STRATEGIC INSIGHTS

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Wedgetail:
Australia's eagle-eyed sentinel

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AUSTRALIAN STRATEGIC POLICY INSTITUTE

by Dr Carlo Kopp

Recent reports of project delays in the Wedgetail Airborne Early Warning and Control (AEW&C) program have brought this important Defence project yet again into the media spotlight. It is unfortunate that the Wedgetail has been the subject of ongoing controversy since 2000, as it is absolutely critical to the RAAF's future combat capability.

No matter what choices Australia makes for its future fighter fleets, aerial refuelling fleets and other key capabilities, the Wedgetail AEW&C system is a pivotal capability at the core of the RAAF's fleet. Indeed, in some contingencies, Australia would do well to operate a fleet larger than the six currently on order.

This ASPI *Strategic Insight* explains why the Wedgetail is so important to the Australian Defence Force (ADF), and provides the reader with some understanding of this complex program.

The first prototype of the Wedgetail AEW&C aircraft banks over Sydney during a March, 2005 visit to Australia. The aircraft is painted in the livery of the RAAF 2 Squadron, the eventual operator of these aircraft. © Department of Defence

...information has become the new 'high ground' in combat. All else being equal, the side which can better gather, process and distribute information will have a decisive advantage over its opponent.

Information—holding the high ground in modern war

In the twenty-first century, we see most developed nation states using military technologies that emerged during the last decades of the Cold War. These technologies include advanced smart weapons, a wide range of imaging and radar sensors, advanced navigation technologies, modern computing and communications, and stealth. As a result, the lethality of modern aircraft, missiles, warships and land warfare assets vastly exceeds that of systems in use mere decades ago. This is especially true of missiles and smart munitions, which are hundreds of times more effective compared to the unguided or 'dumb' weapons which dominated wars until the 1960s. Now, if a target can be found, the odds are very good it can be destroyed by a smart weapon.

In this kind of environment, information has become the new 'high ground' in combat. All else being equal, the side which can better gather, process and distribute information will have a decisive advantage over its opponent.

A shift towards high-tech weaponry has been gathering momentum since the 1980s, and is now the prevailing trend in military investment, across the services. Defence projects are dominated by technologies intended to gather, process and distribute information, or to deny that advantage to an opponent.

In current and future conflicts between developed nations, the primary contest will be over the ability to gather and distribute information, and to persist in contested space. The highest priority targets will therefore be the opponent's surveillance, battle management and networking assets.

As the history of aerial combat over recent decades clearly demonstrates, nations which have had an advantage in such capabilities have repeatedly prevailed in combat. The Wedgetail AEW&C system will be the critical hub in ADF capabilities for gathering, processing and distributing information about airborne threats to ADF forces. There is no substitute for its capabilities.

Genesis of AEW&C

Radar is the primary means of surveilling aerial targets, due to its unique ability to penetrate inclement weather and measure the position and speed of airborne targets at large distances.

Even the relatively simple radar technology of the 1940s era produced a decisive effect in aerial and maritime warfare.

Even the relatively simple radar technology of the 1940s era produced a decisive effect in aerial and maritime warfare. The Battle of Britain would not have been won by the Royal Air Force (RAF) without radar, and the often prohibitive losses experienced by Allied bombers over Germany can be largely credited to the extensive network of radars used by the Germans. The radars of this period were large and cumbersome, and those required for surveillance of large volumes of airspace could only be installed in ground installations or warships.

Both sides learned very early that their best means of evading detection by an opponent's radar was to exploit the curvature of the earth, by hiding below the horizon of the radar. For example, in the Pacific during WWII the US Navy fleet faced Japanese kamikaze suicide air attacks. Early warning of impending attacks was critical to preparing gun batteries and launching fighter aircraft to intercept them. The Japanese soon learned to approach warships at low altitude to avoid early detection, and to provide their opponents with as little warning time as possible. Enormous losses were suffered in warships and personnel during this period.

