The Importance of Properly Refining Priority Intelligence Requirements for Mission Success

by Major Altan Orgil

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Asking the Right Questions

A division G-2 tells his collection manager: "We need to know when and where the enemy will employ chemical munitions, which could affect the wet gap crossing operation. Here are the priority intelligence requirements (PIRs); let's get an answer." The collection manager tasks a junior team member to build the information collection plan to answer the PIRs. Since the unit focused its intelligence preparation of the operational environment (IPOE) on enemy maneuver courses of action (COAs), the IPOE products did not include information on enemy chemical weapon employment COAs. The junior Soldier contacts the division chemical, biological, radiological, and nuclear (CBRN) officer to help refine the PIRs by developing indicators and specific information requirements (SIRs) to request and task collection capabilities. However, the CBRN officer is busy preparing for a meeting but gives her a quick class on chemical agents' varying persistency levels. The junior Soldier completes the task to the best of her knowledge and submits for approval. The collection manager, busy with meetings and without knowledge of chemical weapons, approves the plan. As the division approaches the wet gap crossing, the G-2 asks the intelligence fusion senior analyst and collection manager how much fidelity they have on the CBRN employment PIR. The analyst tells the G-2 he did not see any reports of suspected chemical weapons in the area of operations; however, there are enemy long-range systems that can range the wet gap crossing site. Despite the poorly satisfied PIR, the commander assumes the risk of conducting the operation. As the operation starts, the enemy employs chemical weapons on both the far and near sides of the wet gap crossing, resulting in the isolation of the far side forces and chaos and confusion on the near side. Because the chemical decontamination elements were not placed close to the site, reaching the site and starting decontamination operations will take a while. At this point, the wet gap crossing forces would have to continue operations fighting dirty in the highest mission oriented protective posture until a clean crossing site can be established and new forces assume the attack.[1]

Foreseeing an alternative future to this situation, the division chief of staff (COS), having a CBRN background, directs her staff, especially the division CBRN officer, to help the G-2 refine the PIR through reverse IPOE during the military decision-making process (MDMP) or the rapid decision-making and synchronization process (RDSP) to obtain a more precise and accurate answer regarding the enemy's employment of chemical weapons. Additionally, the COS invites the CBRN brigade commander or his representative for input during MDMP and RDSP, as they bring more CBRN-specific analytic capability and input to the feasibility of positioning decontamination capabilities to where they may be needed most. Armed with the unique indicators and SIRs associated with the enemy's chemical COAs, the G-2 can obtain better answers to the PIRs, identify specific targets related to the enemy's employment of chemical munitions, reduce surprise and risk to the force while setting conditions for a successful wet gap crossing operation, and enable decisions for maneuver and CBRN commanders.

