

An Australian View on the US 3rd Offset Strategy

by

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On 3 September 2014, the then-Secretary for Defense Chuck Hagel delivered a keynote speech on innovation to the South-Eastern New England Defense Industry Alliance in Newport, Rhode Island, that was arguably the most important of his tenure. During his speech, Secretary Hagel announced the launch of a Defense Innovation Initiative (DII), being the catalyst within the Department of Defense (DoD) for a major change in strategic direction and the birth of the '3rd Offset Strategy'.

Secretary Hagel's challenge to the DoD, US industry and academic institutions was to identify innovative ways to sustain the military advantage the US has enjoyed post-Cold War and into the 21st century. It recognised the impacts of over ten years of conflict in the Middle East, and the shift in the global geopolitical centre of gravity during a period of increasing fiscal austerity. It stated that 'American dominance in key war fighting domains is eroding, and we must find new and creative ways to sustain, and in some instances expand, our advantages even as we deal with more limited resources.'

To lead the implementation of this initiative, Hagel tasked Deputy Secretary of Defense Bob Work, a former Marine Officer, to develop a new 'game changing offset strategy'. He also tasked Under Secretary of Defense Frank Kendall to review the legal frameworks applicable to DoD acquisitions with an aim to improve the efficiency of military acquisitions and in turn, make the cost of future technologies more affordable.

While critics of this strategy remain divided as to its success, it cannot be disputed that its effects have been pervasive. Of particular relevance to the Australian Defence Force (ADF) are the repeated calls by Deputy Secretary Work for the participation of allies in the development of 3rd Offset initiatives. This provides the Royal Australian Air Force (RAAF) with a plethora of unprecedented opportunities for collaboration across the US defence enterprise, with obvious alignment with Plan *Jericho* objectives and other partner service initiatives. The unanswered question is 'how willing is the ADF to exploit these opportunities and align with the Pentagon's way of thinking, investing and fighting'.

This presentation will provide an overview of the DoD's 3rd Offset Strategy and recently observed impacts, before exploring opportunities for RAAF involvement.

Wing Commander Philip Arms, CSC

Wing Commander Arms joined the Australian Defence Force Academy in 1989, graduating as a pilot in mid-1993. His flying career commenced at No 3 Squadron flying the F/A-18A/B Hornet at RAAF Base Williamtown. In 1999, he was posted to attend the United States Navy Test Pilots School at NAS Patuxent River, Maryland. This led to postings at the RAAF's Aircraft Research and Development Unit, then

as the Lead Test Pilot for Project Air 5376–Hornet Up Grade program (HUG) based initially at Jacksonville, Florida then NAWS China Lake, California as part of the resident transition team in the USA.

Following the successful completion of the HUG 2.2 acceptance test program, WGCDR Arms was posted to Capability Development Group as Deputy Director – Firepower in Jan 2006. This was followed in January 2008 with a posting as Director Aircrew Sustainability Project (ASP) to lead an investigation into the employment of aircrew in the ADF, with the aim to revise the management and remuneration arrangements for this workforce across the three Services. For his work on this project, he received the Conspicuous Service Cross in 2010. In 2010, he assumed command of No 75 Squadron at RAAF Base Tindal in the Northern Territory; a highlight of his career to date. He recently completed a three year posting as Air Staff Officer–Plans and Operations based in Washington, DC. In this role, he engaged at all levels within the US Department of Defense and a broad array of academic institutions as a subject matter expert on the RAAF's application of air power.

Wing Commander Arms is currently the Deputy Director–Future Concepts (DD-FC), a role in which he is responsible to the Director General–Strategy and Planning for the future operating concepts applicable to Air Force. He has over 3000 hours flight time with more than 2300 hours captain on the F/A-18 and has flown over 30 aircraft types.

Wing Commander Arms: Thank you very much for the kind introduction. I think you've covered about a third of my presentation so I should be sweet. Firstly, I'd like to thank the Air Power Development Centre for the opportunity and the platform to talk about the 3rd Offset initiative that's going on in the US and to share my experiences.