The geometry problem of radar early warning against aerial threats is simple in concept, if not in detail. Microwave radars designed to detect aircraft are limited to little more than the line of sight between the radar and a target, and cannot see beyond the horizon. (Over The Horizon Backscatter (OTH-B) and Surface Wave radars have the capability to see over the horizon, but lack the accuracy and height finding capability of microwave radars). This limitation presents real problems when controlling and managing intercepts using fighter aircraft.

Because the surface of the earth is curved, the elevation of the radar antenna determines the distance at which a low flying target can be detected. If the radar elevation is metres or tens of metres, the radar horizon is merely miles or tens of miles away respectively. Beyond that distance, the radar is blind to a low flying target. Charts 1 and 2 illustrate this effect. The greater the elevation of the radar antenna, the greater the distance at which low flying targets can be seen.

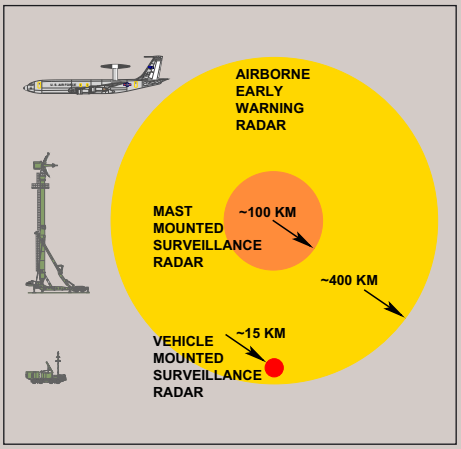

Chart 1 © 2006, Carlo Kopp

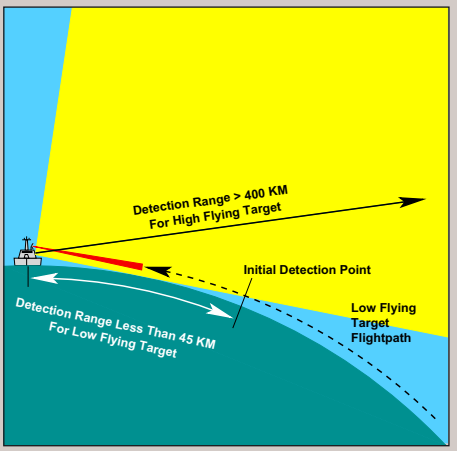

Chart 2 © 2006, Carlo Kopp

The area that can be surveilled increases with the square of distance so, in terms of area coverage, the actual impact of antenna elevation is much greater. Because of the altitude at which it can operate, a typical AEW&C system can surveil against low-flying targets over an area many hundreds of times greater than a typical surface based radar of similar size and performance.

A United States Navy EC-121 K (WV-2) Warning Star AEW&C aircraft, which entered service during the 1950s. Based on the Super Constellation airliner, this aircraft was equipped with an APS-20 surveillance radar and APS-45 height finding radar, later replaced by the APS-95 and APS-103. The Warning Star played a crucial role in the Vietnam conflict. Photo courtesy United States Navy

The first experimental AEW&C system was developed by the US Navy during the last years of the war, leading to the deployment in late 1945 of the first operational system, the TBM-3W based on the single-engined Grumman TBM torpedo bomber fitted with an APS-20 radar. It was soon followed into service by the much larger PB-1W AEW&C system, based on the B-17G Flying Fortress airframe and fitted with the same radar.

The next generation of AEW&C aircraft emerged a decade later, when the Lockheed Super Constellation airliner was adapted to carry the APS-20 radar. It was designated the EC-121 Warning Star by the US Air Force and WV-2 by the US Navy. Concurrently, the US Navy developed the twin engine Grumman E-1 Tracer for deployment on carriers, followed in 1965 by the larger Grumman E-2A Hawkeye. These aircraft played a major role during the Vietnam conflict, tracking North Vietnamese fighters and warning US bombers of impending fighter intercepts. They made a key contribution to the heavy losses suffered by the North Vietnamese Air Force.

