasingly for mature off-the-shelf capabilities, defines the access to prior T&E data, on which to cost-effectively base Australia's further T&E.

The DCDM Pt 2 chapters on the Test Concept Document (First Pass) and Early Test Plan (Second Pass) will reinforce these linkages to other documents.

T&E policy governing conduct of T&E across all Services and Groups will be centralised in the DCDM Pt 3 including new guidance on T&E pre-Second Pass and collaboration on joint T&E. This part will capture best practice in areas where it has hitherto not been described, while it will out-reference to good T&E policy where it already exists, such as the DMO Standardisation Branch and Service policies on capability realisation.

### **Professionalisation**

Earlier it was argued that professionalization is one of the quintessential elements of internal motivation for projects to manage T&E appropriately; it provides the understanding to want to build project progression around undeniable T&E milestones and thus real progress. However, projects are already under resource pressure to be professional in areas like project management, systems engineering, finances, scheduling and critical technical competencies individual to the project. In smaller projects (taken to be less than \$100 million), project staff will inevitably need to be dual-hatted and rely to some extent on Service and contracted T&E expertise during surges in T&E activity, while for larger projects (taken to be greater than \$250 million), dedicated T&E professionals need to be the

norm. Very large projects (taken to be greater than \$3 billion) like Air Warfare Destroyer (AWD), Joint Strike Fighter (JSF) and more recently the future combat vehicle system (LAND 400) and future submarines (SEA 1000), a team of T&E professionals must be built which at times during acquisition and initial OT&E will reach hundreds.

What the spectrum of capability acquisitions need is clear guidance and scalable professionalization options to plan the right T&E expertise and then the time and resources to secure that expertise. ADTEO has been reviewing and endorsing test concept documents for six years but only in the last 12 months has it sought to define the T&E structures and professionalization of projects rather than leave it to the DMO and Services after Second Pass. A recent example is illustrative. ADTEO recently reviewed a test concept for a Hawk aircraft upgrade. The initial draft drew repeatedly over three years on Service T&E flight test engineers and pilots without creating a dedicated T&E manager within the project with continuity into service. Consultation with all concerned, led to the creation of the funding and early identification and training for a flight test position, responsive to the DMO initially and later the operational group, but under professional control of the Service T&E lead. Such initiatives are not new and indeed are the rediscovery of previous best practice, however, these are now being implemented early within a planning framework across all projects tailored to overall project risks. The templates and guides for all early test plans and TEMP's need greater emphasis on the T&E management framework and T&E competencies necessary in project acquisition teams. Regular TEMP review and T&E planning groups can provide the mechanism to oversee practical implementation; that is, are that are doing the job got the qualifications, training and experience prescribed and what are the mitigations if they do not?

Planning and controlling for T&E professionals is no good if a T&E competency framework does not exist or sufficient professionals are not using it. Earlier this paper outlined the effort to create a diploma for T&E within Australia to complement 'long course' training. The take-up rate for this diploma beyond the initial cache has been poor, particularly within acquisition projects. To be fair, these projects were not necessarily planned with such professionalization prescribed or funded and once projects are in crucial acquisition phases in a resourced-constrained environment, there is unlikely to be the scope to do what is then deemed additional training. The Recognised Training Organisation (RTO) for this diploma is developing it further to provide accelerated modular learning with tailorable interests particular to different projects or T&E agency requirements. The current model is a one-week course with two years of assessed experience, whereas additional modules are proposed that can accelerate achievement where complementary intense relevant experience can be demonstrated. Workshops with the T&E agencies and RTO are expected to produce a more graduated series of offerings from the current short course to the historical long course with guidance in the new T&E policy specific to the land, aerospace, maritime and newer joint domains like ICT and health. Encouragingly, in September 2012 DMO issued internal policy that describes the minimum experience and training requirements for T&E Managers, which although the policy does not mandate minimum requirements, a desire to improve T&E competencies within DMO is applauded.

