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Fifth–Generation Intelligence Considerations

Cannot Be Afterthoughts

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Introduction

To unleash the full reconnaissance capabilities of fifth (and future) generation platforms, we need to prioritize and enable their potential for Non-Traditional Intelligence Surveillance and Reconnaissance (NTISR), wherein non-ISR (albeit ISR-capable) platforms are tasked with ISR roles or contribute to ISR concurrently with primary missions. Given NATO's limited ISR coverage, these platforms could provide an invaluable contribution by filling voids in the sensor grid if the fifth-generation community leaders properly prioritize, resource, support, and train NTISR-specific mission-type sets to address other sensor shortfalls. The substantial technological leap of fifth-generation assets brings along a tremendous value for intelligence collection.[1]

To vastly enhance the operational sensor grid demands optimizing such platforms' ISR capabilities. This holds particularly true for NATO and its strained ISR inventory, which only comprises the Alliance Ground Surveillance (AGS) programme's RQ-4D and E-3 Airborne Warning and Control System (AWACS).[2]

The resultant void in NATO's sensor coverage is particularly alarming in today's increasingly contested world, which demands that the Alliance's limited fleet of dedicated ISR assets must expand, namely to include the F-35 Lightning II. Purportedly the 'backbone of NATO', the F-35's enhanced survivability and lethality, even in contested or hostile airspace, will assuredly yield formidable strategic allied advantage, especially if its NTISR capabilities are fully exploited.[3] To mitigate

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NATO's ISR shortfalls, F-35 nations must address three issues in parallel: NTISR must be prioritized, intelligence sharing must be expanded, and requisite intelligence training should be offered to all F-35 nations. Without these approaches, such formidable capability is benched, impacting NATO's effectiveness in an increasingly turbulent and hostile world where every advantage counts. Accordingly, NTISR is one compelling option to augment and assure sensor coverage of the vast area that NATO must maintain and defend.[4]

Proposed Solution to the ISR Gap

Prioritizing and utilizing fifth-generation assets (particularly the F-35) in NTISR roles, increasing intelligence sharing, and furthering international training will significantly address current intelligence shortfalls. This is particularly vital for NATO, given its low density of ISR assets and high demand for ISR. The F-35 community, and in particular Joint Strike Fighter (JSF) programme leads, must first demand and prioritize NTISR to becoming a stated mission. Since NTISR is not part of the normal downloading and Processing, Exploitation,

and Dissemination (PED) process, incorporating download and PED must be accomplished next. If enabled, NTISR capabilities could help address respective national and NATO intelligence priorities and questions, collection requirements, and gaps. In turn, this would bolster NATO as well as JSF allies' national ISR capabilities and battlespace understanding. The F-35's unparalleled collection and fusion capabilities can amplify the overall ISR effort, especially due to its extended ability to penetrate contested or enemy territory with its low-observable design.[5] Its sensors' extended detection range and infiltrating reach can fill intelligence gaps by delivering an enhanced intelligence picture, including a greater fidelity order of battle and even indications and warnings of pending or forthcoming enemy action.

When embedded into the overall Alliance effort, the F-35 in an NTISR role will substantively bolster NATO's sensor grid and subsequently lead to a more accurate recognized threat picture. However, multiple obstacles persist as the F-35's sensors and ability to fuse a complicated battlespace picture place a new requirement for intelligence, operations, training, and

systems to synthesize any F-35 collection into useable intelligence. This requirement comes from the F-35's array of complex sensors and fusion that ostensibly produce vast volumes of information. Thus, understanding and truly harnessing the full scope of this capability levies new requirements on the Command and Control ISR community to optimally inform and expedite decision-making. Such requirements include information passage, policy, and architecture to ensure pertinent NTISR collection arrives at the necessary end-users, such as NATO and respective national intelligence organizations.

Obstacles to Implement NTISR as a Solution

Many obstacles continue to impact implementing an NTISR role for fifth-generation assets, as the F-35 was not designed as an ISR platform. Nonetheless, its ISR potential remains substantial, especially for countries who prioritize their ISR capabilities and rely on the F-35 to serve as their (sometimes singular airborne) national ISR platform. Leveraging NTISR could provide a new

and supplemental intelligence source to address national and NATO intelligence collection requirements and gaps. Having this additional intelligence contribution could serve several purposes, such as validating the battlespace picture and even producing new collection that addresses intelligence gaps or provides new indications and warning that help deliver strategic advantage. Alternatively, maintaining the exclusive focus on primary mission sets, such as Suppression of Enemy Air Defence (SEAD) or strategic attack, overlooks the opportunity for NTISR as a concurrent or dedicated mission. Despite the selling point of the F-35 as internationally interoperable, which has been achieved in several areas such as aircraft cross servicing, the F-35's potential intelligence role – namely NTISR as a gateway to greater intelligence collection and sharing – remains largely unaddressed.[6]

