



U.S. soldiers assigned to 2nd Armored Brigade Combat Team, 1st Cavalry Division, supporting the 4th Infantry Division (4ID), alongside soldiers assigned to the Royal Lancers, Prince of Wales Troop, and Polish soldiers assigned to 15th Mechanized Infantry Brigade, all assigned to NATO eFP Battle Group Poland, provide rear security while breaching a building during a multinational urban assault exercise at Elk, Poland, 2 March 2023. The 4ID's mission in Europe is to engage in multinational training and exercises across the continent, working alongside NATO allies and regional security partners to provide combat-credible forces to V Corps, America's forward deployed corps in Europe. (Photo by Sgt. Lianne M. Hirano, U.S.Army)

Ivy Intelligence (IVI) Large-Scale Combat Operations Targeting

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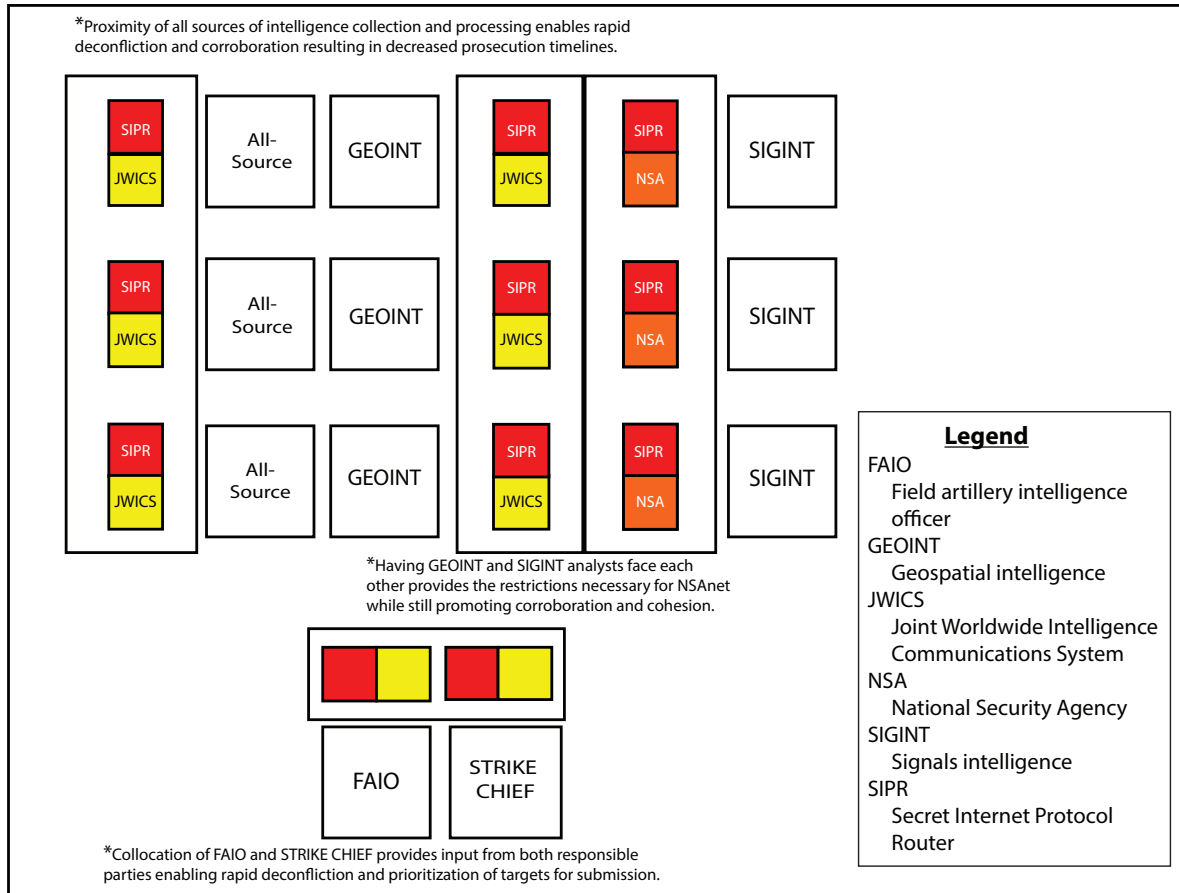