The 1970s saw further evolution in AEW&C technology. The US Air Force developed the Boeing E-3 AWACS (Airborne Warning and Control System), based on the much-larger Boeing 707 airframe and the APY-1 radar, which added the innovation of electronic height finding of targets. With eleven operator consoles, the AWACS was a genuine battle management system, built to track hundreds of targets and manage dozens of intercepts concurrently. In a European war, the AWACS would have played a critical role in the air war against the Warsaw Pact. The E-3 remains the global benchmark in AEW&C capability and variants are now flown by the US, NATO, UK, France and Saudi Arabia.

Britain's E-3D AWACS was introduced after the collapse in 1986 of the UK developed British Aerospace Nimrod AEW.3 program, initiated during the late 1960s. The Nimrod AEW.3 was an ambitious attempt to develop a British AEW&C system, mating a GEC-Marconi radar system with the Nimrod aircraft, the latter being an evolution of the DH Comet airliner.

No AEW&C system to date has been fielded without a protracted development and testing cycle...

An E-3A Sentry AWACS aircraft flies over the Saudi desert during operation Desert Shield in 1990. The E-3 AWACS is based on the Boeing 707-320 airliner, and remains the benchmark in AEW&C capabilities. Photo courtesy United States Air Force

Unfortunately the radar design fell short of needs, and numerous problems arose due to poorly defined requirements and poor systems integration and engineering. Many billions over budget and years late, the RAF finally gave up and abandoned the project.

AEW&C systems remain amongst the most complex airborne systems in existence, being of similar complexity to the combat systems in major warships. No AEW&C system to date has been fielded without a protracted development and testing cycle, so the recently announced delay to Wedgetail should not come as a great surprise.

The AEW&C in action

In 1982 Argentina invaded the British Falkland Islands, resulting in the dispatch of a naval task force to recapture the territory. Concurrently, Israel invaded Lebanon, in a campaign intended to crush the Palestine Liberation Organisation. These two military campaigns are important as they provide contrasting pictures of air combat with and without AEW&C support.

When the Royal Navy task force reached the Falklands, it suffered repeated air attacks by Argentinian Mirage, A-4 Skyhawk and Super-Etendard fighters armed with dumb bombs and a handful of Exocet anti-shipping cruise missiles. The results of the conflict were sobering. The British had no AEW&C capability, which forced British Sea Harrier fighters to fly extended patrols, supported by radar picket ships.

While the Argentines suffered the loss of fifty-two fighters to British Harriers and shipboard surface-to-air missiles, Britain lost six ships and suffered heavy damage to five warships as a result of bombing or Exocet attacks. Most of these attacks succeeded because the Argentine fighters managed to bypass the Harrier patrols, flying at very low altitudes to evade the shipboard search radars on picket ships. Air and Exocet attacks accounted for well over half of the British dead in this campaign, a terrible price to pay for underinvestment in AEW&C capabilities.

While the British struggled to defeat the Argentines, the Israelis inflicted an overwhelming defeat upon the Syrian forces in Lebanon. Prior to the war, Israel purchased a number of US E-2C Hawkeye AEW&C aircraft, and intensively trained their aircrew to exploit the aircraft.

An E-2C Hawkeye assigned to the 'Wallbangers' of Carrier Airborne Early Warning Squadron (VAW-117) approaches the flight deck of the Nimitz-class aircraft carrier USS John C Stennis (CVN 74) just prior to making an arrested landing. Photo courtesy United States Navy

Israel's AEW&C aircraft shared an important innovation with the US Navy fleet, the addition of a Passive Detection System also known as an Electronic Support Measures (ESM) receiver, designed to identify and locate opposing radar equipment by eavesdropping their transmissions. When the Israelis launched their attack on the extensive Syrian air defence missile network in the Bekaa Valley of Lebanon, the Hawkeyes rapidly pinpointed the Syrian missile batteries for attack.

Over a two day period the Israelis, by exploiting their AEW&C advantage and supporting electronic warfare capabilities, destroyed over eighty Syrian MiGs in air combat, for no losses.

