Assessing Collection

Image courtesy of PEO IEWS

by Mr. Scott A. Pettigrew

An artist's rendering of the Enhanced Medium Altitude Reconnaissance and Surveillance System.

Intelligence at the Front

In 1943, an American Soldier manning an observation post in Tunisia reported a column of Panzer tanks moving toward Allied lines. The division intelligence officer (G-2) jumped quickly into action to confirm the report, verifying the location of the observer and the coordinates of the reported tanks. The G-2 plotted the reported location on a topographic map, revealing very steep terrain, what some would call a cliff, and thus impossible for an armored vehicle to navigate. The G-2 relayed the information back to the observer to confirm the report, leading to the discovery that the well-meaning scout was looking in the wrong direction. The dust he saw was never adequately explained, but the G-2 concluded that enemy tanks were not the cause.[1] The rapid collection assessment that the G-2 had performed prevented an entire American corps from reacting to an enemy attack that never was. Although the available technology has improved, the importance of assessing collection remains as vital today as it was in World War II.

Overview

Assessing collection, what Army doctrine in 1943 referred to as "evaluation," seeks to measure the performance of collection assets and the relevance of their reports in supporting a unit's intelligence requirements. Assessments help determine if an activity contributes to accomplishing a task or achieving a desired objective.[2] The staff performs operational assessments to inform commanders of the progress of operations, identify risks, and establish resource requirements that will lead to more effective operations.[3] To optimize information collection, the staff continuously assesses the information collection plan; the performance of Army and joint force intelligence, surveillance, and reconnaissance (ISR) assets; and the processing, exploitation, and dissemination (PED) of the resulting intelligence.[4] Collection managers have the primary responsibility to assess the results from reconnaissance missions, surveillance tasks, intelligence operations, and security operations. These assessments help to improve situational understanding and the acquisition of targets and to support commander decision making.[5] Based on the assessment, information collection plans are modified, and tasks to collection assets are changed to better support the unit and commander's intelligence requirements.

Assessing collection happens both during and after each collection mission. Tactical headquarters and ISR asset controllers and analysts have some capacity to evaluate the performance of collection missions as they occur. It is preferable for the staff to identify poor mission performance while it can still be corrected than after the operation has ended. Some ISR missions are not conducive to adjustments during execution, such as the use of special operations forces that may schedule infrequent communication windows to relay reports. Evaluating and adjusting an

ongoing mission requires that the element doing the evaluation have access to the data in near real time and that they can communicate with the collection asset or those who control it.

It is useful to assess collection from two different perspectives. Measures of performance help determine the proper execution of collection missions.[6] However, a perfectly executed collection operation may not answer the underlying question, which is why we also want to measure effectiveness. Measures of effectiveness seek to discover if we are doing the right things. In other words, are we collecting appropriately? This means being sure we are collecting when and where we need to, and with the correct sensor type and suitable indicators and specific information requirements (SIRs) to answer the supported intelligence requirement. Perfectly executed ISR that does not solve the intelligence requirement supporting the underlying objective is ineffective. An intelligence requirement designed to facilitate targeting must produce information that enables the accurate and timely delivery of fires. Merely answering the intelligence requirement is not sufficient if the targeting team still lacks the necessary data to engage.

Assessing the measure of performance and measure of effectiveness should happen simultaneously, but considering the pace of operations and limited time available, determining effectiveness is more important than evaluating performance. Supplying the commander with the intelligence needed to make more informed decisions is of the utmost priority. Repairing performance issues may be necessary to improve effectiveness, but we do not want to spend time addressing performance aspects and lose focus of the most critical reason we conduct ISR. The collection manager, assisted by the staff, should start by evaluating ISR's effectiveness in support of the commander's priority intelligence requirements (PIRs).

Before conducting any type of assessment, we must first identify what it is we are assessing. One method is to develop indicators of both good performance and effectiveness.[7] The information collection plan and other staff planning documents possess the indicators needed to assess both performance and effectiveness. In addition to the indicators, we must know why we are collecting. Every collection mission has a purpose. The purpose is the decision, action, analysis, or planning process that the intelligence requirement supports.