The 4th Infantry Division G-2 Strike Cell operates “live” in Poland during a NATO multinational exercise in 15–19 April 2023. (Photo courtesy of 4ID Public Affairs Detachment)

prosecution. Through a series of training and real-world experiences, the 4th Infantry Division (4ID) demonstrated that division G-2s can, in fact, mitigate these challenges by successfully incorporating and relentlessly exploiting NTM-derived information during its targeting process. This article argues that diversifying the types and levels of collection (i.e., tactical, theater, and national) results in a more robust and effective division collection capability—one that better facilitates situational understanding and targeting in support of the commander’s objectives in a contested environment.

Intelligence support to targeting at the division level faces several substantial challenges in large-scale combat operations (LSCO). First and most importantly, intelligence nodes often struggle to locate and identify high-payoff targets in the division’s deep area. This fact is in large part a consequence of a habitual overreliance by the division’s intelligence apparatus to leverage—near exclusively—its organic collection capabilities at the expense of other collection methods. This habit has almost certainly been formed and stabilized through twenty years of experience in the Global War on Terrorism. Second, Warfighter exercises (WFX)—the primary means through which a division headquarters executes its collective training—exacerbates this issue by failing to properly simulate otherwise available information derived through national technical means (NTM). By design, WFXs emphasize division organic collection to feed the division’s targeting cycle. For instance, training audiences in a WFX enjoy the virtual video feed of an MQ-1C Gray Eagle but cannot obtain basic, satellite-provided electro-optical, infrared, or synthetic-aperture radar imagery. Third, the majority of analysts are not intimately familiar with the capabilities or duties of their single-source or all-source counterparts. As a result, the timeliness with which potential targets are verified and disseminated is diminished, ultimately allowing high-payoff targets to escape

4ID currently employs a “strike cell” construct. The primary function of the strike cell is to leverage multiple intelligence disciplines to accomplish the “detect” phase in the Army’s “Decide, Detect, Deliver, and Assess” process.¹ A secondary function is to feed the division’s analysis and control element with timely and accurate information to inform the division’s common intelligence picture. 4ID accomplishes these objectives by staffing the strike cell with signals intelligence (SIGINT), geospatial intelligence (GEOINT), and all-source intelligence analysts. These individuals are co-located in a mobile, modular command post trailer with no physical barriers to encourage cross-communication, rapid synchronization, cuing of information, and prioritization of targets (see figure 1). The analysts are managed and controlled by a strike chief, typically a chief warrant officer² all-source technician. The strike chief is responsible for validating and coordinating targets with the field artillery intelligence officer prior to their submission to the joint air-ground integration cell (JAGIC) for prosecution (see figure 2). To continue refining intelligence support to targeting and to better train analysts across the division, 4ID stood up an intelligence reach operations cell (IROC). The IROC is staffed by personnel from across Fort Carson, Colorado, which provides opportunities to all analysts, ranging from battalion intelligence shops to the division G-2. This mixture of experiences and skill levels provides a perfect



(Figure by author)

