

PATHFINDER

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WHAT IS ISR: AN INTEGRATED ACTIVITY AND ENTERPRISE

Developing a coherent approach to Intelligence, Surveillance and Reconnaissance (ISR) has been a challenge for military forces, largely because of its complex nature as an integrating function which coordinates and interfaces with many components. The 2007 Defence ISR Roadmap highlighted this complexity in describing ‘a system of interconnected ... elements that will seamlessly combine with the command and engagement systems to ensure that information can be readily exchanged in support of shared situational awareness, collaborative planning and cooperative action.’ Understanding ISR as an enterprise is one way of portraying it in a more logical and coherent manner.

Despite the term ‘ISR’ being in general use for over ten years, the Australian Defence Force is only beginning to fully understand it. ADDP 3.7 *Collection Operations* (2009) defines ISR as ‘a collection activity that synchronises and integrates the acquisition, processing and provision of information and single source intelligence by sources and agencies tasked to satisfy a collection requirement.’ According to this view, ISR is an activity conducted during only the collection phase of the intelligence cycle. In its Foreword, however, the ADDP 3.7 notes that ‘Air Force considers ISR as an overarching term that includes the entire intelligence cycle.’ This is a broader interpretation which emerged in the United States of America over the past decade and continues to be developed by allies. It views ISR as a synchronising and integrating activity, encapsulating not only collection and processing but also exploitation and dissemination of information and intelligence. Accordingly, its focus is more appropriate to air power and air forces.

From an air power doctrine perspective, identifying ISR solely as a collection activity fails to take full account of its integrated and synchronising nature across the

battlespace, across all domains, and all command levels. For example, the ADDP 3.7 definition does not incorporate the processing of target coordinate information from a UAV collection asset directly to a weapon system for prosecution. The ADDP 3.7 definition effectively creates the separation in functions between intelligence, surveillance and reconnaissance that ISR actually requires to be fully integrated. It is for these reasons that the Royal Australian Air Force (RAAF) aligns itself more to the US joint definition.

Because ISR is a function that aims to provide the best possible information to commanders (producing actionable and predictive intelligence that can be quickly used to make sound and informed operational decisions), the objective of ISR can best be achieved by capitalising on the inherent synergies resulting from the interplay of the various airborne, space-based and ground-based ISR elements that the RAAF employs. In this respect, ISR is best viewed and understood in terms of a networked system of systems, interfacing with diverse sub-systems comprising sensors, platforms, humans, and weapons. For the RAAF, ISR is an Air Force wide enterprise made up of a complex system of systems.

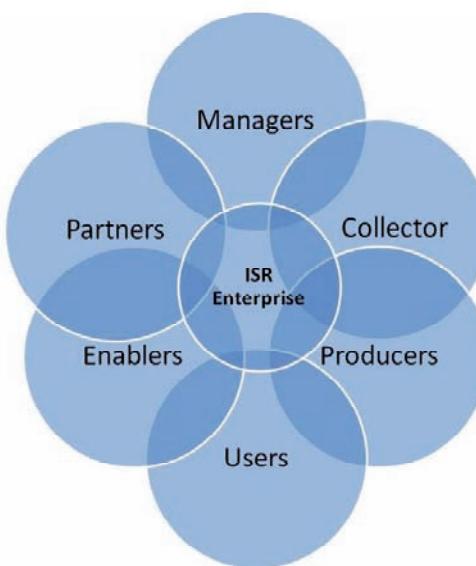


Figure 1: The Air Force ISR Enterprise comprises various inter-related components

The enterprise can be more easily understood in terms of the interplay of two primary groups: components and systems. Components comprise managers, collectors, producers, users, enablers or partners subject to their roles, responsibilities and capabilities. Managers are those elements of the enterprise that are responsible for ISR management—for example, AFHQ or HQAC. Collectors are those platforms and sensors that are involved in the collection of ISR data and information. Producers, including units, AOC and national agencies, are those entities that produce ISR information and intelligence. Users, comprising commanders, warfighters, weapon systems and strategic organisations, are those

elements of the enterprise that receive and use ISR product. An enabler is an element of the ISR enterprise that provides capability support (command and control, people, training, and communications) to the functioning of the enterprise. Lastly, partners are those organisations (eg national agencies, other ADF elements, allies, and industry) that are external to Air Force but provide critical support to the Air Force ISR enterprise via a partnership agreement.

