

# Air combat platforms and ISR

INTERVIEW - LIEUTENANT GENERAL DAVID A DEPTULA, DEPUTY CHIEF OF STAFF FOR ISR, USAF

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Lieutenant General David A Deptula,  
Deputy Chief of Staff for ISR, US Air Force.



Lieutenant General David A. Deptula is a strong advocate of acquiring platforms based on their combat effect rather than the price tag. He says this ‘buying on price’ not combat effect is false economy, as the cost of replicating the combat effects of a true multi-role platform – one that combines air superiority, ISR and offensive strike capabilities – would be many times that of a seemingly high-cost single platform type. This argument is central to the current debate whether the F-22A Raptor is indeed an expensive option when considered against effects-based warfare. Over the past two years he has architected and implemented deep and broad changes to the US Air Force’s machinery for intelligence collection and analysis. LtGen Deptula shared his views on future US air power and capabilities with DefenceToday.

**Defence Today:** A key lesson from the air campaigns of the 1990s was that the flow of information from ISR collection assets to warfighters was often the principal bottleneck in achieving high operational tempo. To what extent did this shape the changes you have implemented within the US Air Force?

**LtGen Deptula:** Four principal tenets have emerged. The first is that ISR is indivisible, meaning we cannot do intelligence without the surveillance and reconnaissance pieces, and that we only do surveillance and reconnaissance to produce intelligence. Second, ISR is all about effects – it is about what happens to a target, and not necessarily how that effect has been accomplished. Decision makers care that a target has been negated, not necessarily what platform accomplished the effect. Third, ISR in the 21st Century is operations, not just support to operations. A key mantra of the war on terrorism has been to ‘find, fix, and finish’ the enemy. If one cannot find or fix the enemy, then the finish cannot happen. Finally, ISR is domain neutral. Militaries operate in five domains – land, maritime, air, space and cyberspace; ISR is not subsumed by any one of these domains, but rather, it’s conducted in all of them.

**Defence Today:** US dominance in ISR capabilities over the past two decades has seen the reactive development of a generation of new ‘counter-ISR’ weapons, including 200 nautical mile range air-to-air and surface-to-air missiles, as well as directed energy weapons and modified ballistic missiles. To



*The US Air Force intend to replace the legacy B-1B and B-52H with a new bomber type post 2018. This bomber will be equipped from the outset to perform ISR functions.*

what extent does this signal a global shift toward information as the high ground to be won, denied or held?

**LtGen Deptula:** Information has always been the high ground in warfare. All the way back to Sun Tzu in The Art of War, written in the 6th Century BC, it extensively emphasizes the importance of intelligence in warfare. What has changed is that with the evolution and globalization of technology, information has become all the more pervasive and more difficult to control.

With the ongoing development of advanced warfighting capabilities, and their proliferation into the hands of potential adversaries, it will be all the more important to aggressively anticipate and tackle the challenges of tomorrow. Without that preparation and without foresightful investment and development we will lose our advantage in the future. We must prepare to counter or, better yet, dissuade enemies yet to emerge in environments yet to materialize. Accordingly, the provision of flexibility of action across a wide spectrum of circumstances should be foremost among the

decision criteria in designing and investing in warfighting capability. To move in this direction I believe every shooter must be a sensor and every sensor must be a shooter. Accordingly, we will also have to move away from segregating the planning and execution of ISR operations separately from strike operations – integration is the name of the game in this regard.

**Defence Today:** Since the end of the Cold War we have seen the US lose most of its traditional penetrating ISR collection capabilities, with an increasing dependence upon large ISR platforms and a plethora of UAVs. With modern counter-ISR weapons likely to challenge the survivability of these ISR collection platforms, will this drive future US Air Force planning back to penetrating ISR collection platforms?

**LtGen Deptula:** I firmly believe that we need to move away from ‘pigeon-holing’ our platforms based on specialty, to exploiting the new technologies to improve our network-centric warfare, by incorporating and integrating every



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platform in our inventory into our ISR enterprise. We will also have to do that in order to negate adversary anti-access capabilities. In the past, platforms designated as ‘intelligence platforms’ were the only ones to conduct intelligence, but the sensor and communications packages on our current platforms can be utilized in new, innovative ways as part of ISR.

Our challenge today is to create the shift from acquisition and operations perspectives that have historically viewed ‘fighters’ as only force application assets to one that views (and designs and builds) aircraft as sensors that feed a knowledge-based architecture. We are in the nascent stages of moving in this direction. Almost every force application aircraft flying in Southwest Asia today has a targeting pod on it that is used more for ISR than for targeting. Such capabilities have become known as ‘non-traditional ISR’. By taking advantage of capabilities such as these inherent on platforms we already have, we can increase our sensor capacity before an additional investment dollar is spent. Now we need to build the concepts of operation that will take us from viewing such capacity as non-traditional ISR, and turning it into routine ISR.