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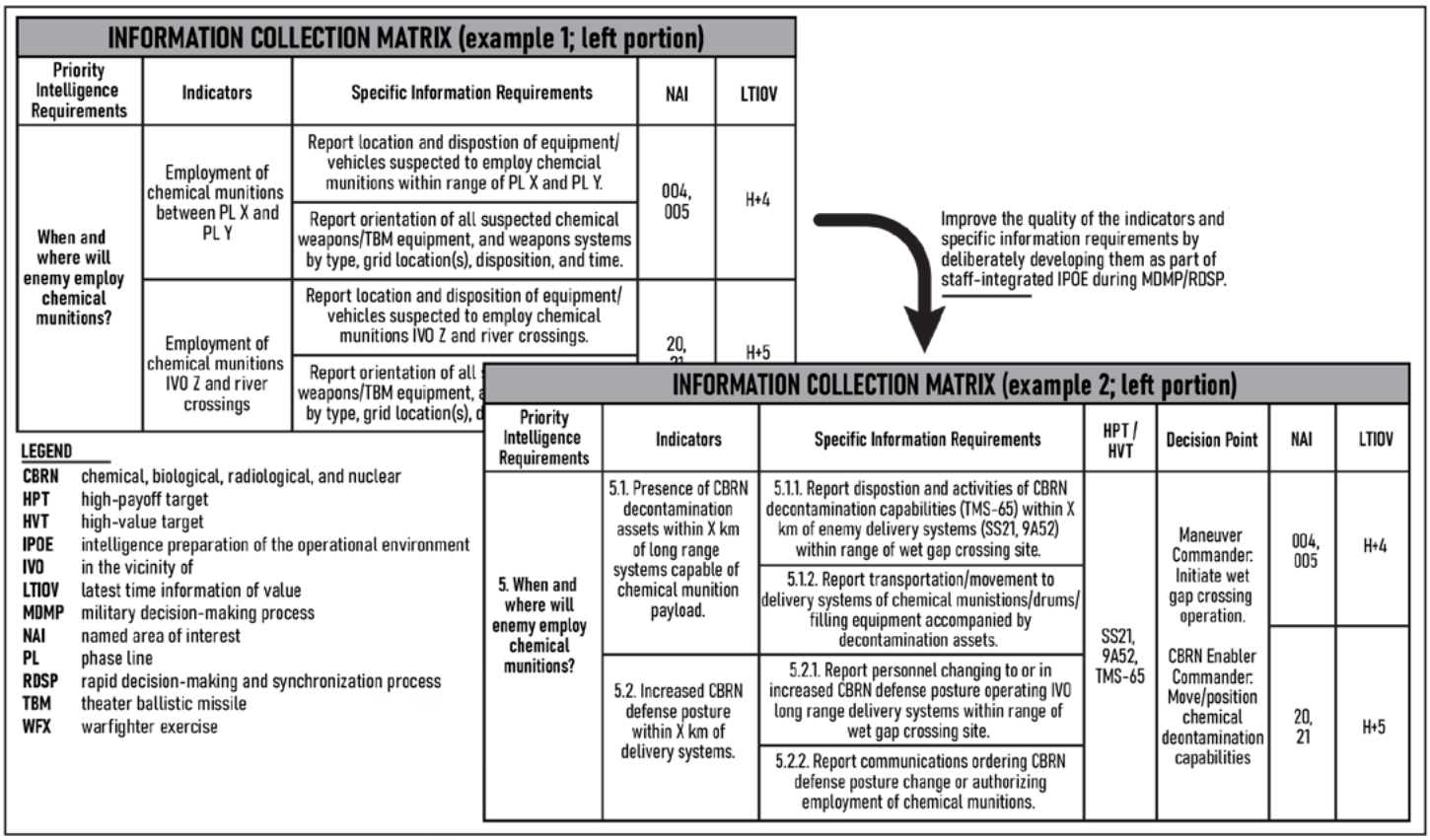
Introduction

The vignette, though fictional and discussing only one aspect of many operational considerations, highlights the importance of accurately and precisely refining PIRs with the involvement of subject matter experts (SMEs) for mission success. Mission success in large-scale combat operations requires timely and effective decisions, which are achieved by leveraging the operations process to organize, integrate, and synchronize across multiple domains.[2] Commanders, staff, and subordinate headquarters employ the operations process to gain information advantage by integrating the warfighting functions through processes such as IPOE, information collection, targeting, risk management, and knowledge management.[3] The side possessing better information and using that information more effectively to assess and understand the operational environment (OE), shape the OE, and make decisions has an information advantage.[4] How do you obtain better information? The answer is by asking better questions and integrating the warfighting functions into the processes to provide operational assessments that better inform the commander's decision making.

The IPOE and MDMP determine PIRs, which are questions about the threat and OE, the answers to which a commander considers the most important to making decisions.[5] Since PIRs are broad natured, the collection management team, with assistance from intelligence analysts, refines each PIR into discrete pieces of information, or subsets, that together should answer the PIR.[6] The quality of those subsets, which comprise essential elements of information (optional), indicators, and SIRs, directly affects how precisely and accurately the staff answers PIRs and assesses progress toward achieving objectives and missions.[7] However, most, if not all, units do not develop subsets as a collaborative staff effort during MDMP, leading to less than optimal employment of collection capabilities, incomplete or inaccurate answers to PIRs, and missed opportunities for targeting.[8] Having the entire staff and enablers integrated into IPOE will increase the quality of indicators, SIRs, named areas of interest (NAIs), and high-payoff targets (HPTs), resulting in more effective information collection, accurate answers to PIRs, and identification of exploitable opportunities to gain information advantages. The information collection matrix (ICM) tool facilitates a forum to translate the IPOE knowledge and gaps into actionable and observable requirements (i.e., the indicators and SIRs) to confirm or deny understanding of the OE and enable informed decisions.