The Syrians initiated a desperate attempt to stop the carnage, and sixty MiG fighters were launched to engage Israeli fighters over Lebanon. The Hawkeyes tracked the Syrian fighters, and these were ambushed by Israeli F-15 and F-16 fighters. Thirty-six Syrian MiGs were lost on the first day. In a second attempt to stop the Israeli attack, fifty MiGs were sortied, and the Israelis shot down every single one. At that point, the Syrians abandoned the ground to the Israelis, and within days Israeli tanks rolled into Beirut.

Over a two day period the Israelis, by exploiting their AEW&C advantage and supporting electronic warfare capabilities, destroyed over eighty MiGs in air combat, for no losses. The Bekaa Valley air battle remains one of the most one-sided victories in recent history.

More recently, when Coalition air forces led by the US opened the Desert Storm air campaign in January 1991, the US deployed its E-3 AWACS to provide almost blanket coverage of Iraqi air space. Saddam's air force, equipped with around 800 aircraft at the outbreak of war, lost thirty-nine aircraft in air combat during the campaign, all shot down by coalition fighters. No coalition aircraft were

Based on a regional airliner airframe, and an electronically steered radar system developed by Ericsson, the SAAB 2000 ERIEYE AEW&C is a compact surveillance system that is well-suited for operations in localised areas such as the Swedish coastline. Australia required a platform with much greater range and endurance, capable of covering a much wider area. © Saab Group

lost to Iraqi fighters and the Iraqi Air Force played no significant role in the war. Similarly, Operation Iraqi Freedom, the invasion of Iraq in 2003, saw AEW&C again providing surveillance of Iraq's air space.

An interesting non-military application of AEW&C capability was in Operation Noble Eagle, the coverage of key portions of continental US airspace initiated after the 9/11 attacks to ensure that no aircraft hijacked by terrorists could be used to attack US targets. While the US has exceptionally good civil radar coverage, it was not extensive enough to provide complete protection and US Air Force and NATO E-3 AWACS and US Navy E-2C aircraft proved critical to securing US airspace.

AEW&C capability is now an essential prerequisite for success in aerial conflict against any capable adversary. The repeated lesson of conflicts since the 1960s is that air forces equipped with AEW&C always prevail over those without.

Most air forces in developed nations now possess or are acquiring AEW&C aircraft, see Chart 3 on page 12. While the E-2C and E-3 remain the most numerous operational AEW&C aircraft, since the 1990s we have seen the development of a range of other, often more affordable, but less capable alternatives.

AEW&C capability is now an essential prerequisite for success in aerial conflict against any capable adversary.

Russia fielded its Beriev A-50 Mainstay AWACs, based on the Il-78 transport airframe and Vega Schmel radar, during the 1980s. Israel developed the Phalcon AEW&C system during the 1980s, using electronically steered phased array radar technology, an important innovation. Sweden also developed its Erieye system during this period, using similar technology, and has exported it to Greece and Brazil, and has offered it to Pakistan. Japan

acquired the E-3C system, fitted to a Boeing 767 airframe. Since then, the Israeli Phalcon radar has been integrated onto the Russian A-50 airframe, ordered by India, while China is developing an indigenous phased-array radar for the KJ-2000 system, also carried on the A-50 airframe.

Boeing and Northrop-Grumman developed the Wedgetail system for Australia and Turkey, and now also for South Korea. The Wedgetail was developed to provide much of the capability of the E-3 AWACS, but in the much smaller and cheaper to operate Boeing 737-700 airframe.

Counter-AEW&C systems

The global drive to equip air forces with AEW&C systems has been paralleled by the development of specialised systems to defeat AEW&C. These fall into 'soft kill' and 'hard kill' categories.

Soft kill defeat of AEW&C involves high power jamming of the AEW&C radar. The best known example in this category is the Russian ground based mobile Topol-E jammer, designed to defeat the E-2C Hawkeye's APS-145 radar system.

Of much greater concern is the emergence of 'hard kill' systems, specifically 'anti-AWACS' or 'AWACS-killer' long range air-to-air missiles. The development of these was initiated by the Soviets during the last months of the Cold War. By design, these are exceptionally long range air-to-air guided missiles that allow a fighter to attack an AEW&C aircraft from a distance great enough to bypass the fighter patrols guarding the AEW&C aircraft.

