Fusing Data into a Battle Damage Assessment for the Commander

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Vignette

It was a rainy Sunday morning during the Corps Warfighter Exercise (WFX). After 72 hours of deliberate targeting against the enemy, the Commanding General (CG) asked his staff during the Targeting Decision Board (TDB) if the Corps had set conditions for the divisions to conduct their wet gap crossing (WGX). The Corps Commander looked at the G-2 for an assessment. The G-2 Targeting Officer (G-2T) and Fire Support Coordinator (FSCOORD) briefed the overall strength of the enemy and assessed combat systems removed from the battlefield, but they did not provide an assessment of targeting's overall effects on the enemy's ability to affect the WGX. Based on the number of combat systems removed from the battlefield, the CG ordered the division to begin the WGX.

At 0400, the 1st Armored Brigade Combat Team (ABCT) ordered the Multi-Role Bridge Company (MRBC) from the Brigade Engineer Battalion (BEB) to bridge two 107-meter gaps across the river to enable the division's crossing. The MRBC immediately received indirect fire from enemy 9A52s and 2S19s belonging to the 20th Integrated Fires Command (IFC), causing heavy casualties and destroying the bridging assets. Additionally, 2S6M ADA systems protecting enemy defenses near the WGX destroyed six AH-64 Apache helicopters supporting 1 ABCT. The Corps Deputy Commanding General for Maneuver (DCG-M), who controlled the fight from the Tactical Command Post (TAC), ordered 1 ABCT to cease crossing operations and to establish a hasty defense while the division attempted to destroy the enemy ADA and artillery affecting the WGX. The DCG-M looked at the G-2 and G-3 for an update. He asked why 1 ABCT and the CAB received such heavy casualties from enemy artillery and ADA when the staff briefed all 9A52s and 2S6Ms supporting defenses near the WGX were destroyed.

After re-evaluating the BDA provided to the Commander, the G-2 realized that several factors led to an inaccurate assessment regarding enemy composition, disposition, and capability with respect to the WGX. First, the G-2T incorrectly assessed the number of combat systems removed from the battlefield. He did not account for decoys on the

battlefield, and he counted effects on the same 2S6M and 2S19 battery twice because the Combat Aviation Brigade (CAB) and the Infantry Battalion both reported battle damage assessments (BDA) on the same enemy unit. Second, when the G-2T briefed the CG on the number of combat systems removed from the battlefield, he did not delineate between those tasked to affect the WGX and those aligned against the other friendly division. Finally, nobody provided the CG with a description of what enemy capabilities remained on the battlefield and how the enemy could use those capabilities to interrupt the WGX. As a result, based on the manner in which the G-2 section briefed their battle damage assessment, the CG believed the corps had met its targeting objectives to enable to WGX when, in reality, the enemy retained the capability to halt the division and force them into a hasty defense.

Introduction

The previous vignette highlights the importance not only of accurately analyzing the damage inflicted upon enemy combat systems by friendly targeting efforts but also of using that knowledge to holistically assess the enemy's remaining capability to affect friendly operations. Unfortunately, the lack of a standardized BDA process within Army doctrine hinders a unit's ability to develop an effective BDA framework, forcing units to rely on individual experience, commander guidance, and trial and error to train G-2 analysts on how to collect, refine, and assess BDA during Large Scale Combat Operations (LSCO). This article serves as a supplement to Army doctrine by describing all elements of BDA to help analysts provide commanders with more than just the number of systems removed from the battlefield. It provides recommendations on how to train and organize the G-2T section and highlights the most effective ways to conduct BDA that support both targeting and the commander's decision-making process.

What is BDA?

Before developing a BDA process, all participants must first understand what BDA is and how it supports assessments to develop shared understanding for their unit. BDA is the timely and accurate estimate of damage against a predetermined target (enemy weapon systems, personnel, or capabilities) caused by lethal or non-lethal military force. BDA is more than counting the number of casualties or pieces of equipment destroyed. BDA helps answer these three questions:

- 1. Did we destroy targets off the commander's High Payoff Target List (HPTL)? This is Targeting Effectiveness.
- 2. If so, does the enemy need to adjust combat power to achieve its objective? This is the Enemy's Counter-Action.
- 3. Do we need to re-attack High Payoff Targets (HPTs) to set conditions for mission success? This is Re-Attack Criteria.