As was touched on in the introduction, I've just come back from three years in the US and was very fortunate to get some exposure to a lot of the emerging concepts and technologies that have been focussed predominantly within the US Navy and the US Air Force. I also had a lot to do with the experimentation and wargaming elements that were driving the operational and operating concepts that they're now looking to redefine as part of this offset strategy. The change that's going on in the DoD is nothing short of extraordinary. And it has really changed their warfighting focus from what had previously been a divergence into counter insurgency (COIN). What they've perceived over the last thirteen years in their continual involvement in Afghanistan and the Middle East, is that they've dropped the ball on the high-end warfighting and they're now at a point where they have lost parity or lost superiority in some areas and they're trying to regain that. As was touched on, this really goes to the heart of their approach to warfighting.

What I'd like to do, over the next hour, is provide some insight in to what I saw. This really is a bottom-up view of the 3rd Offset Strategy. I don't have privy or access to the strategic and the high-level diplomatic circles, but what I did certainly see is the implications of this initiative and how it impacted all the stuff in the Pentagon and across the COCOMs [US Combatant Commands]. It would be a big or a tall claim to make to say that the 3rd Offset Strategy is the only thing driving reform in the DoD, given the size of the enterprise, but it certainly is pervasive in pretty much everything you see. They are now starting to throw some

significant resources into areas that are now hooked directly to that strategy and the tasks that were initiated by Hagel.

As a disclaimer, I need to make it clear. These are my own personal views, so for members of the public and media that are with us, this does not at all represent the Departmental view in any way.

How did it start? The then-Secretary of Defense, Chuck Hagel, delivered a keynote speech on Innovation to the South-Eastern New England Defense Industry Alliance back on 3 September 2014. This was his launch for the Defence Innovation Initiative which he then followed up with a memorandum into the Department of Defense later that year in December. It was focussed on realigning the DoD enterprise and how they're going to tackle innovation and, in particular, the challenges that he perceived. Coincidentally, that speech is available online with a lot of the materials that I'll be talking to you about today, and if you want more details, [it's] quite an interesting read.

In his speech, Hagel noted the DoD was facing a period of fiscal uncertainty and to put it in context, 2013 was the sequester that had hit following the failure to ratify their budget. They were all still hurting from the implications of the 2013 sequestration and they were also now facing the looming possibility of a subsequent sequestration in 2015. This didn't actually occur, but what did happen was the enactment of a number of continuing resolutions where essentially new appropriations were stopped. Monies were capped and a lot of their programs were just left in a coast mode. This had big implications for the Department of Defence. The whole reason for that is the US budget was growing at a rate they couldn't contain. Just to put in context, they were looking at \$18 trillion worth of debt to the nation which was still continuing to grow.

The other piece of it that Hagel observed, was that there was a proliferation of destructive technologies and weapons throughout the region—weapons that had only previously been available to advanced nations. What they were specifically concerned about were the ballistic missile technologies, the cyber technologies, the loss of the electromagnetic spectrum and a whole bunch of things that really challenged the US expeditionary model of warfighting. China and Russia starred in his speech as well. He noted that they were investing in comprehensive modernisation programs which had a long-term view. They weren't just short flashes, these were long-term aspirations to try to breach the capability gap that the US had enjoyed.

So to quote Hagel, 'Nations are fielding an array of capabilities designed to counter traditional US military advantages, in particular, our ability to project power to any region across the globe by surging aircraft, ships, troops and supplies'. So in short, this was the first time that a senior US official had publicly declared that the US's model of expeditionary warfare was being challenged. And it was something that the US hadn't had to face or a reality that they hadn't had to address since the 1940's. It was a public declaration that the DoD needed to take proactive steps to counter the growth of anti-access and area-denial capabilities as they are now referred to.

In his Defence Innovation issued in the memorandum, which again is also available online, Hagel identified six areas to be targeted for defence reform and focus towards innovation. Firstly, integrated leadership development practices. This was designed to rethink how they develop their leaders and managers. He wanted to focus on new, long-term research and

development planning programs, with the aim being to seek breakthrough technologies. He wanted to reinvigorate wargaming in order to test alternate ways to achieve strategic advantage. They wanted to develop new operating concepts with a focus to employ resources to greater strategic effect. He wanted to examine the entire business enterprise, looking for better efficiency through external benchmarking and internal reviews. And probably one of the most significant was to develop a defence enterprise approach, which really looked at addressing the issues of policy, acquisition technology and logistics, intelligence and how the Joint Chiefs of Staff authorities related to the military departments. And for those that are unfamiliar with the US C2 [command and control] construct, that last statement really challenges the Goldwater Nichols Act of 1986 which has been the foundation of the C2 construct within the DoD between the Chairman of the Joint Chief's and the Secretary of Defense, and the COCOMs, combatant commanders, on how they actually fight.