Priority Intelligence Requirements

PIRs are the commander and staff's most important intelligence needs to understand the threat and other aspects of the operational environment.[8] However, the assessment should not gauge effectiveness based only on answering PIRs. The staff must look more in depth as to the reason intelligence questions have been given priority and determine if the objectives were met.

Effectiveness is measured based on the purpose of the collection mission. We can assess collection effectiveness by ascertaining if the collection met the objective. The PIR list alone does not identify the purpose. Documents such as the decision support matrix, target synchronization matrix, and event matrix provide the intent behind each PIR. Collection assessments that only gauge whether the PIR was answered may fail to meet the underlying objective.

Although the PIR's purpose is to focus the intelligence effort, answering the PIR does not necessarily satisfy the intent of the requirement. As Figure 1 shows, satisfying commander decision points and targeting objectives determine effectiveness. If effectiveness is not achieved, the collection mission elements (indicators, SIRs, named areas of interest, and collection times) are an excellent place to start to review performance.

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Priority Intelligence Requirement	Indicators	Specific Information Requirement	NAI	Start	Stop	Assets: Brigade: 1st BN	2d BN	3d BN	3/67 CAV REG	Shadow	Prophet/LLVI	HCT	Assets: EAB: COMINT	ELINT	HUMINT	GEOINT	CI	MASINT	Decision Point	Target Area of Interest
1. Where along AA1 will the 375th BTG initiate shaping operations for an area defense?	1. Special purpose forces in hasty battle positions in vicinity EA1 and EA2	1.1.1 Report communications coordinating enemy movement	1,2	H-48	H+2	C	C	C	C	NT	TA	NT	R	R					1	1
		1.1.2 Report movement of fighters into defensive positions	1,2	H-48	H+2	C	C	C	TP	TA	TA	NT	R			R		R	1	1
		1.1.3 Report communications of reconnaissance assets	1,2	H-48	H+2	C	TA	C	TP	TA	TP	NT	R	R					1	1

Figure 1. Sample Information Collection Matrix Showing Indicators of Performance and Effectiveness[9]

Decision Points

A PIR is customarily written to support specific commander decision points but may also support other requirements such as targeting objectives. Whether ISR has adequately supported the commander's decision point is not always apparent. Open communication between the collection manager and operations officer (G-3/S-3) will help clarify if the collection is sufficient or needs more work. The collection task, indicators, and SIRs may need adjustment to support the decision point adequately.

To assess performance, collection managers can use the information collection matrix to determine what right looks like by deciding if the ISR asset collected in the designated place and at the right time, using relevant indicators and reporting the assigned SIRs. Combat training center observations have identified weak indicators and SIR development as a common trend that negatively affects collection performance.

Indicators inform the collector or sensor analyst of the relevant observables or signatures. Do not underestimate the importance of well-thought-out, insightful indicators. Although collectors and single-source analysts may be well trained, many lack sufficient experience to know all the signs that a particular activity has happened or is about to happen. Irregular warfare creates unique challenges with indicator development because everyday life events and patterns of movement can be mistaken for, or hide, insurgent actions. Foreign cultures also present challenges—"the American way" can be quite different from how things are done in distant lands.

ATP 2-01.3, *Intelligence Preparation of the Battlefield,* contains sample indicators for spotting enemy offensive and defensive actions.[10] The staff should develop additional indicators over time as the unit's understanding of the threat and their tactics increases and by leveraging all the expertise and experience across all staff elements and outside intelligence agencies. The staff element that creates the intelligence requirement owns the primary responsibility to develop the indicators and SIRs. Do not rely on the collection manager to perform this function. The collection manager does not have the time or personnel to complete the analysis on every intelligence gap and gain an understanding to the level of detail required.

