NATO AIRBORNE ISR FACING A "MOUNTING THREAT"

WORDS RICHARD DE SILVA

The emergence of new conflicts in the past twelve months has forced new demands on airborne ISR assets. In response, intelligence chiefs are calling for major changes to spending priorities before these problems become insurmountable…

Much can happen in a year.

Back in January 2014, former Ukrainian President Viktor Yanukovych was desperately trying to hold onto power in the face of protesting citizens who had gathered at the steps of Kiev city hall. The intensifying situation began to overshadow clashes in the Middle East, where violence had returned in a big way and ISIL – still yet to become a media buzzword – was engaging in yet another infamous battle in the beleaguered city of Fallujah. In the preceding weeks, militaries in western nations had primarily been in a process of downsizing, transitioning to what they believed to be at least a few years focusing on noncombat operations. Yet, one year on, the case for re-opening the coffers to respond to these emergent threats is a strong one.

Given the widespread restrictions on spending, the gathering of intelligence has become a greater priority. Forces now have less flexibility to prepare for all and any scenarios, so access to knowledge becomes a fiscal matter. Good intelligence can prevent wasted resources, redundant platforms, unnecessary deployment, and ultimately allow for better long-term acquisition planning.

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Rear Admiral Brett Heimbigner, director of the Intelligence Division at the NATO International Military Staff, is at this moment preparing to address allies, partners and – perhaps most importantly at this time – the commercial defence industry, as the need for global-scale airborne intelligence grows in line with the need to monitor these troubled national borders. However, his immediate outlook has identified significant shortfalls when it comes to NATO forces delivering an effective airborne capability.

"As far as a unified ISR capability, with the threat increasing on our eastern and southern flank, we need to keep up at that pace," Heimbigner tells Defence IQ. "Presently, I think that there's a challenge and I think anybody that honestly looks at it will agree with me. In fact, at the NATO Summit Wales 2014, it was concluded just recently that we need clear priorities within the Alliance to cope with that."

At the Summit, the Alliance announced the establishment of a permanent Joint ISR system to "provide information and intelligence to key decision-makers, helping them make well-informed, timely and accurate decisions". Exemplifying the "advantages of multinational cooperation,"

JISR aims to combine the data and information gathered through projects such as the Alliance Ground Surveillance (AGS) system and NATO's AWACS aircraft, as well as a wide variety of national JISR assets from the space, air, land and maritime domains. Meanwhile, it was promised that the AEW&C forces will continue to be modernised.

"There is absolutely a need to carry on the development of intelligence gathering," Heimbigner continues. "I will point to the mounting threats and our responsibility to stay vigilant towards the activities in Ukraine and the Russian snap exercises taking place on the border. There are other examples for emerging security challenges and – having this situational awareness – we are responsible to enhance our efforts on the further development of collection and exploitation capabilities and their operational effectiveness."

Many national services within the Alliance are also readdressing their individual airborne ISR capabilities. As confirmed by Brigadier David Evans, the Royal Navy's Head of Information Superiority, in the current and future operating environment, the requirement to generate understanding of the operating environment, across the physical, virtual and cognitive domains, is – and will continue to be – vital.

"We are therefore investing

RADM Brett Heimbigner

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in a broad range of capabilities to improve our situational awareness and understanding in the maritime and littoral," says Evans. "In fact, a key area we are focussing on is in improving our understanding of the Electromagnetic Environment."

As the UK has also scaled back frontline ISR assets and defence spending, the focus has shifted to doing more with existing assets and making the most of low-cost, high-reward technology, such as in greater incorporation of Big Data and enhanced communications and networking.

"Having the right technology is a question of identifying the right requirements, engaging with the science and technology community, and pulling the right technology quickly through the acquisition system," Evans explains. "The best is often the enemy of the good, and getting an 80 percent solution – ideally through COTS – quickly integrated onboard which can then be spirally developed with user input is the best approach. In the coming years, we see maritime and airborne autonomous systems as a key means of increasing our mass and agility, particularly in the ISR space. The emergent technologies of Big Data analytics, autonomy, sensor miniaturisation and the exponential growth of processing power all provide opportunities for collecting and analysing ISR data in novel ways, but the critical point is to deliver the right information to the right people, at the right time, to deliver decision superiority."

"With the current national Agenda, Defence is likely to face further financial pressure. The MoD and the industry must find ways of reducing the cost and time of introducing capability in this area, leveraging investments in the civilian sphere. Spiral development, on the back of demonstrations is attractive."

Evans admits that it is a challenge for the MoD's acquisition processes but that the process remains essential to allow forces to stay ahead of the game against a rapidly changing technology landscape.

