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# 2016 Defence White Paper— The Future of Aerospace Forces

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The 2016 Defence White Paper is an impressive document that is a significant improvement on past White Papers. At the aerospace platform and individual system level the White Paper is mature and balanced, and clearly the result of a more comprehensive Force Structure Review than conducted for recent White Papers. There is a clear recognition that the ability of the force to operate effectively will be dependent on the level of force integration. The acknowledgement that funding cuts in recent years have led to under-investment in the enablers essential to building a joint and networked force is critical, and the increased emphasis on addressing enabling functions is welcome. However, with respect to enablers I conclude that the government has not recognised the scale of the enabler challenge and lacks frank analysis of associated risks. You cannot remediate a problem if you are not prepared to fully acknowledge and analyse it; the ADF cannot deploy and operate aerospace forces without resilient enablers.

The 2016 Defence White Paper<sup>1</sup> (DWP2016) marks a significant improvement over the 2013 Defence White Paper. It takes a far more integrated and balanced approach to the design of the future Defence Force. Of particular note is the structure of the force analysis around six capability streams rather than by environmental categorisation. This capability stream approach forms the basis of the 2016 Integrated Investment Program published to support this White Paper. For the first time, all elements of the government's Defence investment, including new weapons, platforms, systems, and the enabling equipment, facilities, workforce, information and communications technology, and science and technology are outlined in an Integrated Investment Program.<sup>2</sup>

This shift in perspective and analysis is important if a true joint force effect is to be achieved. The capability streams are:

- intelligence, surveillance, reconnaissance, space, electronic warfare, and cyber
- maritime and anti-submarine warfare
- strike and air combat

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<sup>1</sup> Department of Defence, *2016 Defence White Paper* (Canberra: Commonwealth of Australia, 2016)

<sup>2</sup> This White Paper and the Integrated Investment Program (IIP) are companion documents in a way White Papers and Capability Plans of the past never were and for this reason I have used the capability detail of the IIP to support my analysis of the higher level White Paper discussions.

- land combat and amphibious warfare
- key enablers essential to supporting the operation and sustainment of Defence
- air and sea lift.

Aerospace forces either contribute to, or are supported by, each of the streams. Having said that, it could be said that analysing DWP2016 in terms of aerospace forces is a reflection of past thinking. However, given the tasking for this article, I will attempt to review the contribution of the aerospace components to the future joint effect and explore what the risks and opportunities are in the implementation of this ambitious White Paper.

DWP2016 assesses that Australia's traditional technology and capability superiority will be challenged by the growth towards more capable and modern military forces in the Indo-Pacific; "a larger number of regional forces will be able to operate at greater range, and with more precision especially in the maritime and air environments supported by more advanced intelligence, surveillance and reconnaissance networks." (para 2.4)

The requirement for the ADF to be agile, adaptable and interoperable pervades the White Paper. So, what does this mean for the aerospace forces? In my view it directly relates to the need to take a far more integrated and balanced approach to the design of the future Defence Force. The RAAF's Plan Jericho, launched in February 2015, has a vision to develop a future force that is agile and adaptive, fully immersed in the information age, and truly joint. It is worthwhile noting how the then RAAF Chief, Air Marshal Geoff Brown, defined fifth generation; he stated that a fifth generation/fifth generation-enabled force is a force with vastly improved shared situational awareness *and* the ability to operate as an integrated team. He clearly used the term as a lever for joint force integration and not in the legacy sense of individual platforms.

To examine how the RAAF will achieve that vision for its aerospace capabilities under DWP2016 I will look at three aspects: firstly, the platforms/systems being acquired; secondly, the integration of those platforms and systems across the ADF; and, thirdly, the key enablers without which our forces cannot operate.

## **Aerospace Forces—Platforms and Operational Capabilities**

If we consider the aerospace platform level decisions over recent years and in this White Paper, the Air Force's current and planned capabilities are outstanding for a force of its size. The RAAF will have a unique combination of '5th Generation' (5th Gen) and advanced '4th Generation' capabilities which will make it one of the best equipped mid-sized air forces in the world.

Most of the key aerospace related capability decisions, such as the decision to acquire seventy-two Joint Strike Fighters (JSFs), were taken prior to the release of DWP2016. That said, the White Paper confirms the government's commitment to existing acquisition plans and adds significant new investment in the areas of armed, medium altitude unmanned aircraft, intelligence and surveillance platforms such as the seven MQ-4C Tritons and up to five Gulfstream G550 aircraft, two additional tanker aircraft, an additional seven P8 Poseidon maritime patrol aircraft and future upgrades to the Growler fleet.