**Defence Today:** The F-22A Raptor has significant ISR capabilities in its existing configuration, with much more to come, as the APG-77(V)2 radar and ALR-94 mature. To what extent does the US Air Force run the risk of overcommitting its F-22A fleet across air dominance, strike, defence suppression and ISR roles?

**LtGen Deptula:** This is an interesting point that highlights the fact that traditional nomenclature constrains understanding of capability. Take, for example, the F-22, which is not simply an air-to-air platform; it’s an F-, A-, B-, E-, EA-, RC-, AWACS...22; and it’s a flying ISR sensor that will allow us to conduct network-centric warfare inside adversary battlespace from the first moments of any conflict in addition to its array of attack capabilities. The fact that it can negate adversary anti-access capabilities, and can operate in denied airspace unconstrained, means we can make use of its ISR capabilities that otherwise would not be available without enormous cost in alternate means. From this perspective, the ‘expense’ argument in regards to this airframe loses steam pretty quickly. It is the focus on capabilities that is important.

As a result of increases in per-unit capability – largely due to technological advances – the idea of unit cost as a measure of merit no longer makes sense; the optimal measure is what kind of effects can be achieved per dollar spent – that is, value. For example, a stealthy, long-range aircraft with the number of weapons it can carry – weapons

that would take hundreds of other aircraft to deliver – becomes one of the most valuable platforms in our inventory – even with a unit cost higher than any other aircraft. Our expenditures must be geared toward those concepts and systems of greatest value that underwrite the appropriate force structure to realize the national security strategy. Our planning, programming, budgeting, and execution system should be adjusted accordingly. Our focus needs to be not on platforms, but on providing optimal, maximized, and seamless ISR capabilities, and that is where we are headed in our Air Force.

We must obtain the force structure appropriate to meet the demands of our National Security Strategy. Two enduring elements of that strategy, regardless of administration, are that America will engage forward in peacetime and fight forward in wartime. Accordingly, the USAF requires sufficient force structure to maintain a rotational base capable of accomplishing these dual mandates. The mechanism for doing that is the Air and Space Expeditionary Force (AEF) construct. AEFs provide joint force commanders with ready and complete air and space forces to execute their plans.

Ten AEFs provide the framework to achieve sufficient expeditionary aerospace forces to sustain rotational base requirements and personnel tempos to meet the dual requirements of our security strategy. With respect to the F-22, the key to Air Force expeditionary force structure is to ensure those ten AEFs are each structured, equipped, and equal in capability and capacity for the variety of missions that the F-22 will be called upon to conduct – and ISR in denied areas may well be what we most value the F-22 for in the future.

**Defence Today:** The Next Generation Long Range Strike platform, or ‘2018 bomber’, has been proposed as a future ISR collection asset. How developed is US Air Force thinking on how to adapt this design to cover ISR collection roles, in addition to the intended strike roles?

**LtGen Deptula:** A capability based approach should be applied across the board for all the Air Force’s future platforms. Tight budgets will now be the norm, so we have to squeeze every capability we can from every platform. With the vast improvements in aircraft and sensor design, every modern aircraft now has the ability to accomplish more than one mission. We need to move forward and act upon the precept that in the future “every shooter is a sensor and every sensor a shooter.” Moreover, we must adapt our doctrine, concepts of operations and implementing regulations so that what we have termed ‘non-traditional ISR’ is no longer considered ‘non-traditional’ but as the normal, day-to-day standard. In this vein, I have drafted an ISR strategy, with an ISR flight plan and CONOPS to follow, to ensure that the ISR capabilities the Air Force platforms provide are seamlessly integrated, now and in the future.

**Defence Today:** The ongoing debate on the utility of UCAVs has been centred largely on strike and defence suppression roles, ISR payloads being seldom mentioned. Given the highly successful Vietnam-era imaging reconnaissance operations flown with Firebee UAVs, what potential does the US Air Force see in future adaptation of UCAVs for penetrating ISR roles, especially imagery collection at low altitudes?

**LtGen Deptula:** As both the MQ-1 Predator and



*The F-22A Raptor is considered a highly expensive aircraft but General Deptula believes is is value for money in terms of the many roles it carries out better than other aircraft. (USAF)*

the MQ-9 Reaper demonstrate, we are already integrating both sensors and shooters into one platform. The approach that every shooter is a sensor and every sensor is a shooter does not just apply to manned aircraft—in fact we are leading the way applying this philosophy with UAS platforms. The J-UCAS (X-45C) aircraft embodied the 'every sensor a shooter' concept. Not only did it carry 2000 lbs of bombs or other munitions but it was equipped with a suite of sensors that included an Active Electronically Scanned Array (AESA) Synthetic Aperture Radar (SAR) with a resolution of 60 cm at 80 km (48 miles). Such powerful sensors need not only be used for strike operations, but can also be applied for reconnaissance and surveillance.