The Russians have developed two missile designs specifically for this purpose, the Vympel R-37 (AA-X-13 Arrow) and the Novator R-172 (KS-172). They have also claimed the adaptation of the Zvezda Kh-31P (AS-17 Krypton) for this purpose. The R-37 is credited with a range of up to 300 km, and the R-172 up to 400 km. Recent marketing videos for Russian Sukhoi fighters include animations of counter-AWACS attacks using such missiles.

The evolving Asia–Pacific region and AEW&C

The Asia–Pacific is undergoing a deep transformation, as most nations are rapidly industrialising. An unfortunate byproduct of the resulting gains in national wealth has been an unprecedented investment in state-of-the-art military hardware, with Chinese and Indian commitments on a scale rivalling the Warsaw Pact's spending during the last decades of the Cold War.

From a strategic perspective, these changes are the most important seen since the 1940s and 1950s. Most of this military investment is being put into air and naval assets, especially fighter aircraft, smart weapons, cruise missiles, AEW&C aircraft, aerial refuelling aircraft and supporting technologies.

In many respects, Asia is emulating the US model of force structure investment, in which long range offensive striking power is paramount. The most widely acquired weapon system in Asia today is the Russian Sukhoi Su-27 and Su-30 Flanker series fighter. The Flanker is a long range multirole fighter which matches or outperforms the US F-15 Eagle series fighter in most key parameters. Armed with a wide array of air-to-air missiles and equipped with modern radars, and networking equipment, late model Sukhoi fighters outperform Australia's legacy F/A-18A Hornets, even after upgrading, in all respects. Indeed, much to the surprise of the Americans, Indian Su-30K Flankers defeated US Air Force F-15Cs (which are in turn superior to the RAAF's Hornets) in exercises. The Indians exploited the digital datalinks in their Russian jets, as well as the superior

radar range and missile range provided by the Sukhoi weapon system.

Of no less concern is that Russia is exporting and licensing a wide range of smart munitions for the Sukhoi fighters, most of which are direct equivalents to the smart weapons used so successfully by the US in recent conflicts. KAB-500 and KAB-1500 television, radio link, laser and satellite guided bombs, Kh-59 standoff missiles, and Kh-31 anti-radiation missiles are just as lethal as their US, European Union and Israeli counterparts.

Cruise missiles present a formidable challenge to air defences.

The proliferation of these smart bombs and standoff missiles has been paralleled by the legal and illegal acquisition and manufacture in Asia of a wide range of cruise missiles, ranging from supersonic anti-shipping cruise missiles to long range cruise missiles equivalent to the US Tomahawk. Major Asian buyers of these weapons will be deploying them on aircraft, surface warships, submarines, and ground based mobile launchers.

Cruise missiles present a formidable challenge to air defences. All of these low flying weapons are small and difficult to detect on radar, requiring fighters with powerful radars and high performance AEW&C aircraft. Unlike many smart weapons, cruise missiles are essentially autonomous, and do not require highly skilled operators.

Strategists like to think in terms of 'warning times' to the deployment of an opposing capability. Unfortunately, where the nation in question is operating late model Sukhoi fighters, the warning time to the deployment of the latest smart weapon may be extremely short. Software upgrades to in service fighters can be performed in hours, and warstocks of munitions delivered by airlift in a matter of days.

It is important to observe that Sukhoi fighters and associated weapons are much less diverse than their Western equivalents, the latter often resulting in unique combinations of weapons and aircraft systems, requiring sometimes protracted integration effort. The Su-27SKM and Su-30MK, for instance, share common interfaces and weapons options, and any operator of either can opt for almost arbitrary mixes of off the shelf air-to-air missiles or smart bombs, as these have been cleared across all closely related variants of the Flanker.

The notion that Australia is somehow immune to the strategic risks arising from a region where major nations are competitively buying up the latest Russian— and Western— military technology is not credible.

The mere threat of air or cruise missile attack typically results in the diversion of shipping traffic, closure of shipping lanes and ports, and shutdown of vulnerable industries, resulting in significant economic loss.