The White Paper also notes that consideration will be given to acquiring additional heavy lift aircraft, an additional two air-to-air refuelling tankers, and to replace the Super Hornet in the late 2020s with a fourth squadron of fighter aircraft, once informed by the experience in operating the Joint Strike Fighter. It will be interesting to see if developments in our regional security situation warrant future consideration of additional long-range strike capability such as the recently announced USAF B21 or whether long-range strike weapons will suffice.

The 2016 Integrated Investment Program (IIP) notes, in the Strike and Air Combat capability stream discussion, that

realising the full potential of the Joint Strike Fighter and Growler aircraft is dependent on investments outlined in the intelligence, surveillance, reconnaissance, electronic warfare, space and cyber stream. These investments will facilitate enhancements in processing, analyzing and disseminating intelligence and mission data.<sup>3</sup>

It also proscribes a Joint Battle Management System to better coordinate and synchronise air defence operations, to improve situational awareness and enhance coordination of air battle management, joint weapons employment (including maritime and land strike) and ground-based air defence in operational theatres.<sup>4</sup> This sharpened focus on battle management systems, exemplified by Project AIR 6500, is critical and will assist in transforming this stream into an integrated 5th Gen force component, replacing the stovepiped approach to these capabilities in the past. However, the implementation of this goal will be challenging; whilst much thought has been applied to the development of 5th Gen platforms such as the JSF, the analysis of what a 5th Gen battle management system should be is still in its infancy.

At the platform and individual system level the White Paper represents a maturity and balance not previously seen, and is clearly the result of a more comprehensive Force Structure Review than conducted for recent White

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<sup>3</sup> Department of Defence, *2016 Integrated Investment Program* (Canberra: Commonwealth of Australia, 2016), p. 95, para 5.5.

<sup>4</sup> *Ibid.*, p. 99, para 5.25.

Papers. There is a recognition that the ability of the force to operate effectively will be dependent on the level of force integration—a 5th Gen force is not just about the individual force components but rather the integrated effect of the force as a whole. In reality this was the case for previous capability generations; however, the technology represented by the future 5th Gen force perhaps now makes the goal of force integration far more achievable.

## **Aerospace Forces—The Need for Joint Integration**

As significant as the platform decisions contained in DWP2016, is the government's increased focus on a balanced joint force structure and the integration of platform capabilities such that the "ADF can apply more force more rapidly and more effectively when required."<sup>5</sup> DWP2016 notes that

in the past, capability investment planning process has been too heavily focused on individual military platforms—this has often been at the expense of funding the vital enabling and integrating systems that allow the ADF to bring capability elements together to deliver more potent and lethal joint combat effects. (para 1.9)

A promising announcement is that a new permanent future force design function in Defence will be established to strengthen Defence's capacity to deliver the joint and integrated capabilities (para 7.20). Ideally, when making future platform selections, a key decision point should be how they contribute to the overall desired effect, and how they will contribute to decision-making superiority and enhanced information security and dominance.<sup>6</sup> Another challenge for the design team will be to address the issue of interoperability with both allied and coalition partners. Coalition interoperability (as distinct from allied/five-eyes) has been an afterthought in force design and acquisitions due to the stovepiped nature of past capability decisions. There is a pressing need to need to achieve 'coalition by design' in the case of our future 5th Gen force.<sup>7</sup>

The language in DWP2016 reflects this significant increase in focus on joint integration:

The Government will increase investment to improve communications, sensors and targeting system integration between various platforms, including the Joint Strike Fighter, Wedgetail, *Hobart Class Air Warfare Destroyers*, *Growlers* and land-based systems—so that their capabilities

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<sup>5</sup> Department of Defence, *2016 Defence White Paper*, p. 18.

<sup>6</sup> Dr Robbin Laird discussed this 'decision point' challenge in a recent article about the Australian Defence White Paper, 'The Role of Platforms in the Extended Battlespace: The Potential Impact of the Aussie Re-Think', *Second Line of Defense*, 28 February 2016, <[www.sldinfo.com/the-role-of-platforms-in-the-extended-battlespace-the-potential-impact-of-the-aussie-re-think/](http://www.sldinfo.com/the-role-of-platforms-in-the-extended-battlespace-the-potential-impact-of-the-aussie-re-think/)> [Accessed 25 March 2016].

<sup>7</sup> The issue of coalition by design for 5th Gen forces has not been addressed by any defence force to date.

can be combined more effectively during joint operations, generating greater potency and lethality.<sup>8</sup>

This does not diminish the core functions of each of the platforms; it clearly recognises that their impact is enhanced by interconnectivity and that will determine how best to operate the platforms in ways which enhance the overall capabilities of the force. To turn this goal into reality will require significant effort by Defence and a reappraisal of how it works, both internally and externally, with industry.