BDA is broken down into three components to help assess effects on a target:²

1. <u>Physical Damage Assessments</u>: What was the observed or interpreted extent of damage to a target?

Example: 2 of 3 x 2S19s destroyed near OBJ X-RAY.

2. <u>Functional Damage Assessments</u>: Can the enemy target perform its intended mission? This interim assessment must include the estimated time it will take for the enemy to replace or fix the capability.

<u>Example</u>: The remaining 1 x 2S19 vicinity OBJ X-RAY maintains limited capability to effectively target friendly forces at OBJ X-RAY since the enemy cannot mass fires on the WGX. However, 20th IFC can reposition an MRL BN within two hours to range the WGX.

3. <u>Target System Assessments</u>: A broad assessment of the overall impact and effectiveness engagements had against an entire target system capability.

<u>Example</u>: While friendly targeting achieved the desired effects against the 2S19s affecting OBJ X-RAY, it did not destroy all the systems the 20th IFC relies upon to support and enable defenses near OBJ X-Ray (CPs, IL220 radars, 9A52s, SA-17s, and 2S6Ms).

Providing an accurate target system assessment is the most critical component to BDA because it helps the commander and staff both to understand the effects against an entire system e.g., 20th IFCs CPs, 1L220 radars, 9A52s, SA-17s, and 2S6Ms and to determine if the enemy unit still has the ability to accomplish its task. While assessing effects against a target system is a crucial first step toward providing situational understanding, analysts must also understand why BDA is vital to the commander's targeting process. Once analysts understand how BDA supports the targeting process, they can effectively prioritize battle damage reports and use the assessments to develop a shared understanding of the enemy threat.

Why is BDA Important?

Commanders utilize BDA to visualize the threat and understand whether conditions are set for units to achieve the next phase of the operation. Accurate BDA contributes to the commander's understanding of risk and assists with identifying windows of opportunity for exploitation. It is a critical component within the commander's decision-making process, and it requires the G-2 section to provide more than just the assessed number of combat systems destroyed.

BDA must contribute to the commander's understanding of the threat by providing an estimate of remaining enemy capabilities and their ability to disrupt friendly operations in conjunction with a description of how friendly targeting disrupted the enemy's course of action, intentions, and decision-making cycle.³ When assessing the enemy's remaining critical capabilities, analysts must account for decoys, over reporting, force displacement, and enemy reconstitution or reinforcements to provide an accurate assessment and to refine deliberate targeting operations. Additionally, analysts must assess how long effects of targeting will last. For example, destruction of all 9A52s supporting the battle zone may only provide an 8-hour window before the enemy reinforces the IFC. The commander

needs to understand this time constraint to either adjust the operational tempo or to maneuver forces to exploit the opportunity created through targeting.

Limited resources available to units and commanders during LSCO require detailed information and assessments to enable the best use of all available combat power. Understanding the commander's objectives and desired end state is a critical step to effective collection management, targeting, and BDA⁴. Staffs cannot effectively decide what HPTs to collect against, destroy, and assess in time and space to support the commander's objectives if they do not clearly understand the desired end state. If the G-2 and staff only report numbers and fail to provide an assessment that helps the commander to visualize the threat, the commander will not be able to effectively allocate resources or to determine whether re-engagement of HPTs is necessary.

Establishing the G-2 Targeting Section

Successful units support the commander's decision-making process by effectively organizing the targeting enterprise for combat, utilizing a clearly defined BDA framework and routinely exercising these processes with the same personnel. This begins with organizing the G-2T section for combat.