What is an Information Collection Matrix, and How to Build It

The ICM is one of three tools the G-2 staff employs to capture and link SIRs with collection capabilities.[9] The staff can also use the ICM to record information requirements identified through the operation assessment process.[10] The indicators



INFORMATION COLLECTION MATRIX (example 1; left portion)

Priority Intelligence Requirements	Indicators	Specific Information Requirements	NAI	LTIOV
When and where will enemy employ chemical munitions?	Employment of chemical munitions between PL X and PL Y	Report location and dispostion of equipment/ vehicles suspected to employ chemcial munitions within range of PL X and PL Y.	004, 005	H+4
		Report orientation of all suspected chemical weapons/TBM equipment, and weapons systems by type, grid location(s), disposition, and time.		
	Employment of chemical munitions IVO Z and river crossings	Report location and disposition of equipment/ vehicles suspected to employ chemical munitions IVO Z and river crossings.	20, 21	H+5
		Report orientation of all … weapons/TBM equipment, … by type, grid location(s), …		

Improve the quality of the indicators and specific information requirements by deliberately developing them as part of staff-integrated IPOE during MDMP/RDSP.

INFORMATION COLLECTION MATRIX (example 2; left portion)

Priority Intelligence Requirements	Indicators	Specific Information Requirements	HPT / HVT	Decision Point	NAI	LTIOV
5. When and where will enemy employ chemical munitions?	5.1. Presence of CBRN decontamination assets within X km of long range systems capable of chemical munition payload.	5.1.1. Report dispostion and activities of CBRN decontamination capabilities (TMS-65) within X km of enemy delivery systems (SS21, 9A52) within range of wet gap crossing site.	SS21, 9A52, TMS-65	Maneuver Commander: Initiate wet gap crossing operation.	004, 005	H+4
		5.1.2. Report transportation/movement to delivery systems of chemical munistions/drums/ filling equipment accompanied by decontamination assets.				
	5.2. Increased CBRN defense posture within X km of delivery systems.	5.2.1. Report personnel changing to or in increased CBRN defense posture operating IVO long range delivery systems within range of wet gap crossing site.		CBRN Enabler Commander: Move/position chemical deontamination capabilities	20, 21	H+5
		5.2.2. Report communications ordering CBRN defense posture change or authorizing employment of chemical munitions.				

LEGEND

CBRN	chemical, biological, radiological, and nuclear
HPT	high-payoff target
HVT	high-value target
IPOE	intelligence preparation of the operational environment
IVO	in the vicinity of
LTIOV	latest time information of value
MDMP	military decision-making process
NAI	named area of interest
PL	phase line
RDSP	rapid decision-making and synchronization process
TBM	theater ballistic missile
WFX	warfighter exercise

FIgure 1. Priority Intelligence Requirement Refinements Comparison.[12]

associated with enemy COAs identified during IPOE and those that reflect changes in the OE over time form the basis for building the ICM and planning collection.[11] At a minimum, it must include PIRs, indicators and SIRs tied to PIRs, decision points, NAIs, collection time windows, and all available collection capabilities.

As discussed in the vignette, all staff sections, or at least the SMEs associated with the subject of the PIRs, should assist the intelligence staff in refining the PIRs. Figure 1 compares the indicators and SIRs developed for the same PIR with and without SME involvement. The indicators and SIRs in the top ICM were developed with minimal or no participation from warfighting functions.[13] In contrast, the indicators and SIRs in the bottom ICM are a staff integrated product with input from CBRN SMEs that more accurately defines the indicators and SIRs associated with the enemy's potential employment of chemical weapons.

The IPOE informed by collection based on the top ICM is more likely to result in mission failure, whereas IPOE, targeting, and decisions informed by collection based on the indicators and SIRs in the bottom ICM are more likely to lead to better collection and mission success. The difference in the quality of the subsets between the two ICMs highlights the importance of deliberately refining PIRs as a staff integrated process. This article will discuss how the subset quality impacts each of the integrating processes.