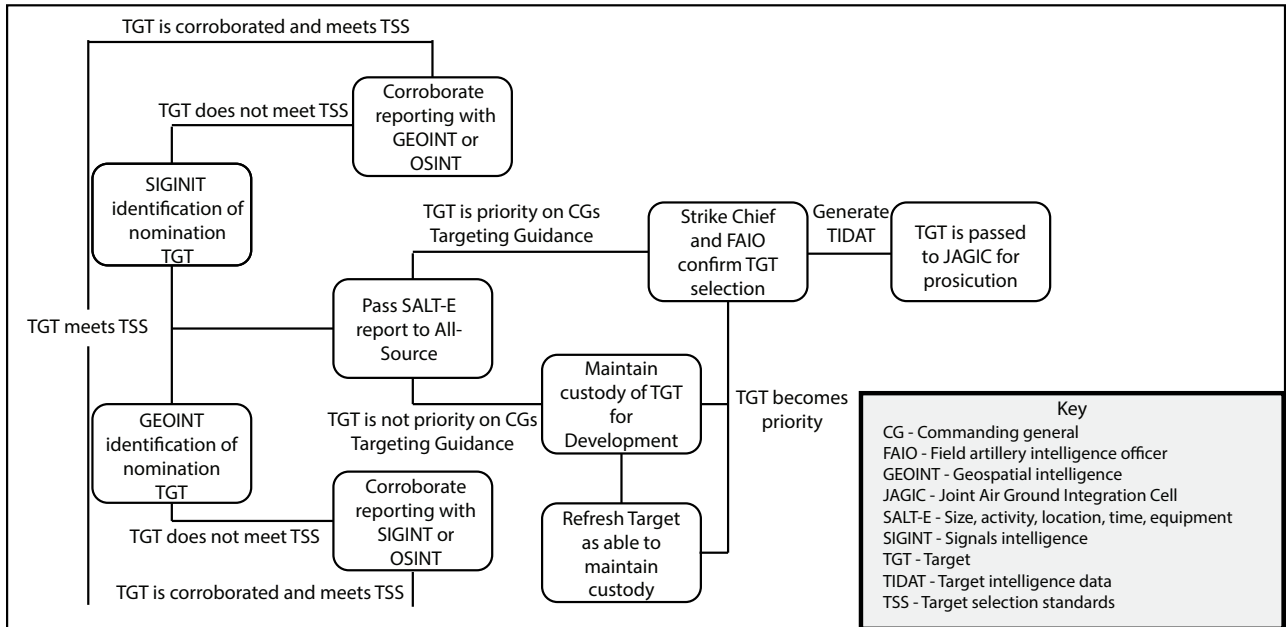
Figure 1. 4th Infantry Division Strike Cell Layout

test bed to innovate, experiment with, and validate the division’s targeting procedures prior to implementation. Additionally, the diversity of knowledge provides multiple solutions to problems, which in turn typically results in the most effective selection process.

Problem Statements

When polling junior GEOINT soldiers and non-commissioned officers across the division, a common response is that after advanced individual training (AIT), most GEOINT professionals have limited or no exposure to NTM—the only exceptions are service members who enjoyed an initial tour of duty within an Intelligence and Security Command (INSCOM) unit. It is true GEOINT soldiers are taught processing, exploitation, and dissemination of imagery in AIT, but proficiency in this task is limited, especially when it is not prioritized during collective or section training events at home station. The typical response

for the inclusion of this type of intelligence is “white card injects,” which afford insignificant training value to the analysts and provides commanders with unrealistic expectations of the quality and confidence of the intelligence provided. The prioritization of ground moving target indicator and full-motion video is heavily encouraged due to the availability of simulations to support this training and the control offered at the division level. Currently, no such training tools are geared toward imagery processing, exploitation, and dissemination or other echelons above division collection. CW4 John R. Livesey III shares this sentiment in his article discussing geospatial intelligence support to targeting. Livesey writes, “GEOINT support to targeting primarily consisted of following targets with unmanned aircraft systems and conducting drone strikes. The Army, and joint forces, will require revitalized and refined GEOINT to support future multidomain operations.”² Additionally, ground moving target indicator



(Figure by author)

Figure 2. Intelligence Support to Targeting Flow Chart

is commonly desynchronized from other war simulation inputs, leading to erroneous analysis and bad practices. In previous 4ID exercises, the strike cell has tipped-and-cued full-motion video assets (Gray Eagle) to positively identify ground moving target indicator detections and was surprised to find nothing in the immediate vicinity.