Although Corps and Division G-2 sections understand the significance of conducting accurate BDA, they typically do not allocate sufficient personnel, training, or systems to achieve the required level of accuracy and analysis to inform targeting and decision-making. Due to 35F personnel shortages within the G-2, the G-2T section typically consists of only two to four Soldiers to perform BDA. These analysts often lack sufficient training on the targeting process, the enemy's order of battle, and the unit's approach to BDA to succeed at their tasks. To build an effective targeting team, the G-2 must first identify Soldiers to serve as BDA analysts and ensure they remain in the position throughout the unit's training and deployment cycle.

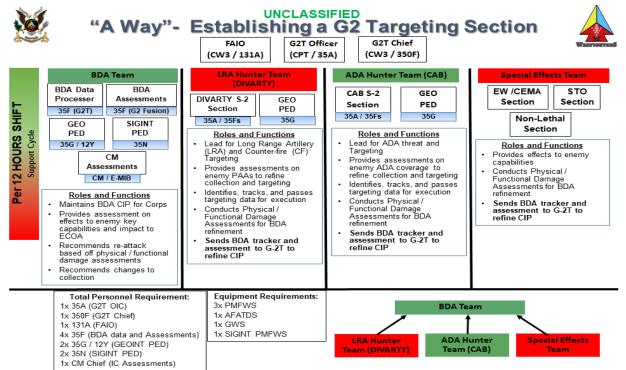


Figure 1

The targeting section concept depicted above is "a way" both to establish a G-2T section at corps or division and to synchronize efforts with the functional brigades. Once the team is established, units must develop a plan to train analysts on the following:

- Enemy order of battle and critical capabilities
- Unit methodology for reporting, tracking, and assessing BDA at echelon
- Data management tools and processes
- BDA's contribution to targeting and situational understanding

While the G-2T is responsible for the overall management of the BDA Common Intelligence Picture (CIP) and targeting process, the Division Artillery (DIVARTY) or Field Artillery Brigade (FAB) and the Combat Aviation Brigade (CAB) S-2s all have responsibilities to submit BDA to higher and analyze the enemy artillery and ADA threat. Synchronizing these efforts provides greater analysis on critical enemy capabilities that threaten the unit's operations since the CAB and DIVARTY S-2's expertise and primary focus are on those threats. However, in order to ensure these units fully understand their role and functions in support of targeting and the BDA process at echelon, the G-2 must also clearly define their roles and responsibilities in the G-2 and Division Tactical Standard Operating Procedures (TACSOP). Once the G-2 section establishes roles and responsibilities, it must standardize BDA reporting formats and timings to streamline the process and prevent double counting or gaps in physical damage reporting to the greatest extent possible.

BDA Reporting Requirements

BDA reporting is fast-paced and can quickly overwhelm an analyst if systems are not established, disseminated in orders, and adhered to by all units and enablers within the unit's area of operation (AO). Accepting multiple BDA reporting formats increases the risk of duplicate battle damage reports, creating over reporting and inaccurate assessments. Units should implement a standardized automation process to ingest reports (C104 and C119 BDA reports) in DCGS-A and create a BDA tracker that at a minimum includes the following:

- DTG and mission number
- Enemy unit (assessed or confirmed)
- MGRS (helps with unit correlation and where effects occurred on the battlefield)
- Tasked detection and delivery asset (ensures assets are tasked for BDA)
- The unit who reported BDA (include POC if further clarification is required)
- Effects against the target (Physical / Functional Damage Assessment)
 - Include measures of effectiveness to expand assessments beyond simple order of battle charts depicting physical damage
- How the unit confirmed initial BDA (What collection asset observed the BDA?)
 - Green = BDA confirmed by collection asset, Yellow = BDA needs to be confirmed / reconfirmed and Red = there were no effects
- Recommended re-attack criteria based on enemy attrition requirements

"A Way" - Enemy BDA Chart

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Purpose of BDA Chart:

- · Chart used to conduct physical and functional damage assessments and determine re-attack criteria requirements
- Helps inform G2 enemy assessment and whether unit achieved required effects on enemy (based off ATO "Kill Contract")
- Helps inform G2 of collection plan refinements (Did we find HPTs?)