Properly Refining PIRs Helps Drive Focused Information Collection

Refining PIRs as part of staff integrated IPOE increases the efficiency of information collection focused on answering PIRs. Developing SIRs and NAIs is a crucial step in creating the information collection synchronization matrix (ICSM) and other information collection tasking and requesting documents for layered employment of collection and reconnaissance capabilities (Figure 2, on the next page). Developing the indicators and SIRs with involvement from the SMEs provides detailed information that is understandable and actionable by collectors, such as human intelligence collectors, unmanned aircraft system (UAS) operators, chemical reconnaissance, or cavalry scouts. For example, to satisfy the first SIR in the top ICM in Figure 1, a UAS operator or the processing, exploitation, and dissemination (PED) analysts will not know what constitutes equipment/vehicles suspected to employ chemical munitions and will likely not be able to satisfy the SIR. In contrast, the first SIR in the bottom ICM provides detailed information regarding the enemy CBRN activities and capabilities, including specific equipment nomenclatures and distances that the UAS operators or the PED analysts can identify by referencing enemy equipment order of battle documents.

The information collection teams integrate layered surveillance and reconnaissance capabilities into the collection plan

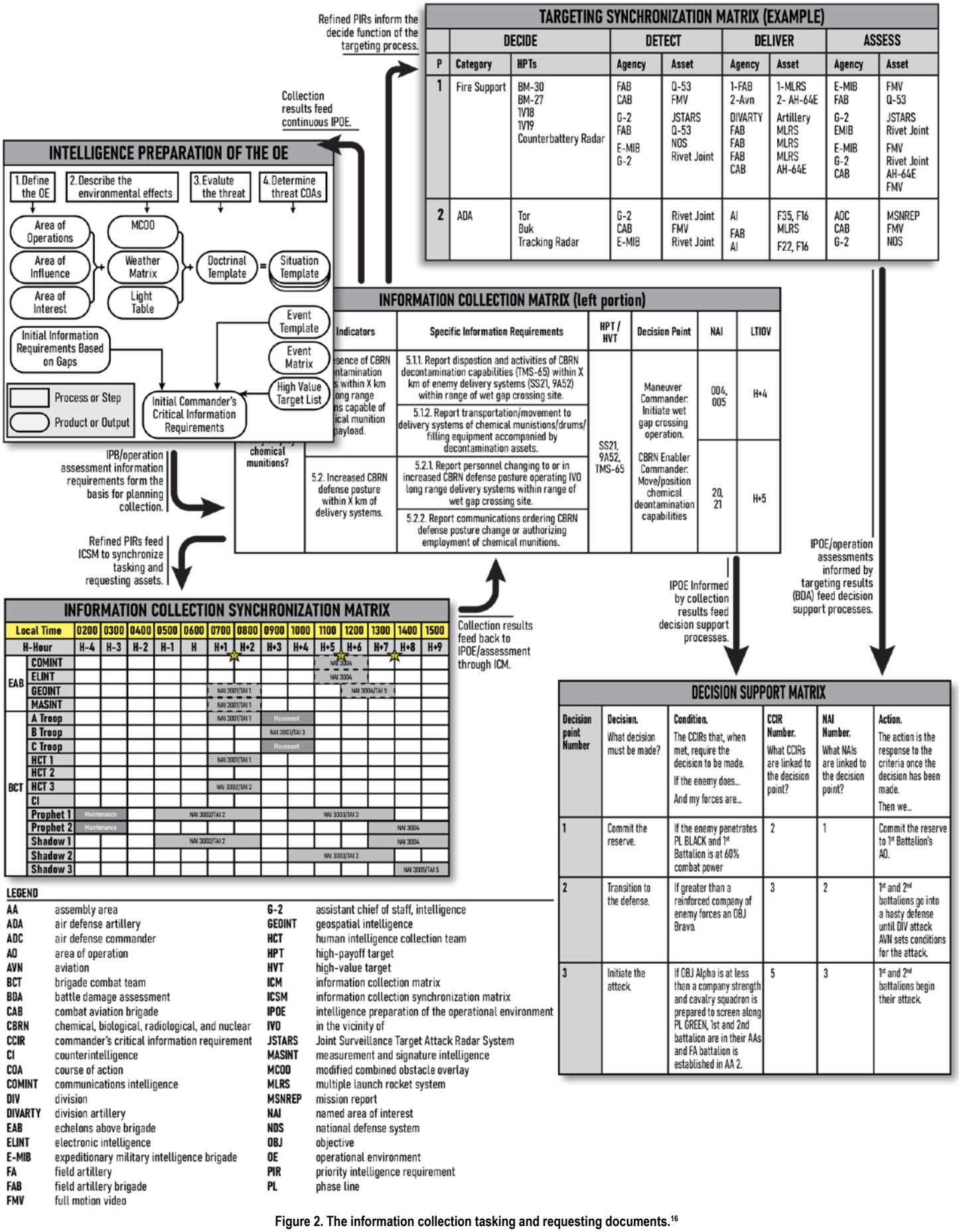


Figure 2. The information collection tasking and requesting documents.[16]

to supplement traditional collection assets. This includes joint and other unified action partner capabilities to maintain continuous reconnaissance and detect deception.[14] For example, the SIRs developed with the assistance from maneuver or engineer SMEs can form the basis for reconnaissance objectives for cavalry scouts or engineer reconnaissance, respectively.[15]

Once collection results are obtained, the intelligence elements can correlate the answers to the SIRs, which can be traced back to the associated PIR in the ICM to objectively assess how well the PIR is answered.[17] For example, once all SIRs except 5.2.1. in the bottom ICM in Figure 1 have been answered, the staff may assess that PIR #5 has been satisfied. When integrated with the results of friendly force information requirements, this leads to enabling decisions by the commanders of the maneuver and CBRN enabler organizations.

Properly Refining PIRs Enhances Situational Understanding

Properly refining PIRs enhances understanding of the enemy and the OE to enable informed decisions. It results in more comprehensive answers to PIRs and refinement of the decision support and the operations synchronization tools. The IPOE, one of the integrating processes of the operations process, identifies information gaps or critical facts about the enemy, the most important of which are then translated into PIRs.[18] Developing the indicators and SIRs associated with the PIRs as a staff integrated process allows staff to account for all relevant domains and dimensions that may be difficult to imagine or depict on two-dimensional map products, such as event templates. When answered through collection and processing, those subsets feed the continuous IPOE process to describe the OE more fully and minimize the potential for surprise and missed windows of opportunity.