ISR systems comprise the various platform, sensor and exploitation networks that support the RAAF ISR Enterprise. The ISR Enterprise comprises three system groups: environmental; information and communication technology (ICT); and cognitive. Environmental systems are those systems that reside in or operate in a particular environment (eg. air) and include things such as unmanned aerial systems and space-borne systems. ICT systems are those elements that provide the critical network connectivity and automatic processing capacity to support ISR information transmission and processing. ICT systems are communication or computational based. Meanwhile, the cognitive system represents the human dimension within ISR. It entails the integration of the human mind in receiving, interpreting, and acting on information within the processing and exploitation elements of the Processing, Exploitation and Dissemination (PED) components of ISR. Given its nature, the cognitive system is the most difficult to assess, quantify, develop and understand.

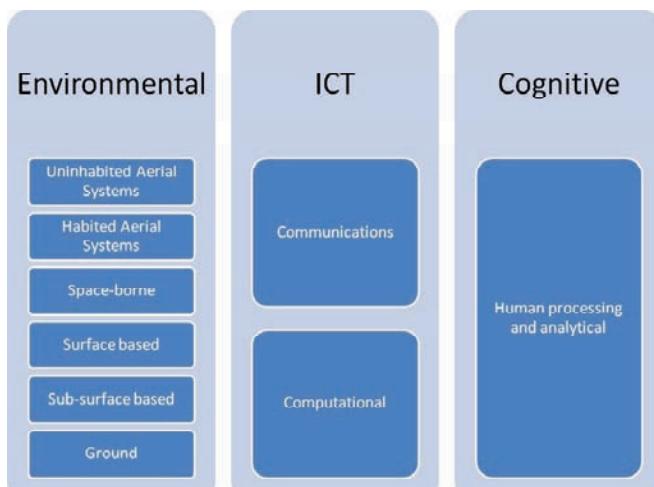


Figure 2: ISR Systems are the various physical and cognitive networks in the ISR enterprise

By its very nature, ISR is an activity that integrates the traditionally separate spheres of intelligence, surveillance and reconnaissance within the operational planning process into one single activity. In particular, it recognises that intelligence and operations are fully integrated and that it therefore should be understood in terms of a networked enterprise that functions and interfaces with diverse networks comprising sensors, platforms, humans, and weapons. Alignment to allied ISR definitions that better reflect the integrated nature of ISR across the battlespace and operations will allow Air Force to realise the broader potential that ISR offers air power. In doing so, there is value in understanding the Air Force ISR capability in terms of an enterprise comprising components and systems. It is only then that Air Force will realise the potential significant synergy from the synchronisation and integration of ISR assets and capability. Overall, ISR effectiveness is not determined by the sum of the individual ISR sensors, it is largely by how effectively ISR components interact with each other as an enterprise.

- *Air Force should embrace the broader US ISR definition that is more appropriate to air power in synchronising and integrating ISR across the battlespace and operations.*
- *ISR is an integrated function that synergies the tasking, collection and processing, exploitation and dissemination (PED) aspects.*
- *We need to better understand Air Force ISR as an enterprise comprising components and systems.*

'I have so few ISR assets that I can't afford to look where the target can't be. I've got [to] understand the battlefield and put those 'soda straws' of those ISR assets that I have in a place where there is a high probability there is going to be a target. I can't just go out and gander over the countryside hoping somebody drives through my soda straw so I can go kill it.'

General J. Jumper, USAF