"We have a ten year equipment programme that is already stretched. The task is getting this to react to the opportunities that technology offers, so – for example – if we want to have UAVs, what are we willing to sacrifice? A BOI debate has to take place. SDSR may prompt this, but Carrier and CASD do not leave much room to manoeuvre, and the debate from my perspective needs to be a wider, pan-MoD one."

According to Rear Admiral Heimbigner, NATO forces, including those engaged with Operation Resolute Support, generally have access to the right technology, but argues

that they simply do not have enough of it.

"Much of it is executed within national channels and there is some outstanding, advanced technology available to us. But, bottom line, the capacity has to be improved.

"There's a fundamental question in play here. The demand on nations is enormous as the world faces this expanding instability, so we have to ask whether any single nation, or even any small group of nations, can afford this. Do we need to look instead at options that are geared more towards NATO-like collective defence, as for example in the use of AWACS? I strongly believe that that's exactly where we need to be. No single nation can afford to do this unilaterally and since we launched the Smart Defence initiative at the Chicago Summit, an ever growing

Brigadier David Evans

number of multinational projects have been set up to counter this challenge.

"Industry really needs to come up with innovative capabilities so that manpower concerns become less of an issue. We need systems that can cover a much larger area because we have more terrain to deal with. We have to be able to cover more geography in a more effective manner."

Aside to getting more assets out in a wider area in a more rapid manner, the problem on the other end of the spectrum falls to the issue of managing the data being swallowed into these assets and spat back into something that can prove an operational utility with as little delay as possible. Access to more data lessen the odds that important items will be missed, but without an effective system

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to sift through the sheer volume of information that modern technology is able to absorb, it may as well not exist. At worst, a glut of unusable intelligence can end up

drowning the actionable facts and complicating the evidence when it falls into the hands of analysts.

"Data overload is a valid risk," Evans admits, "and unless we invest in the assurance, management, and exploitation of information, we face the danger of being inundated with information that we cannot process. For maritime units, a key issue is where ISR processing and exploitation occurs, and getting the right balance of that which is processed forward and that which returns to 'reachback' capability in the UK is key. Factors that play into this include the constrained bandwidth available to maritime units, the greater

resource and 'gearing' available via reachback, and the minimum capability that needs to be forward in case of C2 denial or disruption."

Heimbigner agrees: "After the issue of getting enough technology, the predominant challenge comes to analysis and dissemination of intelligence given the increasing volumes of data we must now deal with. As more nations are buying more ISR assets, do we have sufficient exploitation capabilities in place to deal with all of this? We do right now, but although the development of the AGS (Alliance Ground Surveillance system) capability is on track, it will become available for operational deployment not

NATO has established JISR that aims to combine data gathered through sources including the Alliance Ground Surveillance (AGS) system.
Image: NATO

Heimbigner and other NATO leaders are keen to continue expansion and modernisation of the E-2D Advanced Hawkeye AWACS fleet

in addition, what we're going to see over time is that we continually underestimate the amount of foreign resources that actually need to be invested when it comes to exploitation.

"Honestly, I anticipate that in due time, the need for an enhancement of the AGS' capacity will have to be explored. I know we've got some fairly smart people working at the numbers, but we will be challenged to adapt to the situation by upscaling our abilities. The amount of people that are going to be required to fully exploit information in the future should never be underestimated."

When it comes to changing the mind-set and adapting the

strategy to tomorrow's world, NATO has further support across its ranks.

"Real change lies at the heart of effective future Airborne ISR and C2 battle management," says Matt Roper, Chief of the Joint ISR Team at NATO's Communications and Information Agency (NCIA). "At both the 2012 Chicago and 2014 Wales NATO Summits, Heads of State and Governments identified enduring ISR and C2 capabilities as amongst the Alliance's most critical capability needs. Successfully delivering these capabilities now more than ever depends upon effective partnering, coordinated collaboration and the timely acceptance and

utilisation of various C2ISR capabilities that are being made available."

To underscore this effort, Roper will return to the chairman's table at the Airborne ISR & C2 BM conference in London, UK, in March (10-12), where Heimbigner, Evans and many other senior officers will be providing first-hand insight for the international community. Leading industry partners will be using the forum to further highlight how their solutions can contribute to change and expansion, including Northrop Grumman providing an update on the E-2 D Advanced Hawkeye, and IAI/ELTA showcasing the capabilities of its spectrum of integrated systems and electromagnetic sensors.

As Roper asserts, "This event is highly relevant amid the current climate and, in addition to being a place for commercial business to take shape, it also offers value-added insight for military operators, governments, R&D communities and academia – all of whom are key to helping solve the current challenges in this critical domain." ◼

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