MAPPING THE INFORMATION ENVIRONMENT WITH OPEN-SOURCE INTELLIGENCE AND ALLIES

By Mr. Matthew D. Skilling

Introduction

In 1946, Argentine author Jorge Luis Borges wrote "On Exactitude in Science," a short story in which he tells the tale of a great Empire, skilled in cartography, that wished to create an intricately detailed map of its territory. The Empire's cartographers started with a map at 1:1000 scale. Finding the detail lacking, they moved to 1:100 scale, then 1:10, and finally created a map at 1:1 scale. The map contained every possible detail and covered the entirety of the Empire's lands. As the Empire expanded, so did the map. Centuries later, the Empire fell, but remnants of the unwieldy map remained.[1]

With the advent of the internet, Borges' fabled 1:1 map became reality. Today, this map finds a parallel in the doctrinal term *information environment*. The information environment touches every operational domain and acts as the embodiment of a nation's combined knowledge. Exploiting the information environment can lead to understanding the battlespace, and controlling the information environment provides a level of control over the battlespace.

In the last decade, several nations leveraged operations within the information environment for military purposes to impose their will against a neighboring territory and to expand their map. Notable examples include China in the South China Sea and Russia in Georgia and Ukraine.

Understanding the Information Environment

U.S. Army Europe and Africa (USAREUR–AF) identified an increased need to understand the information environment following Russia's 2014 annexation of Ukrainian territory in Crimea and Donbas. Upon review, indicators and warnings before the offensive were present in messaging campaigns on regional and local media outlets and in social media posts citing troops and equipment participating in short-notice exercises.

It is crucial to improve the U.S. Army's understanding of the information environment as part of multidomain operations and information advantage activities. Open-source intelligence (OSINT)—the exploitation of publicly available information for intelligence purposes—uniquely fills this requirement. It provides information environment intelligence that is timely, tailored, and inherently sharable. OSINT supports validation and the tipping and cueing of other intelligence functions, and it monitors for indicators and warnings. Most importantly, it provides context to intelligence by expanding traditional reports from stand-alone pieces of information to part of the theater's information environment 1:1 battlespace map.

Northern Raven

The Army Europe Open Source Center leads this effort and includes a dedicated OSINT collection and technical control division for European federated collection with assigned military, civilian, and contract staff. Despite organic growth in the last few years, the need for a multinational response is necessary to collect the theater at a 1:1 scale. USAREUR–AF established Northern Raven (NRV), an OSINT combined collection operation in 2019.

NRV is an OSINT community of nearly 20 North Atlantic Treaty Organization (NATO) allies and European partner nations built on the professionalism and personal connections of the participants to provide a cultural and numerical advantage in the information environment. It mitigates shortfalls, expands capacity, and develops joint understanding and techniques. This community cannot be replicated by our adversaries and solidifies the bonds across theater to improve U.S., allied, and partner posture and competitiveness in the information environment.

In a combination of episodic deployments and standing exchanges, the multinational OSINT team conducts OSINT tasking, collection, processing, exploitation, and dissemination (also known as TC-PED) across NATO allies and European partners to increase, improve, and synchronize collection capacity within Europe. NRV addresses four key challenges observed in theater:

- ✦ Personnel.
- ✦ Cultural knowledge.
- ✦ Training.
- ✦ Tools.

Personnel. Personnel shortfalls in emerging disciplines like OSINT are not unique to our nation. Across Europe, militaries are struggling to develop and maintain collectors and analysts to meet the demands of the information environment. NRV acts as a force multiplier for participating nations. One or two OSINT-trained personnel from each participating nation gain access to the combined collection operation's shared resources and network of nearly 100 intelligence professionals with unique skillsets and expertise.

Cultural Knowledge. NRV identifies and fills information shortfalls through knowledge sharing and cross-communication. For the United States, these shortfalls commonly relate to language skills, cultural understanding, and subject matter expertise. Soldiers from Europe are often proficient in multiple languages and maintain a detailed understanding of the information environment through daily contact. Additionally, many European militaries are not bound to regular troop rotations. This allows additional time for partner "OSINTers" to build extensive subject matter expertise in advisory unit composition, training, tactics, and procedures. With regard to time and cost, it is not feasible to train U.S. Soldiers to match this skillset and level of understanding. However, a cornerstone of the U.S. Army is the ability to develop doctrine and training.

Training. The U.S. Army's OSINT training pipeline is robust; it starts from the basics of publicly available information and builds toward advanced collection tradecraft. A vast majority of allies and partners use on-the-job training to develop collection skills and lack a formal training curriculum. As part of NRV, the U.S. Army provides the first two courses in the OSINT training program, creating a baseline set of collection tactics, techniques, and procedures to establish common terms and mitigate associated risks. During the training, NRV members actively share and update tradecraft as approaches to collection evolve. At the conclusion of training, NRV members gain limited access to U.S. OSINT capabilities.