Whilst the Joint construct has been most effective at the operational and tactical levels, the Joint capability design function, in terms of future Concepts, Concept of Operations (CONOPS) and resulting force architectures has not been as effective and in some instances absent. This is evident in the publication of the three single Service Future Plans—RAAF's Plan Jericho, Army's Plan Beersheba and Navy's Plan Pelorus—in the absence of an integrating Joint Plan. For example, there is, as yet, no endorsed Joint future CONOPS<sup>9</sup> which describes how the ADF may wish to operate in the future. Future force design depends on such a Joint CONOPS. In the absence of which the Services are developing their own, which, thankfully, they are doing in cooperation with each other. As noted previously, future platform selections will be dependent on how they contribute to the ultimate desired effect; that effect cannot be defined without a comprehensive Joint future CONOPS.

It is interesting to note the emphasis on the First Principles Review (FPR) in this White Paper. The changes that have occurred to date, and the ongoing implementation, are discussed in quite some detail in 'Section Three: Reform, Resourcing & Implementation'. There appears to be an expectation that FPR will provide the springboard from which to achieve the DWP2016 implementation including the shifts in culture and processes that will be necessary. The strategic centre will "set priorities, manage resources and is responsible for steering the whole organisation to implement the Government's defence policies." (para 7.15) This change will be far more complicated than the words suggest given that previous attempts at cultural change have had only limited success; it takes far more than staff numbers to provide joint design *leadership* as distinct from the tendency to resort to *hierarchical direction*.

With respect to the relationship between Defence and industry, there is much to be done beyond the ongoing redesign of the acquisition process. To again quote the then RAAF Chief, Air Marshal Geoff Brown, in a speech to the Williams Foundation where he said:

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<sup>8</sup> Department of Defence, *2016 Integrated Investment Program*, p. 95, para 5.5.

<sup>9</sup> There have been Joint 'Concepts' published but not a Joint CONOPS.

we actually need industry to help us in the development of this plan (*Plan Jericho*). There's a lot of great technology being developed out there and I think it's essential that we partner with the industrial players so that we can maximise the opportunities of that 5th generation air force. In lots of ways, who better to engage than the people that actually designed us a 5th generation system? For industry, you need to consider how to work with us, not just on a platform basis and not just in terms of a Request For Tender (RFT); we need help with the intellectual horsepower of thinking through how we actually maximise those 5th generation capabilities.<sup>10</sup>

One surprise I have experienced in my consulting work with defence industry over the past seven years is the lack of a comprehensive, balanced, and mature partnership between Defence and defence industry. Defence does not fully utilise the considerable skills in industry to assist with the design of the force. Often the first involvement by industry in the capability development process has been a request for a product brief or to respond to a RFT that often reflects a risk-averse replacement mentality rather than a fresh look at future capability needs. On the rare occasions that I have witnessed the opportunity for defence industry to contribute to force design thinking, the instinctive reaction from some Defence contracting officers is to tell a company that their participation would exclude them from future bidding for any resulting capability project. It is of little surprise that companies shy away from such 'opportunities'. The design and acquisition of new capabilities, and the creation of a true innovation environment, requires a new working relationship between industry and Defence in order to shape how a particular new platform or system contributes to both the service's core missions as well as the effects desired for the whole force.

Despite raising these concerns, I will conclude that DWP2016 has provided clear direction for a significant improvement in the arena of Joint integration.

## **Aerospace Forces—The Need for Enablers**

Having acknowledged that at the platform and individual system level this White Paper is more sophisticated, balanced and thoughtful than in the past, and that it has provided clear direction for a significant improvement in the arena of Joint integration, I will now come to the issue of enablers.

DWP2016 states that:

Funding cuts in recent years have led to under-investment in the enablers essential to building a joint and networked force. The Government's decisions in this Defence White Paper recognise the importance of balanced investment in modern advanced ... warfighting systems ... (para 4.62)

This is a significant statement and a most welcome decision, and one which has been a long time coming. In addition to the broader discussion of enablers being given more emphasis, there is a recognition of the fact that

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<sup>10</sup> Air Marshal Geoff Brown, CAF Speech to Williams Foundation Dinner, 29 May 2015.

preparedness cannot happen by sheer force of will and willingness; it needs to be funded, and therefore it needs to be better understood. It will be interesting to see how the current and subsequent governments achieve this goal, given that most of the enabling capabilities—e.g. logistics systems, health services, ICT and ADF base support services more broadly—are dependent on external service providers and are essentially beyond Defence's and, in some cases, the government's capacity to control.