Fairly wide-reaching and very deep levels of innovation and reform are being sought. In his speech, Hagel tasked the Deputy Secretary of Defence, Bob Work, who was a former marine, to develop a new, game-changing strategy. That later became coined as the 3rd Offset Strategy within the Defense parts.

Hagel also tasked the Under Secretary of Defence for Acquisition Technology and Logistics, Frank Kendall, to 'overhaul the legal frameworks for DoD acquisition by reducing unnecessary paperwork so that we can focus on key strategic priorities'. In short, that was a review of their business practices and acquisition reforms to make the new technologies more affordable. Sound familiar?

So, what's an offset strategy? Group Captain Green touched on this and I'm going to repeat some of it to try to clarify and provide an example of how it's being used. In its simplest form, an offset strategy is part of a long-term competitive strategy. In essence, it's a competition between rival defence establishments that aims to generate a sustained strategic advantage. The focus has been on nuclear [in the past], but today, it's very heavily focussed towards the conventional means. While it's not solely about technology, there are typically very heavy technology elements. It's all about finding the right combination of technology and operating concepts and constructs to achieve the decision advantage and so bolster conventional deterrents. The effect Hagel is trying to achieve is best illustrated, as it's already been touched on, by both the 1st and the 2nd Offset Strategies that the US has employed.

The first of these occurred in the 1950's, as has been alluded to, under President Eisenhower, and it was referred to as the New Look Strategy. As was touched on, the US was faced with the prospect of growing Soviet forces threatening Eastern Europe. They were given a position where they were now responsible for defending continental Europe. The options they were looking at were the commitment of excessive number of troops and an extraordinary financial commitment in order to sustain or contain this threat. What they did essentially was they looked at the existing technological advantage they had, which was obviously focussed towards nuclear weapons. In essence, they developed a strategy that reduced their military manpower in Europe and had a much heavier reliance, or a reliance on their nuclear dominance as a deterrent. That was the core of the 1st Offset Strategy. Then as history tells, that was successful for a couple years. But then the Soviet Union started to develop their own nuclear program until you got to the point where you entered into the Cold War. That was the lead in to the 2nd Offset Strategy which you could arguably say was a consequence of the first. Self-licking ice cream.

In the 1970's, the 2nd Offset Strategy was the brainchild of the then Secretary of Defense, Harold Brown, and it was just simply titled, Offset Strategy at the time. Again, it was all about trying to contain the nuclear threat in Eastern Europe. Under nuclear parity or the realisation of nuclear assured destruction, which was the assumption that neither force would be willing to accept the risk of taking that course of action, Brown tasked then Defense Advanced Research Projects Agency, or DARPA, which still exists today. They launched an initiative called the Long Range Research Development Planning Program or LRRDPP. The focus of that agency was to tackle this problem. The way they did it was they went out to an industry, they basically did a call to the academic, military and commercial sectors for ideas and innovations. The consequence of that was then ensuring research and development focus on the development of stealth, precision global strike, precision munitions and night vision technology.

The aspiration out of this whole effort was to develop a near-zero-miss, conventional weapons capability. They succeeded in doing this and improving the effectiveness of the US conventional forces so that they would actually have the much more efficient means to achieve victory without having to resort on the nuclear weapon option.

This led to the development of the assault-breaker concept, which some of you may be aware of and also then resulted in the DoD defining their air-land battle concept which really has persisted until the last decade, and still has relevance today. The focus of the air-land battle concept was on the development of precision or smart weapons as we know them today, and the integration of joint battle networks to deploy them. The drivers for this were information technologies, microprocessors and the explosion of ISR [intelligence, surveillance and reconnaissance], stealth and C2 [command and control] networks. As we are all very familiar with, this resulted in the dominance in network precision attack that we saw very effectively employed in both Gulf Wars I and II, and across the Afghanistan AOR [area of responsibility].

