



## **THE IMPACTS OF THE CHANGING NATURE OF WARFARE ON INTELLIGENCE COLLECTION AND PROCESSING**

**Date:** November 20, 2024

*Disclaimer: This briefing note contains the encapsulation of views presented by the speaker and does not exclusively represent the views of the Canadian Association for Security and Intelligence Studies.*

### **KEY EVENTS**

On November 20, 2024, Lieutenant-Colonel David Holtz presented *The Impacts of the Changing Nature of Warfare on Intelligence Collection and Processing* for this year's West Coast Security Conference. The presentation was followed by a question-and-answer period with questions from the audience and CASIS Vancouver executives. The key points focused on the progression of technology and intelligence methods from the Second World War (WWII) to current conflicts shows ongoing improvement in data gathering and analysis, providing more accurate support for operations. Ever-expanding data volumes increase complexity, requiring more effective prioritization, validation, and simplification to maintain operational clarity. To prepare for the wars of the future, governments should focus on working closely with allies and preparing personnel for quick, informed action in dynamic operational conditions.

### **NATURE OF DISCUSSION**

The progression of intelligence collection and processing has evolved from WWII-era methods to data-heavy operations, demonstrating the shift toward large-scale high-velocity information flows. Consolidating lessons from past conflicts, LCol. Holtz suggested working closely with partners and ensuring that well-trained teams can streamline data management. This emphasis on readiness, accuracy and interoperability will position intelligence units to make more informed and decisive actions in the wars of the future.

### **BACKGROUND**

#### **Presentation**

Understanding the history and evolution of intelligence collecting and processing is imperative for modern-day practitioners as many of these foundational techniques are still relevant and applicable today. Although a formal intelligence service didn't exist in Canada before WWII, these frameworks were built and professionalized during the war. During WWII, allies were leveraging multiple human intelligence sources as well as integrating signals intelligence, imagery intelligence, and counterintelligence in a comprehensive way on the battlefield. Intelligence began to influence operational planning and strategic decisions while improving the effectiveness of military actions. Imagery intelligence, primarily aerial reconnaissance, was imperative to understanding terrain and tracking troop movements, while human intelligence sources provided valuable information about supply movements, enemy morale, and potential weaknesses. Counterintelligence was a significant focus, accounting for approximately 50% of intelligence efforts during this time, and prevented enemy espionage, mitigated risks due to infiltration, and kept allied plans safe. Although information was often intercepted or decrypted, cross-referencing this information with other sources helped to prevent deception.

Strong relationships were built between armed forces command and intelligence officers, resulting in an important culture of trust and timeliness, said LCol. Holtz. This timeliness was imperative, as no matter the accuracy of a piece of information, a lack of such would render it useless on the battlefield. Any disconnect in the relationships between commanders and intelligence advisors could have led to critical misunderstandings and operational failures. Intelligence efforts should be centrally coordinated to prevent duplication of efforts and ensure efficiency. Intelligence efforts must also be flexible in order to adapt to rapidly changing conditions and emerging threats. There will always be a level of ignorance and incomplete information in warfare, but it is up to commanders to be proactive. LtCol. Holtz noted that embracing uncertainty led to more cautious decision-making.

In the first Gulf War, there was a shift toward using strategic and operational intelligence at the tactical level; satellites and reconnaissance aircraft made new types of information available quickly to tactical commanders. The improved communication capabilities brought on by the space domain allowed command centers and deployed units to transfer information within minutes. Electronic warfare capabilities advanced rapidly, including signal jamming and the use of precision-guided munitions, and intelligence practices evolved simultaneously to identify targets accurately.

During and before the second Gulf War, drones brought about new capabilities for surveillance, intelligence, and offense. Unmanned aerial vehicles allowed for nearly constant surveillance of a battlefield, and the fact that they were armed sped up the targeting process, as one vehicle was now able to find, fix, and deliver on a target. Improved sensing capabilities, longer flight times, and more advanced communication links allowed for an unprecedented sense of real-time battle awareness for commanders. This has advantages and disadvantages, as decision-making time could be decreased, but susceptibility to deception could be increased.

The war in Iraq against ISIS saw a shift to a more activity-based type of intelligence. This marked a change in how patterns were recognized and multiple sources of intelligence were used to better understand the enemy. Despite the large number of intelligence organizations that had been established by this time, they did not all have a shared purpose. Many were focused on wider intelligence problems and the current field situation for commanders, while others were developing support to air campaigns. Some, however, were developing expertise in certain systems, which made targeting faster and more efficient thanks to people developing expertise.

While multi domain-operations, hybrid warfare, and cyber operations are the main types of warfare today, history can still inform best practices. The link between the space domain and the land domain remains critical, and synchronizing information between them will be essential, noted LCol. Holtz. To counter contemporary hybrid actions, the Canadian military is analyzing how to leverage machines and digital capabilities to process large volumes of data on the battlefield. This can create a problem for the workforce in terms of preparing people to handle unprecedented amounts of data. Going forward, militaries might focus on building organizational adaptability, providing training and skills development. Due to the global nature of the modern threat landscape, LCol. Holtz noted that there should be a focus on interoperability with allies in terms of training and lexicon.

### **Question and Answer**

*You noted that when viewed over time, we keep learning the same lessons over and over again. To a certain degree, this almost sounds like the opposite: that we do not learn from our experiences in conflict. Information sharing is more ubiquitous than in any past era and is likely only to increase in its ubiquity: what*

*would you say is an ideal way, leveraging technology, social media, varieties of communication platforms, that can assist operational learning and growth into better outcomes?*

The amount of information we have access to is more than ever in the past, but a human reaches a point where they can only process so much of it. LCol. Holtz instead recommended looking at how we can make information simpler and more digestible so that it can be quickly understood and managed and training decision-makers to operate effectively with limited information.

*With these developments of new machinery and technologies, is there an increased deterrence, or is there an increase in competition with other states who are also trying to revolutionize warfare tactics in the age of digital and technological warfare?*

The democratization of the intelligence process is a hard thing for the military. For example, the military used to have a monopoly on space intelligence. However, because of modern technology companies, this is not the case; with enough funds, various actors can access this information at any time. These companies have agile data engineers and effective algorithms that outpace military intelligence in some regards, even without access to classified information. This evolution changes the way that information will be processed by our adversaries and our peers, and it's changing the ways in which intelligence will be managed in the future.

### **KEY POINTS OF DISCUSSION**

- The progression of intelligence methods from WWII to current conflicts shows an ongoing improvement in data gathering and analysis that provides more accurate support for operations.
- Innovations such as satellites, drones and digital networks increase both the quantity and the speed of intelligence available to field units.
- Expanding data volumes increase complexity, requiring more effective prioritization, validation and simplification to maintain operational clarity.
- Commercial actors now offer intelligence capabilities that rival those of traditional military entities, changing how intelligence is sourced and applied.
- Preparedness for modern warfare depends on building strong partnerships, refining shared standards and enhancing personnel readiness for increasingly complex information environments.

### FURTHER READING

Holtz, D. (2024, September 11). Short Bursts: The Chessboard of War: Information, Tactics, and Risk. Government of Canada.  
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