An evaluation of the two ICMs in Figure 1 demonstrates the difference the quality of subsets makes in obtaining more accurate and precise answers to PIRs and identifying targets that have the most bearing on answering PIRs and enabling decisions. The indicators in the top ICM are not valid to help answer the PIR because they point to evidence of the threat's use of chemical munitions after employment. Furthermore, the SIRs associated with those indicators do not provide the specificity collection assets need on enemy equipment type, nomenclature, or activity related to the enemy's potential employment of chemical weapons.[19] In comparison, the indicators and SIRs developed with the involvement of CBRN SMEs in the bottom ICM in Figure 1 provide the level of detail needed to provide predictive indicators or observables associated with the enemy's potential employment of chemical weapons. The specificity and relevancy of the subsets influence how well staff answers PIRs and determine enemy COAs.

Properly Refining PIRs Supports Targeting

Properly refining PIRs supports the targeting process by helping staff identify exploitable opportunities or targets, successful effects on which have the most bearing on answering PIRs and enabling the commander's decision making. Breaking down the PIRs, while considering various domains and including SMEs, can reveal additional opportunities not identified in the traditional IPOE products, such as an event template.[20] For example, the development of indicators and SIRs in the bottom ICM of Figure 1 reveals that the presence of enemy decontamination assets in the vicinity of long-range systems may indicate possible employment of chemical weapons and presents an opportunity to target those assets. The desired effects on these targets will help shape the OE through the operations process and enable follow-on decisions from a position of relative advantage.[21]

As shown in Figure 2, refined PIRs can help identify opportunities and inform the development of the targeting synchronization matrix that assists the staff and the commander in deciding on specific HPTs and assigning responsibilities to detect, deliver, and assess effects on those HPTs.[22] The G-2 collection management team may develop an optional targeting addendum to the ICM on those HPTs to streamline the detect and assess functions of the targeting process.[23] An additional benefit of developing an addendum is that it can include a collection plan to help assess the battle damage after the deliver function of targeting is completed.