Looking at the 1st and 2nd Offset Strategies, what we see are great examples of the deterrence that can be achieved through the application of quality over quantity and that really is the core of what we're looking at again with the 3rd Offset Strategy. The intent of Hagel in his Defense Innovation Initiative is to challenge the defence enterprise in order to identify game-changing initiatives capable of providing a significant military advantage and hence restore deterrence in the United States' favour. Of course, this is all under that nuclear umbrella that still exists today. In its simplest form, the 3rd Offset seeks to ensure that US forces have a capability overmatch in a world of ubiquitous precision munitions now that everyone has parity in those capabilities or those technologies.

What are the characteristics of the 3rd Offset Strategy? In response to the call issued by Hagel, Deputy Secretary of Defense, Robert Work, initiated an oversight structure governed by a new body known as the Advance Capability and Deterrents Panel or ADCP. He appointed himself as the Chair. Members on this include senior leadership from the OSD [Office of the Secretary of Defense] policy, intelligence agencies, members from the armed service, members from the Joint Chiefs of Staff office, key leaders from research and development and also acquisition representatives. Interestingly, having been involved in the LRRDPP, the Long Range Research and Development Planning Program that was part of the 1970's 2nd Offset Strategy, Work reinvigorated this program as one of two key initiatives to instigate his reform. As per the 2nd Offset Strategy, the LRRDPP once again was run by

DARPA and again, went out to solicit industry, academia and defence for ideas across the communities.

The RFI's [requests for information] were released for system concepts that would have significant impact on the US and its partners and allies in the 2030 timeframe. The aim was to identify the necessary steps to turn these concepts into reality. That RFI closed towards the end of last year, end of 2014, and a large number of responses were received and apparently all considered. It has focussed the efforts of the LRRDPP into five core working groups. Those working groups being:

- space and technology,
- undersea technology,
- air dominance and strike technology,
- air and missile defence technology
- and then there's a technology-driven working group.

They're the five categories. And there's a sixth group that they've identified which is referred to as the integration group which basically provides the governance of the five efforts and reports back to the Advanced Capabilities and Deterrents Board which is chaired by Work.

The second key initiative that he instigated was the creation of the Defence Innovation Unit Experimental, DIUX within Silicon Valley. This was a very deliberate attempt, and one of the first attempts by the DoD to establish an organisation that was co-located with the information technology industry drivers. Forty five million dollars was assigned to establish this agency. The DIUX is intended to create a permanent presence in Silicon Valley such that they can identify emerging trends and emergent technologies as they become available through sources that are not traditionally available to the DoD. The ultimate aim is to accelerate the acquisition of these technologies into the hands of the men and women in uniform. Having taken over from Hagel in early 2015, the Secretary of Defense, Ash Carter, launched DIUX 2.0 on the 11th of May, last month, committing further investment into this initiative and it really looks to be getting some steam. There's the websites for both of those agencies if you want to get further information.

The current Secretary of Defense, Ash Carter, has continued to carry the 3rd Offset Initiative. He's seeking financial commitments in the order of \$18 billion over the next five years to develop supporting initiatives. Of this, \$6.3 billion will be allocated to black programs with the remainder being distributed between the six lines of investigation or lines of technology development that I've put up on the slide. There is also significant reshuffle of the existing funds between existing projects to try to accelerate some of the capabilities that they believe are important to achieve the effects they want to generate. The financial year 2017 budget is still going through its process. It's an agonisingly long process and it may or may not be approved, but hopefully it does get approved. But in this budget, there's \$3.8 billion that has been specifically assigned to 3rd Offset Initiatives. In US fiscal terms, \$3.8 billion is chicken feed. This really is the way to start [this program] and the aim is to start slow, [develop] proof of concept and then after proof of concept [phase], accelerate that investment. The plans are to ramp this up and try to achieve it in the time frame they need.

