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ISTAR Aircraft: Another Essential for India

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Introduction

Intelligence, surveillance, target acquisition, and reconnaissance (ISTAR) aircraft can equip India with a potent instrument for gaining battlefield transparency and situational awareness. It can be used to monitor and track enemy troops and assets and to collect intelligence on enemy movements and intentions. This information can be utilised to improve the plan and execute operations. Such aircraft can also be used to precisely target enemy forces and infrastructure and execute precision strikes. This can help lessen the risk of collateral damage and civilian casualties and boost the likelihood of the success of boots on the ground. ISTAR is a multi-intelligence aircraft that provides vital information to military and civilian air and ground crews using artificial intelligence, integrated onboard sensors, and advanced processing.¹ The ISTAR aircraft can monitor ships and activity along borders and coastal zones, as well as track mobile land targets. It can also be utilised with a stationary or mobile command and control station. Mapping natural disaster areas could be another vital application of the ISTAR systems.²

Capabilities of ISTAR Aircraft

For ground operations, ISTAR enables operators and commanders to track the convoy's signals, listen to its communications, and observe its movements using active electronically scanned array radars, multi-spectral imagers, and other cutting-edge technologies. A single aircraft has multiple intelligence (Multi-INT) technology, which is a necessity in today's and tomorrow's complicated battlefields. Mr. Roy Azevedo, President of Raytheon Intelligence & Space, one of the leading ISTAR aircraft manufacturers, states that "the battlefield is faster and more complex than ever, necessitating the need to positively identify targets more rapidly." He further adds that "the concept behind multi-INT is to combine numerous types of intelligence from diverse sensors and sources in order to obtain a clearer picture." Using a Multi-INT platform, ground moving target indicator (GMTI), synthetic aperture radar (SAR), and other data are combined with electro-optical infrared data, signal and electronics intelligence, and other data to provide a "one sensor solution." On the company's ISTAR special-purpose aircraft, these technologies work together to generate a multi-dimensional vision, giving commanders and operators the knowledge they need to make the right decisions in real-time.³

ISTAR is also able to assist with routine peacetime applications. The Multi-INT aircraft can be utilised to assist with natural disaster responses, such as flooding. It plays a major role in maritime blockade enforcement by monitoring vessels. In addition, it may provide border and littoral surveillance, identifying any unexpected movement. Artificial intelligence and machine learning will

be used as force multipliers in the future for multi-INT-equipped special-purpose aircraft. Instead of depending on a human to stitch together several images, ISTAR may use the same data to piece together a situation. Humans are limited by the amount of data they can process in a limited time. Here, technologies such as ISTAR enable humans to carry out tasks faster through the use of artificial intelligence and machine learning, pushing the limits of their ability to comprehend what the adversaries are attempting to achieve in an intensive battlefield environment. Moreover, it is evident that these systems will get smarter as they process more data.⁴

IAI-ELI-3150 ISTAR

The ISTAR aircraft, manufactured by Israeli Aerospace Industries (IAI), is a multi-mission aeroplane. The platform is based on ELTA's operationally proven sensors and systems, which are integrated into the high-performance Bombardier Global 6500 business jets. In conjunction with ELTA's high-performance mission suite, ISTAR provides exceptional operational performance. The IAI-ISTAR is designed to offer sustained standoff ISR in all weather and visibility situations. Data acquired from all sensors is processed, analysed, and turned into actionable intelligence in real-time, which is then delivered to commanders at the strategic, operational, and tactical levels. With a high degree of adaptability, the IAI-ISTAR may be deployed for a variety of tasks and adapted to a wide range of battlefield situations.⁵

Requirement of ISTAR Aircraft for India.

In his remarks at the 90th Air Force Day Parade in Chandigarh, the Chief of Air Staff stated that the IAF is not only vigorously pursuing for the purchase of UAVs, ISTAR, and counter-UAS technology but is also working to reinforce its networks. According to estimates, India's acquisition of five ISTAR aircraft from the United States will cost approximately US \$3 billion.⁶ The ISTAR aircraft offered to India is most likely based on Bombardier's Global Express business jet. The maximum altitude for the Global Express is 51,000 feet. It has a maximum speed of 499 knots and a maximum range of 7,000km. The ISTAR aircraft has the potential to be a game-changer for India.⁷

IAF finalised the ISTAR requirement in 2013 when it shortlisted Raytheon Intelligence & Space after analysing responses to a request for information (RFI) submitted to Thales, Boeing, BAE, ELTA, and Raytheon in 2011. Once inducted, the ISTAR aircraft will be integrated into India's integrated air command and control system (IACCS). The IACCS C2 Centre conducts airspace management and multiple kinds of air operations functions. The IAF's airborne warning and control system (AWACS), aerostat radars, and other radars are being linked with the IACCS, allowing for

the rapid transfer of data from diverse platforms to a centralised battlespace management system. ISTAR planes are employed against ground targets and for battlefield management, whereas AWACS aircraft are designed for air defence, aerial targeting, and the whole spectrum of air operations.⁸

Conclusion

Investment in ISTAR systems is a crucial prerequisite for the technological revolution in military affairs (RMA), which is built on the idea that information dominance is the key to future warfare. Air Vice Marshal Tony Mason of the Royal Air Force stressed in the late 1990s that "information about the capability, intention, location, and movement of potential opponents is no longer just desirable, advantageous, or a force multiplier. Now, it is an essential requirement for the resolution of any crisis or conflict by military means."⁹ The present and future battlefield and battlespace cannot be envisioned in the absence of assets such as ISTAR, AWACS, ODL, MDA, robust communication systems, and truly integrated C2 centres for offensive or defensive tasks. Similarly, India must expeditiously increase the quantity of such military assets for its defence forces. In both war and peace, these integrated platforms are important for overall operational readiness. It should also be acknowledged that these are not assets that can be purchased instantly during the heightened scenario, as their operationalization would require extensive training of multiple crew members located in geographically dispersed locations for the successful and timely accomplishment of the stated objectives.

NOTES:

¹ Huma Siddiqui, "Force Multiplier: India to enable multi-intelligence with Raytheon's ISTAR Aircraft," *Financial Express*, October 10, 2022.

² Ibid.

³ "The complete picture: How multiple-intelligence tech delivers better information" Raytheon Intelligence & Space. May 22, 2019 <https://www.raytheonintelligenceandspace.com/news/2019/05/22/complete-picture>, accessed on November 20, 2022.

⁴ Ibid.

⁵ "ELI-3150 ISTAR: Multi-Mission ISTAR Special Mission Aircraft" IAI, <https://www.iai.co.il/p/eli-3150-istar>, accessed on November 20, 2022.

⁶ Siddiqui, n1.

⁷ Ibid.

⁸ "India, Raytheon Negotiate ISTAR Buy" Thread starter wild goose Oct 19, 2013. <https://defenceforumindia.com/threads/india-raytheon-negotiate-istar-buy.55125/>, accessed on November 22, 2022.

⁹ Air Vice-Marshal Tony Mason, "The intelligence, surveillance, reconnaissance and target acquisition requirement—An overview", *The RUSI Journal*, 143:6, 55-59, DOI: 10.1080/03071849808446330 <https://doi.org/10.1080/03071849808446330>, accessed on November 20, 2022.