Combat tomorrow will look different than it did yesterday and does today, so too should the military with which we prosecute it. We should take maximum advantage of the asymmetric capabilities we possess with our air, space, and cyber forces. A concerted focus on further developing and expanding these forces would serve us well, as they are uniquely positioned to underpin the kind of defense strategy and force structure appropriate to the kind of complex and much more technological capable adversary that we will face in the future.

**Defence Today:** The latest generation of imaging radars, optical sensors, and now hyperspectral imagers can collect Gygabytes of data in seconds, significantly outstripping the data transfer capacity of available radio-frequency networks and satellite constellations. With serious spectral congestion problems now emerging for military and civil users, how does the US Air Force intend to overcome this problem in the longer term?

**LtGen Deptula:** Data generation potential can outpace communications capabilities. Part of the solution is to transmit only the right data to the right location at the right time. However, as more and more of the world 'logs on' to the information superhighway through more and more devices, new algorithms and new inventions that better use existing bandwidth will also become increasingly important, and these innovations are being examined, developed, and exploited by the Air Force.

The Air Force has several new satellite and communications capabilities that will be employed during the 2010 to 2016 timeframe. One is the Wideband Global Satellite (WGS) that will significantly increase data rates compared to the current Defense Satellite Communications System (DSCS)—one WGS satellite exceeds the bandwidth capability of the entire DSCS constellation. Also, the Advanced Extremely High Frequency (AEHF) system will easily surpass the data transfer capabilities and services provided on existing military communications satellites. Third, the Transformational Satellite (TSAT) will not only



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significantly increase the transfer rate of data, but with an onboard router it will be able to direct data to a specific user. And finally, the family of advanced beyond the line of site terminal (FAB-T) system, will provide the ability to use higher bandwidths provided by the above satellites. Use of FAB-T will enable the WGS throughput to be increased to 274 MBit/second. The FAB-T Increment II is the program of record for the Global Hawk.

**Defence Today:** A key asset that allowed the US to dominate the last decade of the Cold War was a highly developed and skilled technical intelligence analysis capability, which allowed US to develop a technological strategy, which ultimately bankrupted the Soviets. After the Cold War much of this capability was lost in the subsequent downsizing. With the resurgence of Russia's defence industry in a globalised military technology market, proliferation of Russian high technology weapons is becoming a major strategic issue, especially in Asia. How does the US Air Force intend to address the re-emerging need for deep technical intelligence analysis, and collection, in the current budgetary environment?

**LtGen Deptula:** It is essential, given budgets will remain constrained, that we extract the greatest efficiency from all our assets, so we are consolidating our ISR capabilities into Centers of Excellence. In addition to establishing the AF ISR Agency, an AF ISR Center of Excellence at the AF Weapon Center, and streamlining the DCGS command structure, we are also creating an Analysis Center of Excellence and a Targeting Center of Excellence. These organizations will ensure centralized, effective, and efficient analysis and force employment to meet the challenges of a constantly evolving security environment.

**Defence Today:** What are the principal motivations underpinning the restructure of ISR within the US Air Force?

**LtGen Deptula:** To apply these tenets, we have initiated substantial changes in the Air Force ISR structure. First, Air Force ISR has been reorganized into an Air Force-wide enterprise with the AF/A2 designated as the Deputy Chief of Staff for ISR, not just intelligence. The Air Force has established an ISR Agency reporting direct to the AF/A2, and has also codified the command and control of Air Force intelligence processing, exploitation and distribution (PED) capabilities into a single wing reporting to the AF ISR Agency. To further enhance ISR operations, we established theater ISR groups to provide a single point of contact (POC) to Numbered Air Force commanders, and established a special operations forces (SOF) ISR group as a single POC for Air Force Special Operations Command (AFSOC). Meanwhile, to better integrate ISR with Air Force operations we have established an A2 at the Air Warfare Center; established an Air Force ISR Center of Excellence at Nellis AFB, NV; and resourced the Air Force National-Tactical Integration (AF NTI) enterprise. Finally, in order to ensure the most efficient use of one of our most high demand and low density platforms, the AF/A2 has been appointed the Air Force lead on all UAS (Unmanned Aerial Systems) issues and has created an Air Staff UAS Task Force.

#### About LtGen David Deptula:

Previously Commander Kenney Warfighting Headquarters and Vice Commander PACAF, Lieutenant General David Deptula is now DCSAF for ISR, or AF/A2. In the new US Air Force structure, the former Air Intelligence Agency, now the Air Force Intelligence, Surveillance and Reconnaissance Agency, has been realigned. All US Air Force airborne and orbital intelligence collection, reconnaissance and surveillance now fall under the control of AF/A2.



*Unmanned aerial vehicles such as the MQ-9 Reaper combine the ISR with the strike role. (USAF)*



*RC-135 Rivet Joint aircraft are equipped with an array of intelligence gathering equipment. (USAF)*