Minimum BDA Chart Requirements:

- BDA Chart must be standardized at echelon, clearly defining input requirements to tracker
- · Must include equipment type, authorized and on-hand strength
- . Should have attrition goals by echelon (Corps, DIV, BDE) for each critical event and what was actually achieved

Figure 2

While trackers such as the one depicted in Figure 2 help consolidate data for the G-2T analysts to process, BDA charts also help analysts to describe effects achieved on enemy capabilities e.g., whether the unit destroyed the entire target system capability killing friendly formations and what critical capabilities remain. These charts help refine targeting and set conditions for current and future operations. These products should be standalone and used as briefing tools in the Targeting Working Group (TWG). BDA charts should also provide enough detail for the commander and staff to inform their decisions. All BDA products must have a date-time group to prevent the staff from using obsolete data when developing assessments. Additionally, units must establish a PACE plan to disseminate the reports promptly.

UNCLASSIFIED How to Read BDA Scorecard

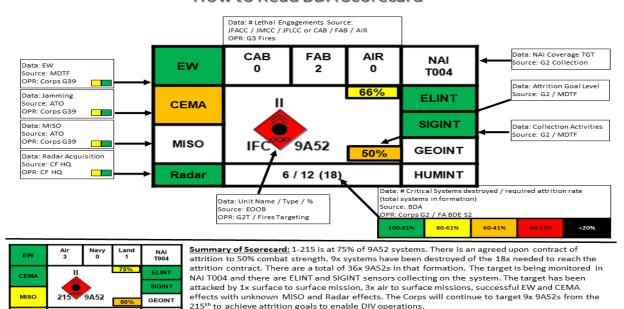


Figure 3

The example BDA scorecard in Figure 3 is "a way" to provide detailed information to the commander on effects to enemy capabilities. The scorecard shows the assets used to detect the enemy, how the unit delivered effects against the enemy, how many critical systems remain, and if the unit achieved its attrition goal to set conditions. The scorecard also has analyst comments at the bottom to summarize if targeting disrupted or destroyed the enemy's ability to use the asset or if future targeting is required to support the commander's desired end state. Having an established common reporting format that feeds an effective BDA tracker will help facilitate discussion in working groups and assist with setting targeting priorities.

BDA Working Group

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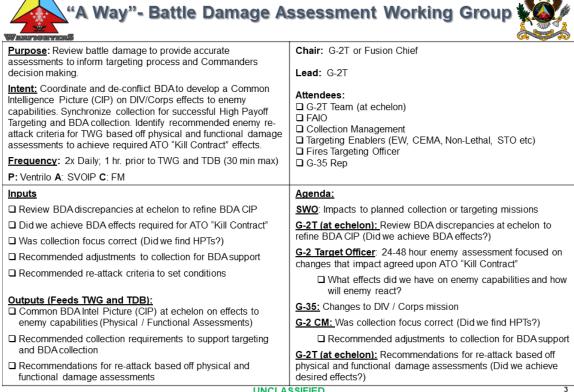
Radar

HUMINT

Once battle damage reports are processed, units normally do not have a working group or system to refine BDA with subordinate units and higher headquarters. Often, the G-2 discusses BDA during the G-2 Sync or TWG since there are already too many meetings and not enough time for work. While this avoids creating another forum, these meetings do not provide ample time to review BDA discrepancies, remaining BDA requirements, and future operations that require BDA collection. Successful units conduct BDA WGs that meet before the TWG and TDB to allow enablers to refine assessments of the enemy's strength, of the impacts on the enemy commander's critical capabilities (HPTs) and systems, and of the enemy commander's reaction based off achieved targeting effects. Additionally, the BDA WG enables the collection manager to synchronize collection assets before the TWG for BDA, re-attack requirements, or target development based on physical and functional damage assessments. Synchronizing assets and targeting requirements will ensure the unit achieves the required Air Tasking Order (ATO) effects. At a minimum, subordinate unit Targeting Officers, Field Artillery Intelligence

Officers (FAIOs), collection enablers, Collection Managers (CMs), and Combined Forces Air Component Command (CFACC) LNOs must attend the working group to achieve the desired inputs and outputs for the meeting.