Dismissing NTISR out of hand as a valuable mission further contributes to overlooking and ignoring NTISR's potential for a more holistic understanding of the battlespace, especially in increasingly contested environments. Consequently, the necessary resourcing and data architecture, to include tasking and processing

frameworks, the right amount of certified analysts, and the requisite systems to store and disseminate finished, shareable intelligence products, etc., remain largely absent. Developing the requisite enterprise to handle these outputs includes funding, resourcing, and establishing procedures to effectively exploit NTISR, especially F-35 ISR capabilities, to provide meaningful novel intelligence to end-users.

However, even if the enablers for the NTISR mission are reached, it does not matter if the collected intelligence is not shared. Another obvious obstacle is the current mentality that favours restricting intelligence sharing and training. NATO nations and partners must therefore adjust governing policies and directives in favour of F-35 intelligence sharing to ensure resilience, achieve day-zero readiness, and enhance allied interoperability. Various efforts and short-term solutions are underway to address some of these shortfalls, but failure to seriously consider and fully address these issues puts NATO and F-35 nations at an exploitable disadvantage. Failure to effectively collect, process, and share operational data that could reveal new intelligence, coupled with the inability to share such intelligence, means that even within NATO, individual F-35 nations will operate on incomplete or different pictures of the operating area. The lack of a comprehensive common intelligence picture must be rectified lest conflicting assessments dangerously confuse, restrict, and even impede executing effective operations. The urgency is indisputable, particularly for the NATO F-35 nations who must already be prepared to operate seamlessly together, especially since full-scale war returned to the European continent early last year.

For NATO and global F-35 users, this broadened intelligence sharing should apply internally across the F-35 community and, when and where appropriate, externally to the entire Alliance. Although allied integration remains a stated priority, current policies and a reigning anti-sharing mentality continue to impede effective integration, leading to lower intelligence understanding of a potential battlespace. The main barrier to lift is a shift in the sharing mentality, to further strengthen the trust in coalition and allied partners. Accomplishing this shift will require supporting national policies to increase pertinent intelligence sharing amongst F-35

nations and within coalitions. Without the right sharing mentality and policies in place, the collected intelligence will not bring the utmost benefit to the coalition or allied forces.

Recommendations

The following recommendations will help to address the identified shortfalls. Firstly, the F-35's NTISR capabilities must be prioritized, operationalized, and enabled. Governing policies and required resourcing must be implemented to establish the necessary PCPAD (planning and direction, collection, processing and exploitation, analysis, and dissemination) requirements as well as architecture to make NTISR collection useful and available to the end-user. Traditional ISR assets, such as the U-2 and MQ-9 Reaper, provide an insightful precedent for executing PCPAD within the Air Force Distributed Common Ground System enterprise.[7]

This model, in terms of framework, operating procedures, and organizational structure, could be leveraged to establish NTISR PCPAD for F-35 collection. Certainly, it should also evolve to assure discoverability, as well as account for discrepancies and unique considerations pertaining to non-traditional versus traditional ISR assets. Moreover, the necessary technical solutions (possibly including infrastructure or networks), applicable intelligence policies, as well as appropriate manning and training must exist to properly handle the significant requirements for exploiting such collection. Addressing this will facilitate PCPAD to ensure integrated vital F-35-sourced intelligence achieves data discoverability within the expanded ISR constellation of today.

Secondly, countries and their respective intelligence services must increase sharing of pertinent intelligence to integrate effectively as allies. To accomplish this, an institutionalized need-to-share approach and corresponding policies must enable the transfer of shareable NTISR products. The F-35's ISR potential provides a compelling argument to reconsider a deeply entrenched anti-sharing philosophy. The NATO Joint ISR community echoes this objective and promotes a

'need-to-share' mentality.[8] The Pacific region, which presently hosts four F-35 nations, also demonstrates this important perspective and asserts the necessity to expand information sharing whereby analysts 'write-for-release' by default.[9] Therefore, in parallel to prioritizing and realizing the F-35's full NTISR potential, intelligence sharing must expand in kind. The global nature of the JSF programme and the increasing number of F-35 nations, particularly NATO nations, require broader intelligence sharing. This need-to-share transition proves exceptionally important for NATO and should be extended across other fifth-generation capabilities, such as the Joint Air-to-Surface Standoff Missiles (JASSM).