Separately, as the Army has transitioned to LSCO and multidomain operations, the division must ensure it is utilizing all aspects of collection to generate and maintain an accurate common intelligence picture regardless of what organic assets may be available. With operations conducted against peer adversaries, it is highly likely that airspace will be heavily contested and not easily traversed by unmanned aircraft and unarmed surveillance aircraft. This is echoed in CW3 Trent Taylor and WO1 Evan Lipp’s publication on information collection support to targeting, in which they state, “Army forces will also contend with peer threats capable of employing long-range fires and denying freedom of airspace, compounded by the potential of a disconnected, intermittent, and limited communications environment.”³ Since many assets that divisions currently utilize may be ineffective in the initial stages of LSCO, there will be a gap in the common intelligence picture at that echelon. 4ID has had

some success in supplementing its organic capabilities with NTM. The primary user of NTM at the division level is the SIGINT section. Analysis of SIGINT emissions can greatly increase the effectiveness of other NTM collection efforts by focusing search areas into a manageable sector that can quickly cue other intelligence disciplines, thereby reducing the amount of time required to positively identify critical targets. This is especially true of GEOINT analysts who are typically “snail trailing” through large images in search of possible targets. While the use of SIGINT to tip GEOINT does not completely remove the need to thoroughly exploit images, it does provide a much shorter sensor-to-shooter timeline. This increases the likelihood of successful strikes, especially when targeting highly mobile pieces of equipment such as surface to air missile systems. Cross-confirming with GEOINT is not always required depending on target selection standards and rules of engagement but is highly beneficial when target location errors (TLEs) are immature and require additional refinement to determine an acceptable aimpoint.

Last, through over three years of leading a division G-2 strike cell and IROC in both exercises and real-world operations, one thing has become abundantly clear to me: junior analysts and noncommissioned officers are not fully aware of the capabilities and duties

of their counterparts. This has been true of over thirty individuals, many of whom were not on their initial contract. All-source analysts may obtain a baseline understanding of the other intelligence disciplines as a byproduct of their day-to-day activities. However, compartmented, single-source intelligence analysts are often limited in their opportunities to interact (and thus learn from) their peers.

Signals Intelligence

The challenges in operationalizing SIGINT at the division level are arguably the simplest to solve. Most SIGINT analysts at division are already practiced on drawing NTM-derived information, given the fact that division headquarters do not possess organic signals collection equipment. This creates a dependency on either the brigade organic Prophet system or NTM collection. By prioritizing NTM, division analysts can fill gaps when brigade elements are maneuvering or when their systems are nonmission capable. SIGINT sections at division can maximize situational awareness and understanding by leveraging NTM to look beyond the division deep area, providing additional information that will assist the analysis-and-control element in determining future enemy courses of action.

Notably, 4ID has had success utilizing a SIGINT-specific LSCO training pipeline developed by the Fort Carson Foundry platform, which included classes such as the Basic SIGINT Analyst Course (SI302), Advanced Threat Emitters Course (SI308), SIGINT Support to Counter-UAS (SI313), and Electro-Magnetic Preparation of the Battlefield (SI320). These courses, in conjunction with appropriate command and control, enabled SIGINT to be a more active participant in the targeting process. Additionally, co-locating GEOINT and SIGINT personnel facilitated a free flow of information, greatly contributing to increased productivity and reduced timelines to develop and submit complete and accurate target packets.

4ID SIGINT primarily utilized the Fusion Analysis and Development Effort (FADE)/Multi-Intelligence Spatial Temporal (MIST) tool suite to conduct SIGINT support to targeting. While there were other programs used for refinement and additional context, most of the mission requirements were met with FADE/MIST. The interoperability of FADE/MIST enabled the importation of multiple data sets that

informed assessments and provided additional context to emissions. 4ID SIGINT also utilized electronic order of battle analysis to feed the composition/disposition of enemy displayed on the common intelligence picture.

Another area in which SIGINT enabled success was cross-training all-source and GEOINT analysts on implementing and using FADE/MIST tools. This greatly increased the entire section's ability to locate and cross-cue potential targets with multiple intelligence disciplines, thereby increasing the strike cell's capability and capacity.