I will now address two example issues of concern with respect to enablers: Defence Logistics as a whole and Defence fuel supplies.

DWP2016 notes that:

The Government will complete the Defence Logistics Transformation Program in 2016 that provides a once in a generation opportunity to transform Defence's logistics contracts, facilities and systems to drive efficiency. The project is modernising and enhancing Defence's wholesale storage, distribution and land materiel functions ... (para 4.67)

The claim that Defence will “complete” a once in a generation Defence Logistics Transformation Program (DLTP) in 2016 is fanciful at best. As Gary Waters and I discussed in our Kokoda Foundation Study into Defence Logistics in 2014,

the DLTP was initially envisaged as a broad program extending across the full gamut of logistics support. However, the focus has been diverted from this more holistic goal to a much narrower focus on efficiencies in the three main areas of warehouse storage and distribution, land materiel maintenance, and automated identification technologies. The focus might improve warehousing distribution and land systems maintenance support *but there will frankly not be any overall logistics transformation*. The DLTP has thus become a reform initiative rather than a strategic initiative. Furthermore, any real system efficiencies/savings are unlikely to be fully realised until the integrating information systems layer (JP 2077 Phase 2D) is in place.<sup>11</sup>

The “integrated information systems layer” is analogous to the “shared situational awareness” that is foundational to a 5th Gen force—it is a prerequisite to effective operations. JP 2077 has been repeatedly delayed and will not be “completed” in 2016.<sup>12</sup> Until Defence does ‘complete’ a true Defence Logistics transformation, or at least achieve a significant level of transformation, the Defence Logistics system and the associated industry supply chains will remain an ongoing, fundamental, source of risk for ADF operations.

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<sup>11</sup> Gary Waters and John Blackburn, *Australian Defence Logistics: The Need To Enable And Equip Logistics Transformation*, Kokoda Paper, no. 19 (Canberra: Kokoda Foundation, May 2014), p. 23.

<sup>12</sup> JP 2077 Ph 2D is not scheduled to go through second pass until 2017. The Initial Operational Capability (IOC)/Final Operational Capability (FOC) is unknown.

A similar ambitious claim with respect to enablers relates to fuel stockholdings and supplies. The Defence Minister recently stated in the Senate that:

Defence is indeed able to meet its fuel requirements through its own stockholdings ... in relation to logistics support ... It is an area of enabling capability within Defence that has been significantly underfunded in recent years, and it is one which this white paper most importantly seeks to address and in fact readdress.<sup>13</sup>

DWP2016 notes that “The Government will continue to remediate Defence’s fuel storage and distribution installations and improve Defence’s fuel resilience” (para 4.68). It also states that “In the longer term, the Government will consider ... a potential rail link to RAAF Tindal to support the transporting and handling of explosive ordnance and bulk fuel.” (para 4.81)

The government’s recognition that this area of enabling capability has been significantly underfunded in recent years is well overdue. However, whilst Defence may be able to meet its *training* fuel requirements from its own stockholdings, stockholdings for *operations* are a vastly different matter. As I have reported in my papers on Australia’s lack of fuel supply security,<sup>14</sup> Australia is the only ‘developed’ oil/fuel importing country in the world that has *no* mandated industry stockholdings, *no* government owned stockholdings or *no* government control over any part of the oil/fuel infrastructure. Australia is alone in its total reliance on ‘market forces’ to ensure secure access to fuel.<sup>15</sup> This, in a world that the International Energy Agency (IEA) says faces “a high risk of supply disruption which could have great economic consequences for IEA member countries.”<sup>16</sup>

Considering the example of the DWP2016 proposed rail link for bulk fuel to RAAF Base Tindal, it is a good idea, *if* it also includes plans to ensure that there is rolling stock on the rail system to transport the fuel (*of which there is currently none*) and, *if* the future fuel supply chain risks and resilience between the RAAF Base through the Chinese-run Port of Darwin to the points of supply of refined fuels that currently transit much of the South China Sea had been fully analysed. This has not been done in the government’s 2015 Energy White Paper. Claiming benefits based on a

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<sup>13</sup> Senate Hansard, 25 February 2016, p. 50.

<sup>14</sup> All three of my fuel security reports can be found at: ‘Australia’s Liquid Fuel Security’, NRMA (National Roads & Motorists Association), <[www.mynrma.com.au/about/australias-liquid-fuel-security.htm](http://www.mynrma.com.au/about/australias-liquid-fuel-security.htm)> [Accessed 25 March 2016].