Across the six technologies I've listed, the apportionment is as follows. They've put \$1 billion into counter-A2AD [anti-access/area denial] in this financial year 17. Half a billion dollars into guided munitions, another half into undersea warfare, around \$300 million into cyber and electronic warfare, \$200 million into human-machine teaming or autonomy

and AI [artificial intelligence], and \$155 million into wargaming. That would be a nice budget for wargaming. But as I said, that's chicken feed and that's financial year 17 to start with. As you can see from the apportionment, much of the technology or much of the resources are allocated towards Air Force and Navy capabilities and the greatest allocation of those resources is towards the counter-A2AD, the counter anti-access and area denial.

While this list isn't exhaustive, you can see that there's a significant investment towards the technology element. The other parts that were identified by Hagel in his original speech are existing, but they're more on the backburner.

What were the implications that I observed across at the US defence enterprise? Well firstly, I'd just like to have a quick discussion about the academic and research institutions and the activities that I observed within those organisations. This slide shows a couple of the agencies and some of the main players in this space. Firstly, looking at academia. The Center for Strategic and Budgetary Analysis, CSBA, is an organisation that sits external to Defense but obviously informs them on a lot of issues. They led the think tank analysis on this topic with the publication of an internal analysis on the 3rd Offset when it was first announced, titled *Reforming the 3rd Offset as a 21st Century model for Defense*, written by Robert Arbitrage. Again, that also is available online and is quite a good read.

That was groundbreaking in that it started the dialogue and put concepts out there with this instigation of what they refer to as the global surveillance and strike concept. This was advocating that the DoD would need to develop a force that wasn't focussed on a particular technology or a particular solution, but rather an aggregation of how the systems all come together. [It] started the dialogue about balanced, resilient, responsive and scalable type attributes. When they talk balanced, what they're really referring to is something known as a high-low mix, which you'll hear as we go through talking about the repurposing of existing low technology weapons and how they integrate with high technology weapons. [It] acknowledges the fact that exquisite technologies are becoming more and more unaffordable and they can't buy the mass or have the capacity that they would like in those areas.

The other agency that's been very actively involved is RAND and RAND have an element assigned to the USAF called RAND Project Air Force. In 2014, they opened the Chinese Aerospace Studies Institute. No surprises for guessing what they're looking at. The Atlantic Institute, as with a number of other semi-commercial and private organisations have also been doing their own analysis. What was interesting with the Atlantic Institute was they conducted a series called The Art of War where they tried to quantify and define the characteristics of a future conflict looking specifically at the trends and the factors that were identified in the 3rd Offset area.

Online also, which we can get access to here in Australia, is a series produced by the War on the Rocks [publication], called Beyond Offset. That's starting to publish a whole series of articles, a lot of them coming out of the Atlantic Institute on some of the characteristics of how this will shape up. That's really only to name a few. There are an extraordinary and increasing number of publications that are coming out now and the academic debate is well and truly alive.

On the research front, again DARPA (Defence Advanced Research Projects Authority) stars. In addition to hosting the LRRDPP, they also have a number of research activities and, of course, a number of activities they work on are in the black area with many being

unacknowledged I'm assuming. But one of the more public ones is the hypersonic research programs they're looking at. These are looking at both boosted and hypersonic glide vehicle developments and how they can be weaponised.

There is an agency called the Strategic Capabilities Office which was a black agency no-one knew about until Deputy Secretary Work announced its existence. I don't know whether that was intentional or not. He used to be part of it. But they focused on heavily repurposing the conventional weapons and the inventory of conventional weapons to achieve asymmetric advantages. They're particularly looking at investments in weapons to counter hardened and buried targets and guidance technologies that will counter the loss of space or the denial of GPS, precision navigation and timing. A lot of this is focussed towards the JDAM [Joint Direct Attack Munition] family of weapons which we have in our inventory.

Of course, there's the Center for the New American Security, CNAS, which is focussing on 3D printing and other areas of robotics which they'd like to exploit.

While I've touched on a couple of the publicly acknowledged programs, this really is the tip of the iceberg to all of this stuff that's going on. A lot of it is also publicly acknowledged but certainly a significant amount that is not acknowledged and is occurring within the DoD.

Within the Department of Defense, there have also been some significant commitments, within the Pentagon itself. What I observed was a very deliberate and proactive effort to try to redefine their concept framework and this basically started with the rewrite of the Capstone Concept for Joint Operations. What that was predicated on was a very healthy debate within the Pentagon on their strategy, their security and defence posture strategy which was really trying to work out whether they needed to pursue an offshore balance versus a power projection type of approach. That's significant in that whichever they decide to go will significantly shape which technologies they prioritise and where they invest, because they're obviously very different needs.