To achieve a more open and integrated sharing approach, appropriate policies and information-sharing frameworks must exist or be established. Specifically, changes to governing guidance, networks, systems, and dissemination mechanisms must address existing barriers to ensure the required data arrives at the desired end-user. This can be achieved by addressing several overarching obstacles. First, adjust the current anti-sharing mentality by directing intelligence personnel to more readily share pertinent intelligence with other F-35 and allied nations through more permissive policies. This change should ultimately expedite intelligence sharing. Moreover, enabling systems and network architectures must be established to ensure discoverability of NTISR data or NTISR-derived intelligence and enable dissemination of shareable intelligence to the designated end-users.

Lastly, the necessity of expanded sharing also extends to intelligence training. Until 2022, not even an introductory level F-35 intelligence training existed for non-US F-35 intelligence personnel. Although the USAF F-35 Intelligence Formal Training Unit (IFTU), operating since 2015, asserted that such intelligence training and knowledge has immediate mission impact critical to success, no other F-35 nation, other than the US, had such vital training opportunities

M MQ-9 Reaper: © General Atomics; Sky: © bilanol – stock.adobe.com

The U-2 and MQ-9 Reaper, which are conventional ISR assets, serve as significant examples of effectively implementing the PCPAD framework within the Air Force Distributed Common Ground System enterprise.

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available.[10,11] Given the indispensability of such training for US military intelligence personnel serving at F-35 units, the recently established F-35 Partner IFTU (PIFTU) at Luke AFB graduated its first F-35 international intelligence students in November 2022.[12] Although this successful effort was the first to internationalize F-35 intelligence training, continued internationalization of pertinent training must continue, enabled by continuous intelligence sharing efforts. The PIFTU provides a common training foundation for F-35 intelligence personnel. However, no basic, intermediate, or advanced international targeting training exists, which also must be rectified. Of note, though NATO offers targeting training, advanced F-35 targeting training – tailored to the platform's low-observable capabilities – is not addressed.[13]

PIFTU illustrates the success of reversing this anti-sharing mentality. Similar fifth-generation intelligence training efforts are ongoing and continue to evolve. This approach toward greater intelligence sharing must happen now to enable vital day-zero interoperability. Therefore, international intelligence training must be holistically incorporated at all echelons into the multi-national F-35 programmes from the earliest stages of development. PIFTU is a model helping to shape and ensure that continued efforts endure to provide further follow-on and requisite advanced training opportunities for all F-35 intelligence personnel.

Conclusion

Intelligence considerations, especially fifth-generation platforms' NTISR potential, cannot be an afterthought. Failure to capitalize on their intelligence value prevents NATO from filling crucial sensor gaps. Heightened intelligence sharing and training among NATO nations may lead to achieving true allied interoperability through a shareable NTISR-augmented operating picture. This is particularly true for NATO's most advanced air asset, the F-35. To exploit its full potential, the JSF nations must champion, prioritize, and unleash its NTISR capabilities. Additionally, to ensure NTISR data discoverability JSF leaders must advocate for and facilitate pertinent intelligence sharing, as well as expand international F-35 intelligence training opportunities.

Given that the vast majority of F-35 nations are NATO members, the importance of these intelligence considerations cannot be overstated. Capitalizing on NTISR's unrealized potential requires expanding the F-35's narrow mission focus by including NTISR tasks and shifting the current mentality and policy from a need-to-know to a more inclusive need-to-share approach. Furthermore, it remains of utmost importance that NTISR, increased intelligence sharing, and expanded training are established well in advance of conflict to guarantee day-zero interoperability. Neglecting to properly consider and address the vital role of intelligence, especially for NATO and the F-35 community, foregoes an opportunity to enhance Allied decision advantage and lethality – particularly in today's increasingly opaque and contested world of near-peer competitors capable of jeopardizing freedom and security worldwide. ●

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Commissioned as a US Air Force (USAF) intelligence officer in 2010. She has worked extensively with and led policy initiatives as well as directed USAF Intelligence, Surveillance, and Reconnaissance (ISR) operations and intelligence security cooperation engagements. She has spent most of her career based in Germany and participated in NATO exercises such as Steadfast Jazz. She transitioned to the USAF Reserves in 2016 and launched fifth-generation intelligence engagements in 2019 from HQ USAFE-AFAFRICA. She is a graduate of the USAF Academy and holds Master's degrees in International Relations and Strategic Intelligence. Currently, she is assigned to the 613 Air Operations Centre's ISR Division and continues to support fifth-generation integration efforts.