High-Payoff Targets

The targeting team reviews and evaluates the entire decide, detect, deliver, and assess targeting process after the completion of each 24-hour targeting cycle. Participation by the entire targeting team will provide a more accurate reading than if the collection manager attempts to evaluate only the "detect" function in isolation. Collection effectiveness in support of targeting during the "detect" phase is typically easier to ascertain. However, incomplete intelligence reporting may result in delivering fires with incomplete data to achieve the best effect. Simply locating a target is not always sufficient to realize the best result. Targeting officers may also require details such as the posture of the target to select the best delivery asset or munition.

A Lesson on Assessments

From 24 March to 9 June 1999, a United States-led North Atlantic Treaty Organization (NATO) force bombed Yugoslavia from the air in an attempt to influence the Yugoslav President to end his country's human rights abuses against the people of Kosovo. The coalition reported great success (based primarily on strike aircraft observation reports) in destroying 120 tanks, 220 armored personnel carriers, and 450 artillery pieces.[11] After the conflict ended, U.S. Air Force investigators on the ground could only confirm 8 percent of the targets reported destroyed. Many of the military hardware targeted turned out to be decoys, or the munition had simply missed the mark.[12] The air campaign produced minimal effectiveness. Airborne ISR assets performing a battle damage assessment were forced to fly less than optimal orbits to avoid the surface-to-air missile threat, hampering battle damage assessment efforts.[13] The lack of an accurate battle damage assessment left the coalition military and political leaders with a false perception of mission success and influenced decisions based on inaccurate information. The inability to precisely measure the level of collection effectiveness also prevented commanders from adjusting operational mission parameters to increase performance.

The targeting team assesses information collection in support of targeting based not only on whether the target was located but also on meeting the target selection standards. Target selection standards address accuracy and other criteria that must be met before targets can be engaged.[14] The target selection standards will affect determining which ISR sensors are best suited for each target and will also feed SIR development. The SIRs inform the PED analyst on what to report and at what level of detail. Collection managers must ensure an ISR platform can meet both the target selection standards and SIRs before designating it to locate or track a target. Figure 2 (on the next page) shows sample target selection standards. These standards consist of four categories:

- **Target location accuracy or target location error.** The grid coordinate that the sensor report provides must be less than the maximum error allowed. Most targets will have multiple accuracy requirements depending on the type of delivery asset used. A 105-mm howitzer, depending on whether the means to adjust fire is present,

may necessitate higher location accuracy than engaging the target with air interdiction assets that have the ability to refine the target location.

- **Size of the enemy activity (point or area target).** The size of the formation may influence delivery asset and munition selection. Targeting officers may also bypass targets that fail to meet the minimum size to preserve delivery capacity for targets with a more significant payoff.
- **Status or posture of the activity (stationary, moving, hull defilade, etc.).** The target's posture is required for most entities because it affects timeliness requirements and will influence delivery asset or munition selection. Collection managers should understand ISR asset capabilities and recognize that some assets are poorly equipped to determine posture.
- **Timeliness of the information.** Tactical assets can move. Some assets, such as a tank formation, can quickly shift from a defense to a march formation, while a massive headquarters takes more time to tear down and pack up before displacing. Therefore, a 1-hour-old report may be sufficient to employ fires against some targets while others will require a more recent confirmation.

High-Payoff Target	Timeliness	Accuracy	Posture	Min. Size
Artillery	10 min	500 M	Stationary	Section
Command Post	1 hr	1 KM	Stationary	Battalion
Armor	15 min	750 M	Stat/Moving	Company
SA Missile	30 min	300 M	Stationary	Section

Figure 2. Sample Target Selection Standards[15]

Other Intelligence Requirements

All intelligence requirements are important to answer; otherwise, they would remain intelligence gaps and no resources would be allocated to satisfy the requirement. The reality of large-scale combat operations is that time available for the staff to conduct assessments is in short supply. PIRs are questions that must be answered, while other intelligence requirements are less urgent and should receive collection resources only if possible.[16] If pressed for time, assess collection in support of PIRs first, and only evaluate ISR leveraged against other intelligence requirements as time permits. Another time-saving tool is to conduct an initial assessment for all requirements, such as the number of collection missions and the number of reports per requirement while saving a detailed evaluation for the commander's PIRs.