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Figure 4 outlines the intent and purpose of a BDA WG, an agenda, and the inputs and outputs for the meeting. The required outputs of the BDA WG include collection requirements and re-attack recommendations that feed directly into the subsequent CM WG and TWG.

Figure 4

Role of Collection in the BDA Process

Planning and balancing targeting, BDA, and situational understanding collection requirements in advance helps ensure assets are available at the required time and location for HPT detection. Additionally, it prevents the unit from dynamically re-tasking assets to search for HPTs instead of collecting BDA to refine situational understanding.5 While tasking assets for BDA collection is vital to understanding the threat, it will limit available assets for target development and acquisition. The CM WG verifies collection requirements are covered and assets synchronized for situational understanding, target development, and BDA collection. The WG also helps the G-2 develop indicators within the collection plan ahead of time. This is crucial to timely assessments, especially if observation of the damage or effect is required. Indicators allow analysts to conduct the following:

- Rapidly identify critical targets
- Task resources capable of collecting the required information
- Identify best collection times
- Provide specific changes in activity the sensor should collect
- Assess how the change in activity impacts the target's functional status

Once BDA is collected, the G-2T and Fusion sections conduct analysis to determine if the unit achieved the desired effects from targeting. These results must be discussed in the BDA WG and included in the G-2T's TWG assessment to determine if re-attack or adjustments to the collection plan are required. ⁶

The example ISR Plan in Figure 5 is a method to ensure adequate coverage of all the collection focus areas, appropriate allocation of ISR assets to support target development, BDA, and situational understanding, and clear identification of collection gaps and risk mitigation measures prior to each TWG and TDB. The Collection Manager uses the TWG and CM WG to prepare the assessment and collection requirements for the commander and staff in the TDB.

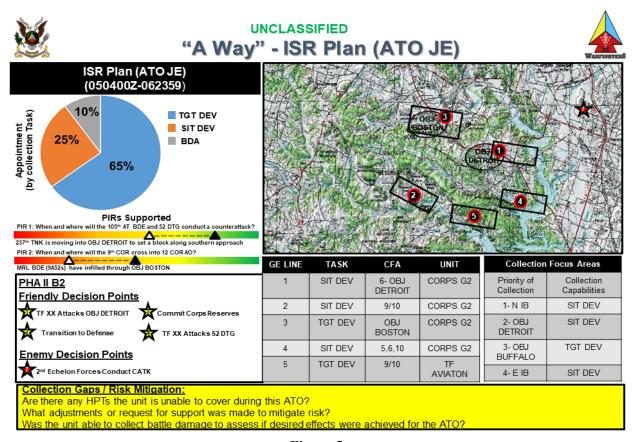


Figure 5

Turning Battle Damage into Combat Assessments for the Commander

Outcomes from the BDA and CM WG assist the G-2T analysts with fusing battle damage reports into detailed assessments to facilitate targeting. The commander's HPTL by phase of the operation clearly delineates enemy capabilities important to the commander and informs analysts what critical enemy capabilities will significantly contribute to the friendly course of action when destroyed. G-2T analysts must prioritize battle damage reports based on the HPTL and use the data to assess impacts against the enemy. Analysts must also focus on assessing the enemy's remaining critical capabilities. The G-2T must account for decoys, force displacement, and the enemy's ability to reconstitute or reinforce units in order to provide an accurate assessment and to refine deliberate targeting for current and future operations. Similar to the United States Army, it's adversaries will attempt to replace losses in combat power and capability to prevent the loss from disrupting operations.