Australia's 'deep north' and north west are now key economic centres in mineral, metal and energy resource industries. Much of this recently developed economic might is geographically exposed, being situated in underpopulated and remote areas, or in the instance of the North West Shelf and Timor Sea energy industries, offshore. These industries and the shipping lanes required to support them represent a significant and recently developed strategic vulnerability for Australia.

Few recent conflicts have involved invasion of territory, as planned for during the Cold War era. The contemporary play is coercion or punitive attacks, and economic infrastructure of high value is an exceptionally attractive target for military campaign planners. The mere threat of air or cruise missile attack typically results in the diversion of shipping traffic, closure of shipping lanes and ports, and shutdown of vulnerable industries, resulting in significant economic loss.

Good examples include China's coercive missile shots into Taiwanese waters, or the bombing of economic targets in Serbia during the 1999 Allied Force campaign. In both instances, coercive use of power forced an intended shift in policy.

Given Australia's very limited radar coverage, a hijacked airliner could, once over the continent, be flown most of the way to any Australian capital city without being tracked.

Another less visible risk is the possibility of civilian airliners being hijacked in Asia and used for 9/11 style suicide attacks against targets in Australia. Given Australia's very limited radar coverage, a hijacked airliner could, once over the continent, be flown most of the way to any Australian capital city without being tracked. While arguably not strong enough alone a justification for acquiring an AEW&C fleet, it nevertheless is a contingency where having such a fleet would be critical to preventing loss of life.

What the Wedgetail provides the ADF with is the capability to surveil a volume of space at all altitudes, and to direct and manage fighter intercepts against all categories of aerial target. Whether the threat is a cruise missile, a smart bomb equipped fighter, or a transport, the AEW&C system can detect, track, and to some extent identify the threat, and then control fighters which can close with the threat and deal with it.

As the Wedgetail combines a powerful long range surveillance radar, passive detection system, secondary radar and extensive communications suite with an onboard battle management staff, it provides a completely independent and autonomous capability for surveillance and management of engagements. It can be deployed to station, or across the continent at airliner speeds, making it vastly more responsive in a crisis than radar-equipped warships or land-based radars. It is small enough to operate out of any airfield compatible with a commercial Boeing 737 airliner.

Without the Wedgetail's surveillance and control capability, Australia is much less capable against all of the modern air capabilities being acquired across the region. This is true regardless of which fighters Australia may be operating, as the Wedgetail provides wide area surveillance, which fighter radars cannot.

What Australia gets in the Wedgetail

The Wedgetail AEW&C system is often labelled a 'pocket AWACS', insofar as it provides most of the capabilities of the much larger E-3 AWACS, but in an aircraft half the size. In terms of value for money, it should mature to be the most cost-effective AEW&C/AWACS system developed to date.

Much of this capability is a result of the innovative Northrop-Grumman MESA electronically steered phased array surveillance and secondary radar, which provides full 360 degree azimuthal coverage in a lightweight and compact package, competitive against the much larger E-3 radar. The radar is widely regarded to be

exceptionally well suited to detecting and tracking very small targets, including cruise missiles, at very low altitudes.

The Wedgetail has ten operator consoles, nearly the number in the E-3 AWACS. The operators have access to an extensive suite of communications equipment, and a digital network which provides a data 'pipe' to fighter aircraft, warships and Army air defence units.

The Wedgetail AEW&C system ... provides most of the capabilities of the much larger E-3 AWACS, but in an aircraft half the size.

A key capability in the Wedgetail is its ALR-2001 passive surveillance system, which allows the operators to identify, locate and track opposing radars when these are active. A hostile aircraft or missile battery can be identified and tracked soon after turning on its radar. Unlike all earlier AEW&C and AWACS design, the Wedgetail is equipped with a defensive electronic warfare suite designed to detect hostile missile launches, and illumination by laser rangefinders carried by Sukhoi fighters. Wedgetail is also equipped with an infrared jammer to defeat heat-seeking missiles.