But going back to the Capstone Concept for Joint Operations. This was significant in that it started to identify some of the characteristics of this future threat. They have identified, and this is again publicly available, that future entry operations will be contested. This is something the US has enjoyed in the past, not having to fight their way into the AOR. There are scenarios where the US now acknowledges that they will be fighting a peer adversary. So in the lexicon of near-peer, dominance or superiority has pretty much now been removed, from my experience, and they're now talking openly about having to fight a peer adversary. Of course, they're talking about China.

There was a lot of discussion about the need to retaliate and that the first strike that the US forces will experience will not be their own. The adversary will have the initiative and they [the US forces] will have to reconstitute and then attack, having been hit first. This again is a significant change in the way they consider their warfighting. There is an agreement that every domain will be contested and that some of these domains they are no longer superior in—particularly the cyber domain. The space domain is equally contested, electromagnetic spectrum is also assumed to be dominated by the adversary. And that there will be a very high, or very rapid temporal element to the future conflict in that they cannot assume that they'll be able to go in and achieve their dominance and then conduct their manoeuvre at their own time frame. Both shall have to open a temporal window in order to be able to do what they want to do. Some significant changes to the way they've been fighting previously

and a recognition that their investments into some of the technologies that they've made don't necessarily support the characteristics of this future conflict.

Another area I saw and was actively involved in, within the Pentagon, was the evolution of the air-sea battle concept. The air-sea battle concept was previously a joint concept, predominantly between the US Navy and the US Air Force, looking at how they would counter anti-access/area denial threats to their expeditionary model. That has now evolved into what's known as the JAMGC or joint access and manoeuvre in the global commons which has taken what was a bi-service concept with buy-in from the Army and Marine Corps. It is now essentially doctrine where the DoD is now defining a joint operating concept.

The JAMGC attempted to refocus the DoD back from COIN [counterinsurgency] to the high-end warfighting part of the equation. [It also] identified that they had invested or under-invested in a lot of the high-end technologies they needed to ensure parity or superiority in terms of capability. It identified that the future warfighting environment will require much higher levels of integration—specifically, a need for cross-domain synergy, which is the buzz word that comes out of that one. It talks about greater integration between low-signature and high-signature forces and for those that aren't familiar with that terminology, low-signature forces are the ones they would commit into the contested/denied environment and typically they fall in five categories. Special forces, cyber, space, stealth and submarines are really their front line in the first punch. The aim is that there would be a greater integration between the low-signature [forces] going in followed by the masses of high-signature forces.

It identifies specifically the logistical challenges, or the challenges to their logistical networks of having to resupply within a contested environment and that they are in no-way structured to be able to support that through their hub-and-spoke mechanisms for logistics. It acknowledges that space would be highly contested and likely denied. It also re-establishes the need for global strike and again long-range and autonomous systems are a key characteristic to come out of this. Staying outside of the denied environment and being able to reach a strategic effect into the environment at an acceptable level of risk. This has provided, essentially, reinvigoration of their nuclear triad and it's also given a significant priority towards the development of the long-range strike bomber where the contract was recently awarded. I think the B-21 is the terminology now being referred to.

Within the USAF and the US Navy, [these are] some of the things I saw. The USAF launched a program called Air Dominance 2030. Again, this has only recently been publicly declared and there's some significant reporting that, at the moment, we haven't yet had access to. But it is looking to identify the requirements for air control beyond the F-35 and the F-22. Importantly, what's changing with Air Dominance 2030 is to move away from a single-platform solution consistent with what CSBA advocated, to look at a high-low mix and how they would have a force composition that would look at the existing technologies of today and then integrate that with a limited number of very exquisite technologies. The USAF are investing a lot in cyber. Computer network attack and computer network defence and interestingly, so is the US Army. In fact, a lot of the tactical implementation of cyber is being assigned to the US Army with significant restructuring of their units in order to develop capabilities that can be apportioned and assigned at the tactical and operational levels to a CJTF-type construct, a joint task force construct. They've got some significant challenges which they were working through when I left, looking at how the C2 would work. With cyber being considered to be a national-type capability, how you would then delegate that command authority down to the tactical level for cyber fires.