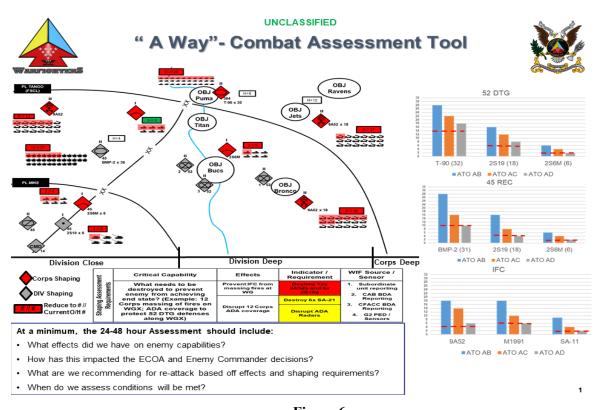


Figure 6

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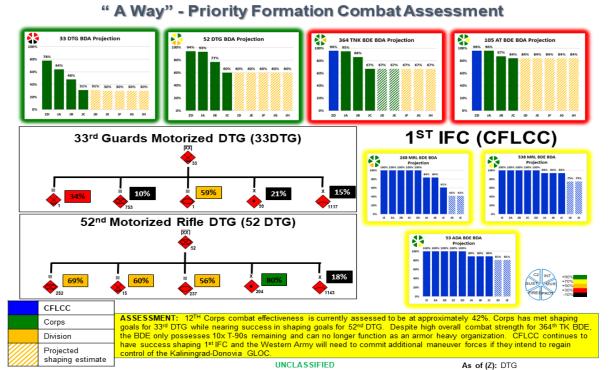


Figure 7

The combat assessments in Figures 6 and 7 provide the commander with a visual depiction of the effects targeting had on the enemy and how the enemy will react to mitigate or replace the combat losses. These assessments are crucial to helping the commander determine if re-engagement is necessary before moving assets for follow-on targeting efforts. These products, along with the G-2's verbal description, must include the critical components of Physical Damage, Functional Damage, and Target System Assessment to inform the commander and staff if the enemy can employ its capabilities to disrupt the mission.⁸

At a minimum, a 24-48 hour combat assessment must include the following details:

- Effects achieved on enemy capabilities (BDA) must account for decoys and over reporting
- Targeting impacts to enemy course of action and decision making
- How the enemy will react to prevent the loss of combat power from impacting their course of action (account for asset displacement and ability to reconstitute or reinforce units)
- Re-attack recommendations based on effects, situational understanding and shaping requirements
- Timeline of when enemy attrition conditions will be achieved

The staff uses the assessment to articulate effects against the enemy in time and space, prioritize remaining critical enemy capabilities to target in future ATOs, and adjust the

operational timeline when necessary. An example of how combat assessments inform the commander's decisions are:

"Ma'am, we have destroyed 1x MRL BN CP, 2x 1L220s, 18x 9A52s, 6x 2S19s and 3x 2S6Ms supporting defenses along the WGX, preventing 20th IFC from massing fires and protecting HPTs near the WGX (What). Conditions against the enemy are set for 3 ID to cross the wet gap 24 hours earlier than previously assessed. We have approximately 6 hours until OSC-S reinforces defenses with an additional MRL BN and 2S6M company (So What). Therefore, between now and H+6, 3 CAB will have air superiority to target remaining enemy defenses and the enemy will not be able to mass fires with LRA against 3ID (Which Means). We recommend conducting the WGX in the next 4-6 hours to take advantage of the enemy conditions and prevent the enemy from reinforcing their defenses (Recommendation).

Presenting comprehensive combat assessments that includes the what, so what, which means, and therefore-recommendation during the TWG and TDB highlight the effects achieved on enemy capabilities and provide a timeframe of how long it will take the enemy to replace it. This analysis informs the commander's decisions and synchronizes targeting.

Roles and Responsibilities of the Commander and Staff in the TWG and TDB

The TWG and TDB synchronize all staff efforts in support of targeting discussed in this paper. The TWG supports the TDB by reviewing, as required, initial collection requirements and prioritizing targets based on commander guidance during the previous decision board. Critical to the TWG is the integration of crucial targeting enablers at the action officer level that will assist in achieving desired targeting effects. The TWG also determines the targets that require BDA. Units should select only the most critical targets since valuable collection assets must be diverted from targeting to perform BDA.