Successful employment of lethal and nonlethal effects against the targets identified through the information requirements within the physical, information, and human dimensions can create multiple dilemmas for the opponent, which may force the enemy to abandon its initial end state. In other words, the consequences of the effects can compel the threat to change their decision making, thus enabling a friendly position of relative advantage.[24] For example, a successful detection and neutralization of the targets identified in the bottom ICM in Figure 1 will likely disrupt the enemy's ability to employ chemical munitions, thus reducing the CBRN risk to the force and enabling informed decisions to initiate wet gap crossing operations from a position of relative advantage.

Recommendations

The author proposes the below recommendations to optimize the development of the indicators and SIRs as a more deliberate process to obtain more accurate answers to PIRs, increase the efficiency of information collection, and identify exploitable opportunities to gain information advantages and decision dominance.

Refine PIRs as part of the staff integrated IPOE and make the indicators and SIRs associated with the PIRs a deliberate output of IPOE by including the subject matter experts from across the staff and functional enablers.[25] Through reverse

warfighting function input into IPOE during MDMP, units can adequately address analysis and collection tasks against key enemy capabilities, including enablers such as air defense, fires, obstacles, CBRN, logistics, reconnaissance, and electronic warfare. Additionally, some units find the *Generic Intelligence Requirements Handbook* developed by the Marine Corps Intelligence Activity helpful. Alternatively, units may create their own checklist of generic or specific information requirements to expedite the PIR refinement process and to ensure consideration of the various aspects of the operational environment.

Deliberate in time and space: "Are we asking the right questions (i.e., looking for or looking at the right things) to answer PIRs and enable the commander's decision making?" in addition to "Are we employing the right collection assets to answer PIRs and enable the commander's decision making?" The answer to the second question rests mainly within the ICSM, while the answer to the first question can be found in the ICM. The ICSM is usually briefed to the commander as part of the collection plan during virtually every brief. However, the ICM is rarely, if at all, briefed or shown to the commander. The commander, COS, or the G-3 is essential to ensuring SME involvement in refining PIRs. Additionally, their intent and the art of visualizing the OE can influence the quality of the indicators and SIRs by spot checking them during the planning and execution phases of the operation. Through this leader involvement, asking the right questions leads to better answers to PIRs, better understanding of the OE, identification of opportunities to shape the OE, and enabling informed decisions.

Conclusion

Commanders, staff, and subordinate headquarters use the operations process to gain information advantages by successfully employing the warfighting functions across multiple domains and integrating the key operations processes. Most units do not apply a deliberate approach to developing better questions to fully answer PIRs. Integrating all staff and enablers into IPOE will increase the quality of indicators, SIRs, NAIs, and HPT development. This will result in streamlined information collection, more accurate answers to PIRs, and effective targeting. Successful units deepen their multidomain understanding of the OE by making the development of the indicators and SIRs a deliberate output of staff integrated IPOE and applying the ICM tool as a bridge between the various integrating processes. Furthermore, units will efficiently determine their progress toward achieving objectives that inform the commander's decision making, leading to relative advantage and a better chance of mission success.

Endnotes

1. Department of the Army, Field Manual (FM) 3-0, *Operations* (Washington, DC: U.S. Government Publishing Office [GPO], 1 October 2022), 3-14.

2. Department of the Army, Army Doctrine Publication (ADP) 5-0, *The Operations Process* (Washington, DC: U.S. GPO, 31 July 2019), 1-4, 1-15.

3. Department of the Army, FM 3-0, *Operations*, 1-22.

4. Department of the Army, Army Techniques Publication (ATP) 2-01.3, *Intelligence Preparation of the Operational Environment* (Washington, DC: U.S. GPO, 1 March 2019), 1-5. Change 1 was issued on 6 January 2021. Change 2 was issued on 23 January 2024; and Department of the Army, FM 3-0, *Operations*, 3-9.