Assessing the "Why"

Determining why performance or effectiveness did not meet expectations is vital and frequently misidentified. Failure to accurately identify the underlying cause of performance or effectiveness issues could lead to applying the wrong solution to the problem. We have already discussed many of the reasons why collection may be ineffective or perform poorly based on not meeting the specific collection requirements or target selection standards, but a myriad of issues can cause information collection challenges, some of which are specific to the type of collection asset or the operating environment.

An excellent first step in determining where the collection misfired is to ask the collection asset operators or single-source analysts. ISR asset operators possess an intimate understanding of the capabilities and limitations of their systems. They can provide performance insights and assessments that collection managers may find challenging to reach based on less training or experience. A time-saving approach would be to merely ask the collector why the mission did not produce the desired results. Organic single-source intelligence sections should provide the collection manager with an assessment of their intelligence discipline's performance and effectiveness, along with recommendations for improvement.

A fundamental and standard method to assess human intelligence (HUMINT) collection team performance is to count the number of reports generated over a designated period. While this technique is not a bad starting point, leaders must look deep to determine why team production levels vary and not reach rash conclusions related to Soldier proficiency or effort. HUMINT collection teams are frequently attached to maneuver battalions. How the force employs the asset, population density, cultural norms, civilian support for the enemy (either passive or active), and interpreter proficiency or access can all affect team production or report effectiveness in answering the requirements.

Signals intelligence (SIGINT) and geospatial intelligence (GEOINT) collection assets may experience performance issues due to terrestrial or space weather, terrain, line of sight, or range limitations. Weather can present challenges beyond merely how the elements affect the sensor. Human activity, whether trained military personnel, insurgents, or civilians, changes with the weather. Do not discount the weather as a potential reason why activity and reporting have either increased or decreased.

Collection managers should also consider operational environment characteristics as possible reasons affecting ISR effectiveness. National, religious, and cultural holidays and celebrations, including sporting events, can influence ISR

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Echelon	ISR Asset	NAIs	DPs	HPTs	Effectiveness	Performance
EAD	E-8 JSTARS	1002, 1003	1	5,7,9	Located 12xG6	Outside time requirement
	EC-130 Compass Call	1105 - 1110	3	3	Located 3xCrotale	No issues
	SOF	1250	5	NA	ID possible insurgent cell	No reports
Division	Gray Eagle 1 (FMV)	1105, 1106	1	5,7,9	Located tank column	SIR inadequate
	Gray Eagle 2 (FMV)	1107, 1108	3	3	Possible C2 node vic WG	No issues
	Gray Eagle 3 (FMV)	1109, 1110	5	2	NA	NMC - Maintenance
	Gray Eagle 4 (GMTI)	1105 - 1110	2	NA	100+ vehicles vic AA1	No issues
1 BCT	RQ-7B Shadow	1007, 1008	4	1	NA	Grounded - High winds
	HUMINT	1001, 1002, 1003	5	NA	No reports	No interviews
	PROPHET	1001, 1002, 1003	NA	6,8	ID possible SPF net	DF did not meet TLE
	Cavalry Squadron	1009	1	2	No pertinent observation	Late to objective

Figure 3. ICSM Modified to Track Effectiveness and Performance

asset observations and reports. Activity may inexplicably increase or decrease depending on the culture and nature of the event or season.

Collection Assessment Working Tools

The information collection synchronization matrix (ICSM) is a useful ISR planning and execution tool.[17] The collection manager builds the ICSM for each daily tasking cycle, depicting ISR asset support and how each sensor's mission times and collection locations support friendly operations. The current operations staff uses the ICSM to ensure collection remains focused on the commander's priorities. The product helps understand the overall goals of the ISR plan when making adjustments through dynamic retasking.