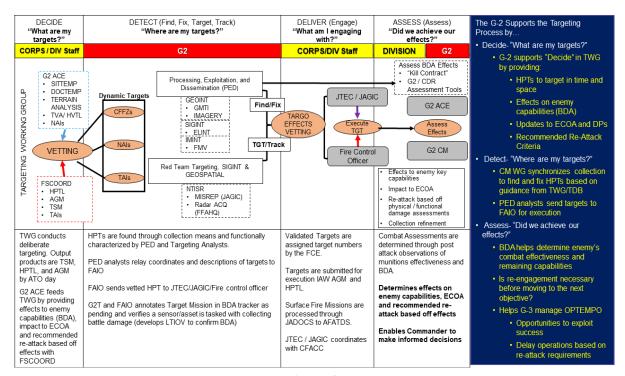


Figure 8

Prior coordination in the BDA and CM WG will help facilitate discussion and provide the necessary analysis for planning and allocating resources in the TWG. The G-2 section plays a critical role in providing threat assessments of the enemy, allowing other staff sections and enablers to determine how to employ capabilities in support of targeting efforts (Figure 8).

During the TWG, the G-2 should brief the information below: 10

- The enemy situation and upcoming assessed enemy decision points (combat assessment)
- BDA from the previous ATO and how it has impacted the enemy course of action
 - Re-attack recommendations if unit did not achieve desired effects
- Predictive 24-72 hour enemy MLCOA and MDCOA and how the enemy will react
 - Assessed / confirmed disposition of HPTs within the ATO timeline
- Recommended changes / updates to HPTL
- Recommended changes to PIRs for Commander's approval (staff reviewed)
- Review current and brief proposed changes to the information collection plan

Once the G-2 section provides its assessment, enablers and staff must provide inputs on integrating their capabilities or resources to support the targeting efforts. Staff sections and enablers need to apply critical thought and foresight to assist their planning efforts and influence the G-2's assessment. The enemy threat is constantly evolving because of operational variables. If time allows, the G-2 needs to notify the staff regarding critical enemy threat updates before the TDB especially if it negatively affects the plan developed

in the TWG. Lastly, units must avoid using the TWG as a rehearsal for the TDB. Doing so prevents enablers and staff sections from brainstorming and synchronizing effects delivered against a target, degrading targeting efforts.

The TDB is one of the few opportunities for the staff to provide the commander with an accurate assessment of the threat and how the unit plans to defeat the enemy to accomplish the mission. The TDB is not an information brief. Instead, the staff receives guidance and decisions from the commander that drive future planning, allocation of resources, and targeting operations. Staffs must use the TDB to seek clarification. Units fail when they do not seek clarification on the commander's guidance. Some commander-level decisions the staff should request are below:

- Approval to reallocate commander's critical assets to support targeting
- Changes to the HPTL and/or re-prioritizing HPTs
- Approval for updated CCIR (PIR, FFIR)
- Changes to the operational tempo if required

Commanders can be extremely helpful in acquiring additional resources required from higher headquarters to achieve desired effects. During the TDB, the staff must articulate support requests for the commander during their dialogue with the higher headquarters commander. Requests for support should only occur after the staff has completed the "science" behind the request and all staff-to-staff coordination is exhausted.

A running estimate that provides an assessment in time and space is beneficial to help the commander retain the analysis provided during a lengthy TDB. The G-2 Fusion section should be responsible for developing the Intelligence running estimate for the commander. While running estimates are based on how a commander receives information, the Corps G-2 running estimate in Figure 9 is "a way" to provide a threat assessment to a commander.