5. Department of the Army, ATP 2-01, *Collection Management* (Washington, DC: U.S. GPO, 17 August 2021), 3-3; and Center for Army Lessons Learned, Handbook Number 23-03, *FY22 Mission Command Training in Large-Scale Combat Operations: Mission Command Training Program (MCTP) Key Observations* (February 2023), 27.

6. Department of the Army, ATP 2-01.3, *Intelligence Preparation of the Operational Environment*, 1-5–1-10; and Department of the Army, ATP 2-01, *Collection Management*, 3-3.

7. Based on the author's observations during warfighter exercises 21-4, 22-4, 23-1, and 23-2, as a training audience and observer, coach, and trainer; Center for Army Lessons Learned, Handbook Number 23-03, *FY22 Key Observations*, 24, 27; and Center for Army Lessons Learned, Handbook Number 22-712, *Priority Intelligence Requirements (PIRs): Can You Impact Your Unit's Success?* (2022).

8. Department of the Army, ATP 2-01, *Collection Management*, 6-10.

9. Department of the Army, ATP 5-0.3, *Operation Assessment: Multi-Service Tactics, Techniques, and Procedures for Operation Assessment* (Washington, DC: U.S. GPO, 7 February 2020), 19.

10. Department of the Army, ATP 2-01.3, *Intelligence Preparation of the Operational Environment*, 6-23.

11. Ibid., 6-7–6-9.

12. The example information collection matrix (ICM) in Figure 1 is slightly modified from a division-level Appendix 1 (Information Collection Matrix) to Annex L (Information Collection) to Operations Order for Warfighter Exercise (WFX) 21-4.

13. Department of the Army, FM 3-0, Operations, 6-27; and Department of the Army, FM 3-98, *Reconnaissance and Security Operations* (Washington, DC: U.S. GPO, 10 January 2023), 1-4, 2-10.

14. Center for Army Lessons Learned, Handbook Number 22-02, *Mission Command Training Program FY21.2 Key Observations: Mission Command Training in Large Scale Combat Operations* (December 2021), 23.

15. Department of the Army, ATP 2-01, *Collection Management*, 8-2–8-14, C-2; and Department of the Army, ATP 5-0.3, Operation Assessment, 19.

16. The ICM is modified from a division-level Appendix 1 to Annex L to Operations Order for WFX 21-4; the intelligence preparation of the operational environment graphic is modified from Figure 2-15, Department of the Army, ATP 5-0.2-1, *Staff Reference Guide Volume 1, Unclassified Resources* (Washington, DC: U.S. GPO, 7 December 2020), 74; the information collection synchronization matrix is copied from Figure 6-6, Department of the Army, ATP 2-01, *Collection Management*, 6-15; the targeting synchronization matrix is copied from Table D-4, Department of the Army, FM 3-60, *Army Targeting* (Washington DC: U.S. GPO, 11 August 2023), D-6; and the decision support matrix is copied from Table F-1, Department of the Army, FM 5-0, *Planning and Orders Production* (Washington, DC: U.S. GPO, 16 May 2022), F-4. Change 1 was issued on 4 November 2022.

17. Department of the Army, FM 3-0, *Operations*, 3-9.

18. Department of the Army, ATP 2-01, *Collection Management*, 5-8–5-9.

19. Center for Army Lessons Learned, Handbook Number 22-02, FY21.2 *Key Observations*, 10.

20. Department of the Army, FM 3-0, Operations, 1-3; and Department of the Army, ATP 2-01.3, *Intelligence Preparation of the Operational Environment*, 1-12.

21. Department of the Army, FM 3-60, *Army Targeting*, D-6.

22. Department of the Army, ATP 2-01, *Collection Management*, 6-13; and Department of the Army, FM 3-60, *Army Targeting*, 2-5.

23. Department of the Army, FM 3-0, *Operations*, 3-13.

24. Department of the Army, ATP 2-01.3, *Intelligence Preparation of the Operational Environment*, 1-5, 1-13.

25. Center for Army Lessons Learned, Handbook Number 22-02, *FY21.2 Key Observations*, 10.

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