The US-dominated International T&E Association (ITEA) has an initiative to improve professionalization of T&E and so far only one or two dedicated ITEA members in Australia have been watching this development. Subject to funding, initiatives in Australia should be aligned with this model where possible. However, we add a caution here that the greatest concern in T&E professionalization is not the competency of extant T&E professionals in industry or Service T&E agencies, but rather of acquisition projects that garner and drive these agencies (i.e. task them, fund them, permit their access & listen to their findings). In general, these small-to-medium project staffs need to be adding to existing professions they hold and in that respect, we need to make competency easier for them not harder. If the ITEA competency effort has a series of training packages tailored to acquisition project support managers, these will be of greatest interest.

## CONCLUSION

Implemented correctly, T&E regulation offers greater assurance of compliance compared to other options, especially if current trends in resource pressures continue particularly within Defence acquisition. Such external oversight offers the best chance of guaranteeing acceptable levels of T&E planning and management in all Defence projects but at an additional overhead for the majority of projects that are doing good T&E without regulation and regrettably, would constitute a resort to external attribution in a so far self-motivating field for project managers seeking informed decision making. Such a finding applies even to soft regulation since every project would require oversight by a regulatory authority for their T&E. Furthermore, the cost and impact on ADTEO of performing that role, even with Service T&E support, would be extensive and likely to take focus away from filling crucial T&E roles in current gaps like the T&E of an increasing number of joint projects. Service disinterest in T&E regulation focuses on the additional resources required to manage regulation as well as perceived difficulties associated with integrating new T&E regulation with current regulations where overlap exists, such as operational airworthiness regulations 4.1 and 4.2 – this apprehension is understood. T&E regulation will not be pursued by Defence at this time, new Defence T&E policy will be established that incorporates the alternative T&E improvements as discussed in this paper and summarised below.

A role for independent review and input by T&E agencies in DMO gate reviews offers regular check and a voice to T&E concerns on major projects similar to the successful role of DG T&E on the capability gate reviews. This is a voice that would not always be necessary and thus expressed, but when it does speak, it speaks to the credible real evidence of a project's progress or the lack thereof. In essence, such a role will inform targeted auditing of the detailed T&E in a project as and when required. Inclusion of T&E in acquisition gate review boards offers many of the advantages of 'soft' regulation but without the added overhead on compliant projects, since if an updated TEMP exists and has been closely consulted with affected Service T&E agencies with a qualified T&E manager, little or no additional project input will be required. Such a TEMP review would require DMO to reinstate the liaison position in the ADTEO. It would also provide some additional burden to the DG T&E position but this could be offset by CDG and Army creating a Director of Operations position to oversee trials in Land, Joint, Amphibious and Space.

Currently initiatives to centralise core T&E policy and make it clearer what is mandatory rather than guidance are essential. In particular, two relative new endeavours to conduct frequent pre-view or risk-reduction T&E pre-Second pass and to partner T&E agencies for complex joint and allied T&E, both need first principles explanation and some prescription in the new T&E manual. Nowhere is this explained to capability development or acquisition managers, even though seminal practice exists at ADTEO and Service T&E agencies from 3-4 years of good practice.

Improving professionalization of T&E has undergone some important accreditation milestones in Australia with the Workplace Skills Australia creation of the Diploma of Public Safety (T&E) and the first RTO fulfilling that competency role with a tranche of awards. This initiative begins to fulfil the gap between 'overseas long course' trained T&E professionals and the experienced but unaccredited lay person doing T&E. However, institutionalising mid-level T&E qualification, particularly in acquisition projects outside T&E agencies is problematic. The first RTO has offered pathways to faster diplomas with structured and informative modular training in T&E, but take up of this will require pressure by T&E agencies and technical regulators approving TEMPs and their updates.

Of all the options considered for better compliance with T&E policy, at this stage, a role for the independent DG T&E in acquisition Gate Reviews matching his current role in capability development is preferred. Initiatives to clarify and improve access to T&E policy are essential. Further work in professionalising T&E practitioners is needed from the Australian RTO through well-structured, informative and modular training and assessed on-the-job experience. Such professionalization will only be cost-effective and successful if made mandatory for project T&E staff (whether dedicated or dual-hatted) in new and updated T&E plans. These proposed efforts would, if endorsed in the new T&E policy, be a significant and Australian response to the growing need to guarantee a better standard of actual and early T&E in Defence decision-making.