Geospatial Intelligence

In general, GEOINT imagery analysts receive the majority of their intelligence support to targeting training during AIT. Within the last year, analysts graduating from AIT enjoy the opportunity to pursue certification in target mensuration only and collateral damage estimation—two certifications paramount for targeting operations. That said, two classes that proved critical to 4ID operations but were (and still are) not part of the standardized training pipeline include Synthetic Aperture Radar Exploitation 1 and 2. The exploitation of synthetic aperture radar imagery is indeed a component of the AIT curriculum, with a specific focus on tactical identification at the onset of training. However, depending on whether the soldier is assigned to a Forces Command (FORSCOM) or INSCOM/Special Operations Command (SOCOM) formation upon graduation, the extent of synthetic aperture radar and electro-optical/infrared imagery exploitation and tactical identification training he or she receives varies significantly. FORSCOM-destined soldiers who attend a FORSCOM-specific training pathway later

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in AIT receive considerably more exposure to those skills than their INSCOM/SOCOM-destined peers. This reality ensures a large portion of AIT-graduates are considerably less practiced at perhaps the most important capability an imagery analyst provides during LSCO.

Decision-makers regularly discount synthetic aperture radar imagery due to the low-confidence assessments commonly associated with its exploitation. Numerous assessments employ confidence call language, such as “probable” or “possible” primarily because imagery analysts often cannot definitively specify the model or variant of equipment. 4ID has had success in utilizing visual aids such as measurements and side-by-side comparisons to further add validity to their analyst’s assessments. Additionally, by utilizing other intelligence disciplines to bolster assessments, many “probable” pieces of equipment have been accepted by the JAGIC or higher headquarters for prosecution. This continuous fight to gain trust with the commander or decision-maker is not specific to intelligence support to targeting but can be the linchpin that separates an effective dynamic targeting cell from an ineffective one.

Processing, exploitation, and dissemination of imagery is one of the most time-intensive requirements in intelligence. Many images cover massive pieces of terrain that require considerable attention to detail and discipline to properly exploit. 4ID currently employs equal parts SIGINT and GEOINT imagery analysts due to a modified table of organization and equipment; however, it would be highly beneficial to staff two imagery analysts per SIGINT analyst to maximize the effectiveness of their coordination. While 4ID was able to complete the majority of its image exploitation before time limits set by target selection standards were met, some images past acceptable decay standards and were only exploited for situational awareness. Increasing the number of imagery analysts available would help to mitigate this issue. Additionally, having SIGINT cue GEOINT into search areas based on target location errors was highly beneficial and maximized the number of targets that could be confirmed via multiple sources. When prospective targets have been confirmed by multiple sources, the JAGIC is more likely to prosecute.

All-Source/Fusion Intelligence

All-source analysts in 4ID have acted as the connective tissue of the targeting cell. All-source analysts are expected to know the capabilities of equipment, the composition and disposition of enemy forces, and where the enemy is most likely to employ its critical systems. By integrating with the GEOINT and SIGINT sections, all-source analysts can effectively convey this information quickly. This leads to increased cross talk within the cell, further increasing the base skills shared by all analysts. 4ID SIGINT has had success in developing electronic order of battle to directly inform the composition and disposition of enemy forces in a combat scenario. The SIGINT personnel will analyze emissions and assess the likely location of accompanying equipment. If unable to identify the equipment via emissions, the GEOINT and all-source analysts will utilize imagery or reporting to provide additional corroboration. If the unit can be successfully identified, battle damage assessment can be properly allocated, enabling an accurate representation of enemy combat power and further informing the commander’s targeting priorities. Additionally, identifying how the enemy forces employ key systems informs the electronic order of battle and order of battle, accounting for changes as adversarial forces improve their tactics, techniques, and procedures with inputs from their successes and failures.

Additionally, all-source personnel in the strike cell provide direct input to the analysis and control element, which results in increased awareness of disposition of forces for future assessments. The simplest way to accomplish this is by generating message data in U.S. message text format and populating it into the intelligence fusion server. Targets that are under prosecution by the JAGIC are sent as an S305, a target intelligence data message; and equipment that is not actively targeted is sent as a S303, an enemy observation report; S309, enemy situation report; or a tactical report. Utilizing the U.S. message text format and populating it on the intelligence fusion server maximizes reach and provides a record to conduct in-depth analysis of movements over time.