Policy, strategy and military doctrine issues for Australia

The introduction of the Wedgetail will require significant development of operational technique and doctrine for the RAAF, but also for the RAN and Army. It is an entirely new capability with which the ADF has no prior experience. While much of the operational and strategic doctrine for the Wedgetail can be adapted from existing US and British doctrine, other policy, strategy and doctrine issues remain to be further developed.

The Wedgetail will provide a valuable expeditionary capability for coalition warfare, as its radar has superior capability against low altitude targets, compared to the E-3 AWACS. Policy guidelines and specific doctrine need

Operator console in a French air force E-3 AWACS aircraft. Digital displays are used to present a situational picture of the surveilled airspace, showing the disposition of friendly, unknown and hostile aircraft. Photo courtesy SIRPA AIR.

to be developed for expeditionary usage in a coalition or foreign environment, as such contingencies may differ from the Australia's regional environment. For instance, post 9/11, much of the NATO AWACS fleet was deployed to the US to supplement inadequate numbers of US operated AWACS.

The Wedgetail also has valuable applications in border surveillance and enforcement of national sovereignty.

The Wedgetail also has valuable applications in border surveillance and enforcement of national sovereignty. A doctrine needs to be developed in detail for such operations. Supporting civil emergency, humanitarian and disaster relief operations with communications and air traffic control is another role which the Wedgetail can perform, as a substitute for inoperative ground based equipment.

The experience of foreign operators, particularly the United States, whose Coast Guard operates AEW&C aircraft in addition to the extensive use the US Air Force makes of AWACS in a wide variety of roles, should be explored carefully to enable Australian policies and procedures to be developed.

From a strategy perspective, an unresolved question is how many Wedgetail aircraft should Australia operate? The currently planned six aircraft are adequate for a range of contingencies, but not all. With long range air and submarine launched cruise missiles arriving in this region, any contingencies involving conflicts between major regional players will require standing 24/7 AEW&C patrols, hundreds of miles from basing. The geography of Australia's north and location of key economic and military assets indicates that eight or nine Wedgetail aircraft would be required for robust coverage. Inadequate numbers result in coverage gaps, which a smart and capable opponent could exploit very effectively.

Another contingency requiring standing patrols are punitive or harassment raids, using small numbers of cruise missile armed fighters. Given the vulnerability of the energy industry to smart weapon attacks, even a small number of such attacks could produce disproportionate economic and political damage.

The survivability of Wedgetail against long range 'AWACS-killer' missiles such as the R-172 and R-37 series is unresolved at present. These appeared in the market well after Wedgetail's defensive suite was defined, and in any event, can be expected to be highly resistant to defensive jamming equipment. The strategic imperative is thus for future Australian fighter aircraft to have the high speed and survivability to operate at the limits of Wedgetail radar coverage, to effect early interception of fighters carrying such missiles.

With the proliferation of advanced Russian fighters, smart weapons, and cruise missiles across Asia, the Wedgetail is the only credible AEW&C system available which can deal with the developing strategic environment.

While the future fighter fleet will necessarily be stealthy aircraft carrying long-range air-to-air missiles, top end performance still matters when intercepting high performance aerial threats. Aircraft in the performance class of the F/A-18A are not credible in such contingencies.