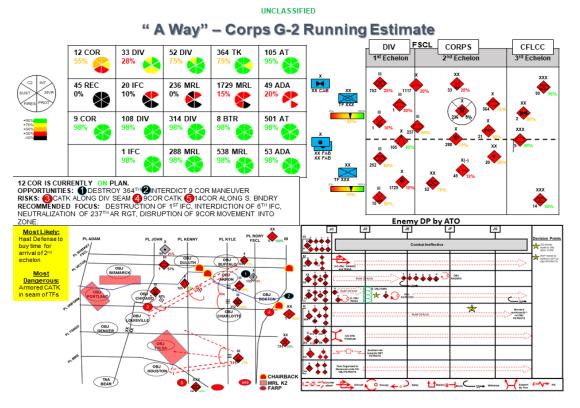


Figure 9

The running estimate provides the following:

- Enemy combat strength by echelon
- The enemy MLCOA and MDCOA
- If the enemy is on plan to achieve the course of action
- Risks the enemy poses to friendly forces operations
- The G-2s recommended focus against the enemy
- Future enemy DPs by ATO

Accurate BDA and communication between enablers and subordinate units will help ensure estimates provide necessary analysis for the Commander to visualize the threat.

Conclusion

The fast and constantly evolving environment during LSCO requires well-trained analysts with systems in place to quickly capture and analyze data that refine assessments to support targeting and commander decision-making. Similar to friendly force combat slants, BDA will never be 100% accurate. Nevertheless, successful units develop a BDA framework that assists the commander with visualizing the threat to make informed decisions and synchronize operations. Key recommendations to develop an effective BDA process are below:

- Establish a G-2T section early in the training cycle to ensure analysts understand their roles and responsibilities. Once the G-2T section is established, develop a plan to train analysts on:
 - The enemy's order of battle and critical capabilities
 - The unit's methodology for reporting, tracking, and assessing BDA at echelon
 - How to employ data management tools and processes
 - How BDA contributes to targeting and situational understanding
- Create standardized BDA reporting requirements and publish the requirements in an order to mitigate duplicate battle damage reports from subordinate units.
- Develop a BDA WG that reviews BDA discrepancies, remaining BDA requirements, and future operations that require BDA collection to provide greater accuracy during the TWG and TDB.
- Balance situational understanding, targeting, and BDA collection requirements to answer the commander's PIR and support targeting priorities.
- Combat assessments provide the commander the effects targeting had on the enemy and how the enemy will react to mitigate or replace a combat loss. At a minimum, a 24-48 hour combat assessment must include:
 - Effects achieved on enemy capabilities (BDA)- must account for decoys and over reporting
 - o Targeting impacts to enemy course of action and decision making
 - How the enemy will react to prevent the loss of combat power from impacting their course of action (account for asset displacement and ability to reconstitute or reinforce units)
 - o Re-attack recommendations based on effects and shaping requirements
 - o Timeline of when enemy attrition conditions will be achieved
- Avoid using the TWG as a rehearsal for the TDB. The TWG allows enablers and staff sections to brainstorm and synchronize effects delivered against a target.
- The staff must request decisions and seek clarification on targeting priorities during the TDB. Some commander level decisions are:
 - Approval to reallocate commander's critical assets to support targeting
 - Changes to the HPTL and/or re-prioritizing HPTs
 - Approval for updated CCIR (PIR, FFIR)
 - Changes to the operational tempo if required

When units employ a BDA process that incorporates these recommendations, commanders more effectively visualize the threat, allocate resources, and adjust friendly operations to mitigate risk and exploit opportunities.

¹ Army Techniques Publication 3-60, Targeting, 07 May 2015, p.32 ² Army Techniques Publication 3-60, Targeting, 07 May 2015, p.31

³ Army Techniques Publication 3-60, Targeting, 07 May 2015, p.32

⁴ Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3162.02, Methodology for Combat Assessments, 08 March 2019, p. B-1

⁵ Joint Publication 3-60, Joint Targeting, 28 September 2018, p. D-3

⁶ Army Techniques Publication 3-60, Targeting, 07 May 2015, p. 33

⁷ Army Techniques Publication 3-60, Targeting, 07 May 2015, definitions

⁸ Army Techniques Publication 3-60, Targeting, 07 May 2015, p. 33

⁹ Joint Publication 3-60, Joint Targeting, 28 September 2018, p. 71

¹⁰ Army Techniques Publication 3-60, Targeting, 07 May 2015, Table 4-1