There's also significant investments in weapons. What you see on the slide there, top left is the high power and microwave concept which is repurposing a JASSM [joint air-to-surface standoff missile] weapon, to put a high powered microwave on it, make it low-observable and fly it within an AOR where they can target non-kinetic effects to try and shut down adversary systems and networks. That program is referred to as the Counter-electronic High Power Microwave Advanced Missile Project or CHAMP—they love the acronyms. Then down the bottom, you see a directed-energy weapon and the laser has arrived. Everyone says it's five years away, well it's here now. Their airborne laser failed because of the structural integrity of the 747 platform. Ground-based lasers, though, are now getting a lot more investment and what you see there is a counter-satellite capability.

Within the US Navy, again there's a significant investment. A lot of their focus is towards the development and maturation of the cooperative engagement capabilities. There's been a significant acceleration in their investment and research towards Naval Integrated Fire Control-Counter Air or NIFCA-CA as its referred to. [It gets inputs] from the sea and from the air. This capability, which is shown bottom left with the USS *John Paul Jones* firing a whole bunch of SM6's [standard missile 6], is all about aggregating the systems of systems approach and redefining the kill chain. Any element, whether you're a launch platform, whether you're a guiding platform or whether you're a sensor that's doing the initial detection, can basically integrate with any other platform. The focus is to give greater reliability to a system so that if you lose a particular element, you don't lose your entire capability. The second is to give them the means to engage, to increase the number of engagement opportunities against adversaries making attacks against them. This system is currently at sea with the Seventh Fleet, operating within the Pacific AOR right now.

There's been a lot of development in the electromagnetic projectile gun or the rail gun as it's known, which you can see in the middle there. That thing is pretty awesome. It fires a projectile at mach 7, and the importance of the capability is it significantly increases the magazine capacity for the ships. You don't have to worry about a \$5 million SM6; you shoot a \$25 000 projectile which is about the size of a rolled-up piece of paper and you can have hundreds of these onboard as opposed to the 70 they are currently limited to with the SM6-type variant. That's going through 'marinisation' and sea trials are being accelerated for fleet use.

Up on the top right, you can see a proof of concept, the X-45 which is the Unmanned Carrier Airborne Surveillance and Strike or UCLASS program which is looking to fly unmanned vehicles off an aircraft carrier. That has proven successful.

Finally, from the Navy perspective, they do enjoy the moment—an overmatch in terms of the undersea warfare element but they're certainly not slowing down their investment in that area. They're accelerating their advancement of undersea, or unmanned undersea capabilities including ISR and weapons and they're looking to ensure that they can maintain their stealth advantage with the submarine fleet.

That shopping list was just a touch on some of the things that I personally saw but there. A lot of stuff is going on and it's all focussed towards trying re-establish that balance in the anti-access/area denial environment where the US, at the moment, feel as if they've lost their advantage.

On the industry side, and as I touched on at the very start, there was a call to Under Secretary Kendall to reinvigorate the industry support towards Defense. The capstone to this effort that Kendall has launched is his program called Better Buying Power, or BBP. This existed prior to the 3rd Offset lexicon but has been reinvigorated into the BBP3.0 initiative. The aims of this and I'll quote, 'BBP3.0 will focus on the ways we pursue innovation and acquire technology. We aim to look for ways to reduce cycle time for product development, examining the barriers for the greater user of commercial and international sources of technology'.

BBP3.0 was broken into 34 different tasks which come under a whole bunch of general guidance. Each task then has general guidance and a series of specific actions engaging directly with industry trying to invigorate the way in which they can support Defense. Broadly speaking, they're in eight categories and they're the ones I've listed up there on the board. Affordable Programs, Controlling Lifecycle Costs, Incentives to both Productivity and Innovation, Elimination of Unproductive Process and Bureaucracy (that'd be good), Production of Competition, and Improved Acquisition Processes which really provides hooks into the improved professionalism and the acquisition workforce. The catchphrase for BBP3.0, is 'to achieve dominant capabilities through technical excellence and innovation'. You can see where they're going.