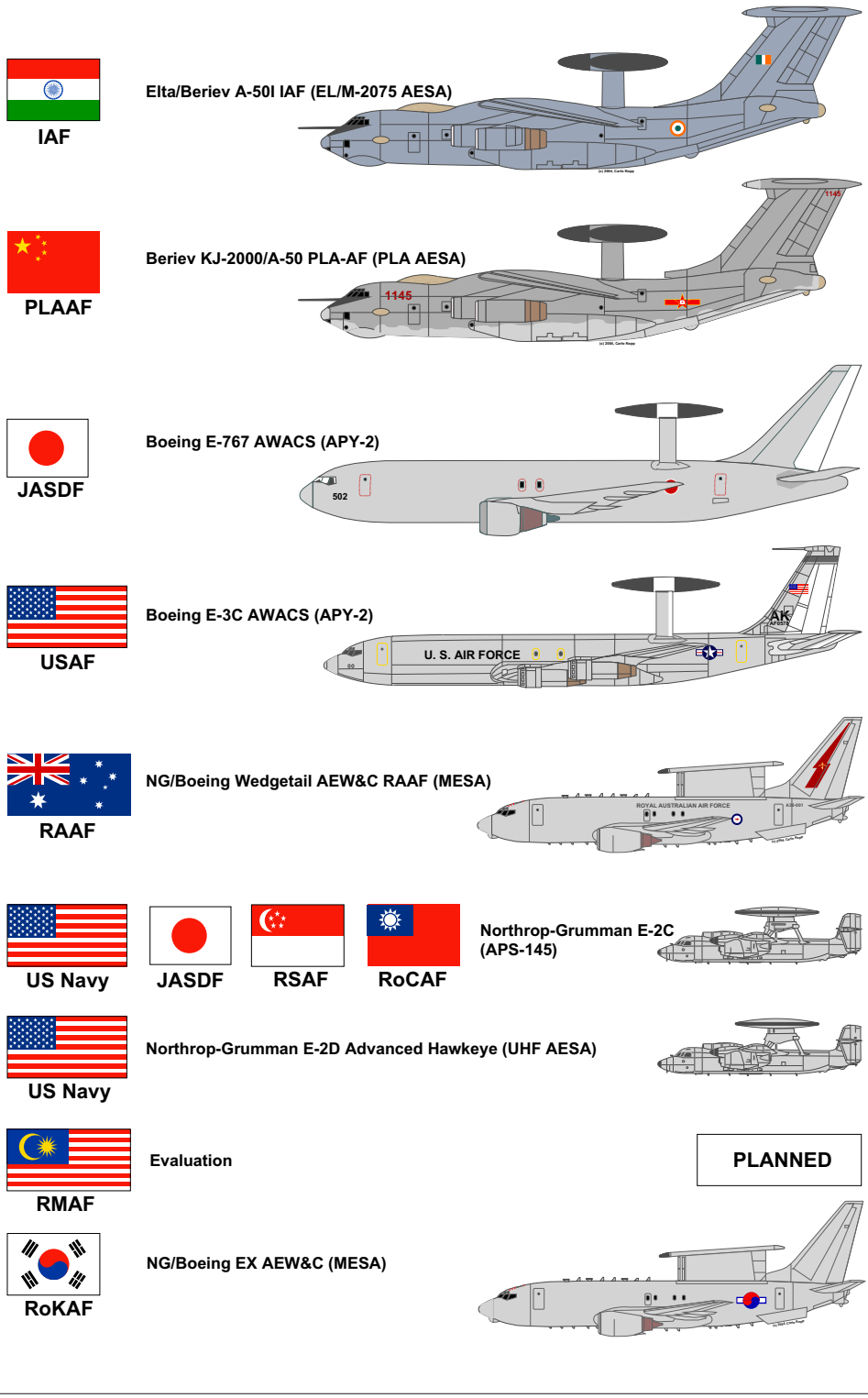

Chart 3. Regional nations are acquiring a wide range of AEW&C aircraft, using US, Israeli and Chinese technology. Image © 2006, Carlo Kopp

Conclusions

Wedgetail is a vital capability for the ADF, providing the only effective means of air defence surveillance and control across Australia's northern geography and maritime approaches. With the proliferation of advanced Russian fighters, smart weapons, and cruise missiles across Asia, the Wedgetail is the only credible AEW&C system available which can deal with the developing strategic environment.

Other than covering basic strategic imperatives in national air defence, the Wedgetail offers a valuable expeditionary capability to support not only coalition military campaigns, but also civil emergency, humanitarian and disaster relief contingencies abroad and in Australia, as well as border surveillance and enforcement of national sovereignty.

A strong strategic argument can be made for the acquisition of additional Wedgetail aircraft. A fleet of eight or nine would allow for a much more comprehensive coverage of Australia's strategic approaches and northern landmass.

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Important disclaimer

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