Tools. While allies and partners excel at knowledge depth, the U.S. Army provides innovation, technical capability, and capacity. NRV participants have the ability to conduct live environment training using U.S. OSINT tools. The commercial-off-the-shelf tools focus on signature reduction and machine-assisted bulk data collection and reduce the time-cost associated with collection across multiple sources. For many nations, these tools are inaccessible because of cost, procurement timeline, and foreign sale constraints. Using the tools in a live environment provides additional capacity to the partners, even if the usage is time or event bound.
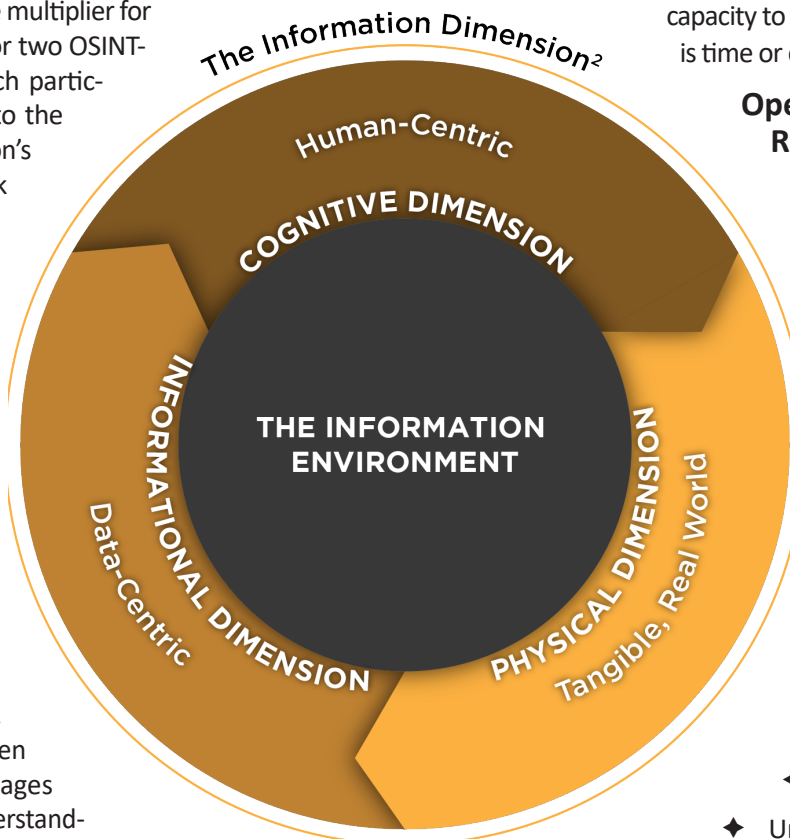
Open-Source Intelligence Reports

NRV captures individual pieces of information in reports similar to traditional intelligence functions. Open-source intelligence reports (OSIRs) are published on several domains and platforms for widest dissemination. The reports are a reflection of how the participating nations view information environment activities and typically fall into three categories:

- ✦ Inform.
- ✦ Understand.
- ✦ Defend

Inform. Nations using OSINT to inform prioritize speed. Information OSIRs are short with a high publication rate. They typically have few collector comments and leave assessments of truthfulness to the end user. This is a passive type of collection; it relies on tools to bulk-gather data and puts the OSINT collector in a processing, exploitation, and dissemination role for broad topics or general information. The analytical element has the burden of bundling these reports generated at near real time.

Understand. Nations using OSINT to build understanding prioritize context and consolidation. Understand-style OSIRs are in long form with operational details, and they focus heavily on collector comments for context. These reports typically publish based on events or quarterly review timelines. Often, the collector and analyst are the same Soldier, allowing for source assessment and real-world context. Analytical elements rely on these OSIRs to drive long-term analysis. This collection typically requires an active collector

The Information Dimension[2]

Human-Centric

COGNITIVE DIMENSION

INFORMATIONAL DIMENSION

Data-Centric

THE INFORMATION ENVIRONMENT

PHYSICAL DIMENSION

Tangible, Real World

Open-Source Intelligence Reports

Inform
- Prioritize speed.
  - Contain few analyst comments.
    - Leave assessment to the end user.

Understand
- Prioritize context and consolidation.
- Contain source assessments.
- Provide real-world context.

Defend
- Present unique approach.
  - Focus on "how" not "what."
    - Assess effects of adversary operations on populace.

to better understand, inform, and defend the information environment and influence the battlespace. Gathering OSINT is more than browsing social media. The public availability of the information speeds sharing between nations, helps consolidate foundational intelligence, and builds the trust necessary to expand sharing across all intelligence functions. As the United States, allies, and partners in Europe continue to share, the context of intelligence reports expands and empowers our leaders to make faster and more informed decisions to maintain the critical advantage of time.

role. The collector leverages language, cultural knowledge, and subject matter expertise to search for answers to specific intelligence requirements.

Defend. The use of OSIRs for defense is a unique approach. The reports vary in length, with a focus on "how" instead of the traditional 5Ws (who, what, where, when, and why). Using the borders on their own map as defensive lines, collectors search for adversary operations within the information environment and assess the effect within their own population. Unlike the other two report types, defensive OSIRs do not directly support multidomain operations. Instead, they support information advantage activities. These reports require a deep understanding of the nation's own information environment, and in some cases, legal hurdles can prevent intelligence collection against a nation's own population.

Conclusion

USAREUR–AF's development of multinational OSINT is an innovative space leading the U.S. Army's transition to multidomain operations and operations in the information environment. Every NRV participant nation draws a unique version of the 1:1 map. NRV attempts to merge these versions

Endnotes

1. Translated into English by Andrew Hurley, the original Spanish title is *Del rigor en la ciencia*. Some English translations prefer "On Rigor in Science." The story was first published in March 1946, in the journal *Los Anales de Buenos Aires*, año 1, no. 3, where it formed part of a piece called "Museo." "On Exactitude in Science," Genius Media Online, accessed November 18, 2021, https://genius.com/Jorge-luis-borges-on-exactitude-in-science-annotated.

2. Graphic adaptation from Office of the Joint Chiefs of Staff, *Joint Concept for Operating in the Information Environment (JCOIE)* (Washington, DC: The Joint Staff, 25 July 2018), 2.

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