This initiative is echoed in the Pentagon with some of the work that they've been doing and in particular they've been focussing on trying to achieve greater efficiencies within their Joint Requirements Oversight Council, or JROC. Essentially, this is their senior committee which any new projects will go to for a decision on whether they will continue to be funded. It's aptly been titled previously 'The Valley of Death' because anything that goes there, either doesn't come back out or it come out in a very different form or shape. Typically, the JROC process has taken in excess of nine to 12 months to get a project through. Over the last financial year, they've managed to bring this down to six months and they've got aspirations, which they believe are realistic, to further accelerate that process down to about three months in order to try and move the technology into acquisition a lot quicker.

Now to the important part—what does it mean for us? What are the implications for Australia? Well, there's always been a consistent message to allies that they want to get us involved. That was firstly trumpeted by Hagel then by Carter and it's certainly been echoed by Bob Work that the US can no longer do it alone. That's the key lexicon that is coming out of the dialogue and the readings. The US acknowledge they don't have all the good ideas and they certainly can't carry the technological or financial burden that's associated with the development of these capabilities in isolation. There's a very strong academic debate in the US with regards to the role of allies in the development of such an offset and how they would play. That's exemplified in a quote from an academic, Andy Massie, who was referring to the 2nd Offset Strategy when he says 'A strategic nuclear deterrence is sacrosanct. It's the ultimate arbiter in the great power competition but the real advantage that the US exercised to offset the Soviet Union was their web of alliances and the generation of a global system of trade'. That is echoed again in the 3rd Offset Strategy. So the value of alliances and allies to the power base within the US is well recognised and there's a very strong emphasis as we reiterated as recently as the Shangri-La dialogue earlier this month by both Carter and Senator McCain for the need for alliances—particularly within South East Asia and the Pacific region.

Given the emergence of China as a global force and the importance of the Pacific area of responsibility to the US which is evident with the rebalance that Obama announced a couple of years ago, Australia whether we like it or not has a ringside seat in this fight. You could almost argue that we are inside the ring in this fight in a number of areas. Secretary Work often speaks publicly of the role of allies. He's mentioned it in a couple of his speeches, certainly advocating for the collaboration on the development of operating concepts, stealth-specific technologies and investment in future capabilities. Work has called for the US to approach the development of military specialisations as an alliance, exploring what other countries can bring. There's a very strong and consistent call to share the burden in order to reduce the technology gap. He encourages allies to push the boundaries of innovation and collaboration. So the message is pretty clear and it has been very consistently transmitted since this thing started.

From an Australian perspective, my perception is that we have significant currency and credibility in the eyes of the DoD and we should basically take advantage of this. Within the Pentagon, there is an extraordinary willingness and an appetite for ADF participation in a number of areas that were previously denied and previously very highly classified. I personally saw this across the US Navy and US Air Force enterprise and also within the staff of the Joint Chiefs. My view on this environment today is that we have an unprecedented opportunity for collaboration within the DoD on an area that's very closely aligned with the objectives and where we want to go from an Australian perspective, given the fact that we are geographically located within the middle of what's going on.

In conclusion, many of the themes of the 3rd Offset lexicon are being echoed in the First Principles Review that we hear today. It's strategy driven, it's about developing an integrated force, it's about streamlining the acquisition processes. This presents an alignment between the DoD and the ADF which we're seeing at the moment, particularly with the *Jericho* program at work. The smart-buy initiative, the efforts and focus of our science and technology initiatives, the areas of operation analysis and wargaming, the joint forces concept and the development of operating concepts.

My view is that there is genuine opportunity there today, across a broad range of programs within the US defence enterprise, both at the tactical operation and strategic levels—both within defence, industry and the academic institutions. This gives us an unprecedented opportunity to enhance the effectiveness of our future force and ensure that the highest levels of integration between the ADF and the DoD are maintained in the future. With these aligned objectives and our significant currency, I think the ADF would benefit significantly from capitalising on the opportunities that are currently available. It's on this basis that I advocate that the RAAF, and the ADF more importantly, should exploit these opportunities to the greatest extent possible.

Note: Words in square brackets [] have been added to the transcript during the editing process for clarity.