The ICSM is also well suited to be a working tool to assess collection. It is easy to modify the document to track the effectiveness and performance of each mission (Figure 3). As previously mentioned, once either an effectiveness or a performance issue is identified, more research must be done to fully understand the problem and ascertain why effectiveness or performance suffered and what actions are required to prevent future challenges.

To maximize the time available and leverage resident expertise, the senior intelligence officer should spread the assessment duties throughout the intelligence section based on functions and responsibilities, with the collection manager retaining overall responsibility for collection assessments:

- **G-2/S-2 current operations:** Assess active ISR missions and provide timely feedback to collectors and PED analysts to improve the performance and effectiveness of ongoing tasks.
- **Fusion section:** Assess ISR effectiveness support to PIRs and work with the intelligence and operations planners to assess intelligence support to decision making.
- **Intelligence targeting section:** Collaborate with the field artillery intelligence officer and the targeting team to evaluate collection support to targeting.
- **GEOINT/SIGINT/G-2X:** Assess both the measure of effectiveness and the measure of performance of each collection mission within each single-source section's respective discipline.

Collection Assessment Presentation Tips

How a unit presents information to the commander is based on the individual commander's preference and the staff's creativity. In general, graphics are preferable to high volumes of text, and the charts should be easily understandable and require minimum explanation. Figures 4 (below) and 5 (on the next page) are examples of how to demonstrate collection effectiveness in supporting commander decision making and targeting priorities. Some leaders desire to see more data related to the number of missions conducted compared to how many were planned,

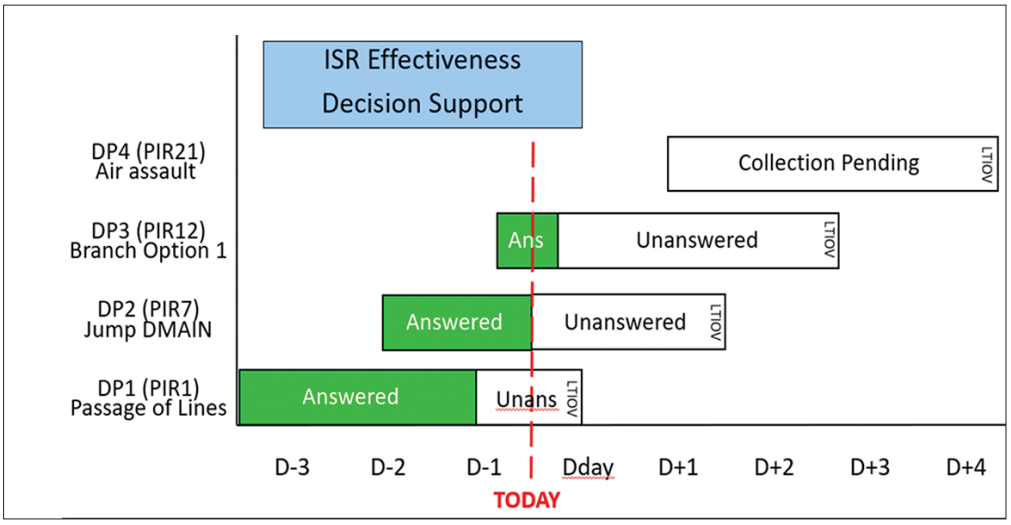

Figure 4. ISR Effectiveness Decision Support

or production numbers tied to the number of reports received. Presenting this type of data can give a false impression of either performance or effectiveness. Be prepared to provide analysis-based reasoning, digging deep to flesh out the "why" for any data presented.

In Figure 4, the left side of each bar represents the approximate time when the requirement becomes active and collection begins. The graphic provides a visual representation to the commander of progress toward the identified intelligence requirements in support of anticipated decision points prior to the latest time information is of value (LTIOV).

Figure 5 counts the number of enemy systems located and the measures of effectiveness based on meeting daily and overall targeting goals. The graphic provides a visual representation to the commander of progress toward locating high-payoff targets.