Finally, the utilization of open-source intelligence (OSINT) will be necessary in a peer or near-peer contested environment. Adversarial actions may degrade organic collection assets and NTM to the point where intelligence gaps prevent the production of accurate assessments. OSINT will likely be available due to the

sheer number of sensors providing information that are available and will likely serve as the primary resource used to fill these gaps. Multiple real-world conflicts have shown the prevalence of civilians reporting on military operations. This, in conjunction with poor operational security enforcement, results in a fairly accurate depiction of objectives and force posture via OSINT reporting. While some personnel serving within the 4ID strike cell and IROC have OSINT certifications (OS301/302), the operational tempo of the mission set often precluded full utilization of these tools by analysts already consumed with performing their primary occupational tasks. Additionally, OSINT-trained personnel should be included in a targeting cell's staff to enable additional avenues for collection and target information corroboration.

Conclusion

Overall, there are multiple ways that a division G-2 can diversify its collection efforts to better enable its intelligence support to targeting and to increase its analytic potential. Leveraging existing collection capabilities at echelons above division will mitigate gaps caused by a lack of organic assets or possible degradation caused by enemy actions. To fully utilize these assets, analysts should attend formal training and seek out opportunities to attend a live-environment training, or, if possible, stand up an IROC. Staffing the IROC from multiple organizations on a rotational basis will mitigate risk to the unit's day-to-day missions while simultaneously enabling enhanced intelligence training objectives. This also serves to broaden the knowledge and skillset of participants and facilitates the testing of new and more efficient solutions. Additionally, the more time analysts spend learning the duties and capabilities of their cross-discipline counterparts, the more agile and informed their analytic output will be. This will provide the commander or decisionmaker with the best

assessment available and continue to improve the trust relationship that is so critical to the intelligence profession.

An ancillary but not insignificant benefit regarding 4ID's IROC initiative deals with soldier retention. Because 4ID's IROC allowed for the exploitation and processing of real-world data, analysts felt they were doing the job they signed up to do. Removing physical and cognitive barriers to streamline information sharing heightened cohesion within the cell. The potential to contribute to real-world missions likewise enhanced a common sense of purpose. Perhaps most importantly, analysts could visibly see their skillset proficiencies improve, bolstering confidence and pride in work performance. All of these factors underpinned not only an elevated level of job satisfaction among 4ID intelligence professionals (and retention rates) but contributed to the division becoming a faster and more lethal organization as an outcome.

During visits with multiple U.S. Army senior leaders, a singular, common question prevailed: "Why aren't other divisions doing this?" The easy answer is unit operational tempo. Most divisions are juggling operational deployments, training requirements, staff exercises, military intelligence training standards, and more. Justifying the removal of low-density military occupational specialty soldiers to attend a live environment training or stand up an IROC is a vexing task. However, 4ID has found it is possible through strong leadership and calculated manning decisions—namely by (1) establishing a ninety-day rotational cycle for IROC participants, (2) incorporating IROC experiences as part of standing military intelligence training standards requirements, and (3) resourcing participation from across multiple commands so that just one does not bear the entire burden. To be sure, 4ID continues to identify gaps in capabilities as it encounters new requirements or problem sets. However, its experience with its strike cell and IROC demonstrate the potential to improve division lethality beyond historic norms. ■

Notes

1. Field Manual 2-0, *Intelligence* (Washington, DC: U.S. Government Publishing Office, October 2023), 3-20.

2. John R. Livesey III, "Geospatial Intelligence Support to Targeting," *Military Intelligence Professional Bulletin* 49, no. 1 (April 2023): 3, <https://mipb.army.mil/articles/spt-targeting-spec-ed/livesey-geoint>.

3. Trent Taylor and Evan Lipp, "Information Collection Support to Targeting," *Military Intelligence Professional Bulletin* 49, no. 1 (April 2023): 2, <https://mipb.army.mil/articles/spt-targeting-spec-ed/taylor-information-collection>.