<sup>15</sup> Countries supplying fuel to Australia do not seem as relaxed as Australia about fuel security. Australia sources the majority of its refined fuel from Singapore and other Asian countries, yet ASEAN has been moving towards a regional energy framework which will include voluntary oil stockpiling.

<sup>16</sup> John Blackburn, *Benchmarking Australia’s Transport Energy*, Report for the NRMA, December 2014, <[www.mynrma.com.au/media/Benchmarking\\_Australias\\_Transport\\_Energy\\_Policies\\_Report\\_December\\_2014.pdf](http://www.mynrma.com.au/media/Benchmarking_Australias_Transport_Energy_Policies_Report_December_2014.pdf)> [Accessed 25 March 2016], p. 3.



minor change in a very long fuel supply chain which is largely outside the control and influence of the Australian Government is, again, fanciful at best. To quote Senator Madigan, in a question he posed to the Defence Minister in the Senate following the release of DWP2016, “a well-equipped defence force could become a museum exhibit if it cannot be supported by adequate logistics in a time of conflict.”<sup>17</sup>

Having raised the issue of fuel supply chain risk, I must state my view that this is not an issue that Defence itself can remediate; it is a much broader national issue that must be addressed through mechanisms such as the Energy White Paper; an issue that the 2015 Energy White Paper largely ignored.

In the area of enablers I remain concerned that the government has not recognised the depth of the enabler challenge and has therefore not undertaken a full and frank analysis of associated risks. You cannot remediate a problem if you are not prepared to fully analyse it in order to fully understand it. The ADF is beholden to civil supply chains and commercial imperatives to achieve operational effectiveness. Relying on market forces to provide resilience in critical supply chains is wishful thinking at best and wilful ignorance at worst.

## **DWP2016 Implementation/ Investment**

As stated in my introduction, the Integrated Investment Program that flows from DWP2016 brings together for the first time the major capability related investments including weapons systems and platforms, facilities such as military bases, information and communications technology and workforce. Most important is the funding commitment necessary to implement the ambitious goals, based on a “fully-costed Force Structure Review”, increasing Defence spending to 2 per cent of GDP by 2020-21.<sup>18</sup> It will be interesting to see if the ‘fully costed review’ has been able to project sustainment costs with adequate accuracy, a significant flaw in past budget projections. As I noted in my analysis of the 2013 White Paper in this publication in 2013,<sup>19</sup> the decision to operate the Super Hornets through to 2030, concurrent with the first seventy-two JSFs means operating a mixed fleet as a long-term model which will be more costly due to the overheads of running two fighter aircraft type operating, training, engineering and logistics systems.

An additional challenge in costing the future force is that, as previously noted, there is, as yet, no endorsed Joint future CONOPS which describes how the ADF may wish to operate in the future. Sustainment costs are more

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<sup>17</sup> Senate Hansard, 25 February 2016, p. 50.

<sup>18</sup> Department of Defence, *2016 Defence White Paper*, pp. 14, 24-25.

<sup>19</sup> John Blackburn, ‘The Future for Aerospace Forces’, *Security Challenges*, vol. 9, no. 2 (2013), p. 70.

than the sum of the operating costs of the individual platforms; they depend significantly on *how* the force will train and operate to achieve the effects required by future governments.

## Conclusions

The 2016 Defence White Paper is in my view an impressive document that is a significant improvement on past White Papers. At the aerospace platform and individual system level the White Paper is mature and balanced, and clearly the result of a more comprehensive Force Structure Review than conducted for recent White Papers. There is a clear recognition that the ability of the force to operate effectively will be dependent on the level of force integration. The achievement of this goal will require significant effort by Defence and a reappraisal of how it works, both internally and externally, with industry. Having said that, DWP2016 does provide clear direction for an improvement in the arena of Joint integration.

With respect to force enablers, the recognition that funding cuts in recent years have led to under-investment in the enablers essential to building a joint and networked force is critical, and the increased emphasis on addressing enabling functions is welcome. However, in the discussion of enablers I conclude that the government has not recognised the scale of the enabler challenge and lacks frank analysis of associated risks. Claims that Defence Logistics Transformation will be completed in 2016 and assurances that Defence is indeed able to meet its fuel requirements through its own stockholdings are hollow for those with any depth of knowledge of the reality of Defence Logistics and associated supply chains. You cannot remediate a problem if you are not prepared to fully acknowledge and analyse it; the ADF cannot deploy and operate aerospace forces without resilient enablers.

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