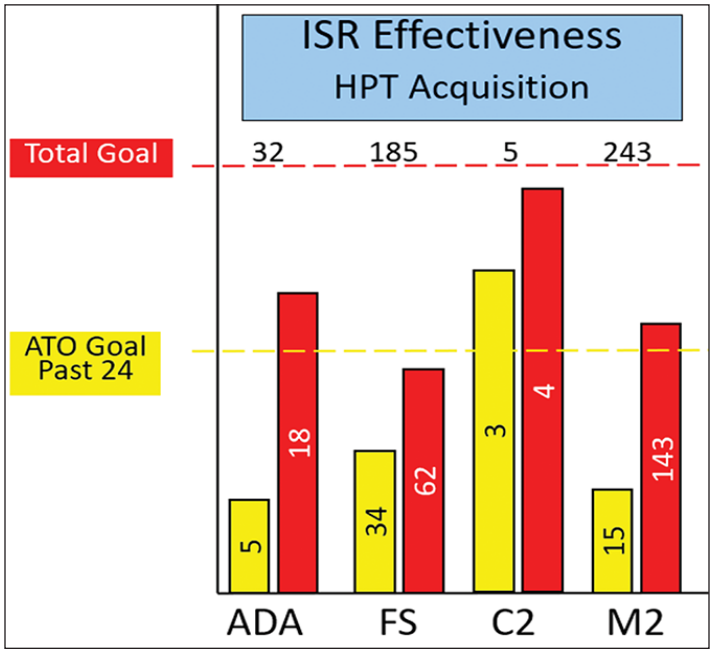

Figure 5. ISR Effectiveness High-Payoff Target Acquisition

Conclusion

The staff continuously assesses the operation to know where they stand in accomplishing the specified tasks and reaching the desired end state, and to identify where they need to make adjustments to get back on track. Within the overall assessment function, the collection manager leads the critical role of coordinating and conducting the evaluation of ISR activities. Failure to thoroughly assess information collection could contribute to missed targeting opportunities and the commander not obtaining the knowledge necessary to make the most informed decisions. Assessments are important and should not be regarded as optional. Proper planning will create a framework in which the entire intelligence, operations, and fires team plays a role in assessing collection, thus maximizing ISR asset resources and meeting the commander's objectives.

Endnotes

1. Stedman Chandler and Robert W. Robb, *Front-Line Intelligence* (Washington, DC: Infantry Journal Press, 1946), 93.

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3. Department of the Army, Army Techniques Publication (ATP) 5-0.3, *Multi-Service Tactics, Techniques, and Procedures for Operation Assessment* (Washington, DC: U.S. Government Publishing Office [GPO], 7 February 2020).

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8. Department of the Army, Army Doctrine Publication (ADP) 5-0, *The Operations Process* (Washington, DC: U.S. GPO, 31 July 2019).

9. Department of the Army, ATP 2-01.3, *Intelligence Preparation of the Battlefield* (Washington, DC: U.S. GPO, 1 March 2019), 6-24. The article figure is adapted from ATP 2-01.3, Figure 6-15, Information collection matrix example.

10. Ibid.

11. John Barry, "The Kosovo Cover-Up," *Newsweek,* 14 May 2000, https://www.newsweek.com/kosovo-cover-160273.

12. Ibid.

13. Benjamin S. Lambeth, *NATO's Air War for Kosovo: A Strategic and Operational Assessment* (Santa Monica, CA: RAND Corporation, 2001), 111.

14. Department of the Army, ATP 3-60, *Targeting* (Washington, DC: U.S. GPO, 7 May 2015).

15. Ibid. The article figure is adapted from the example table shown on page D-2 of ATP 3-60.

16. Department of the Army, ADP 2-0, *Intelligence* (Washington, DC: U.S. GPO, 31 July 2019).

17. Department of the Army, ATP 2-01, *Plan Requirements and Assess Collection*.

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