

Intelligence Planner's Guide



MAGTF Staff Training Program (MSTP)

U.S. Marine Corps
15 August 2023

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UNITED STATES MARINE CORPS
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15 August 2023

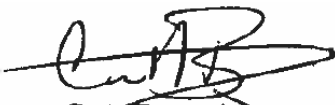
FOREWORD

1. **PURPOSE:** MSTP designed Pamphlet 2-0.2, *Intelligence Planner's Guide*, to assist in conducting planning as a member of an Operational Planning Team (OPT).
2. **SCOPE:** This pamphlet provides specific techniques and procedures for intelligence planning. While the pamphlet primarily focuses on tactical level intelligence planning at the Marine Expeditionary Force (MEF) and Marine Expeditionary Brigade (MEB) levels, intelligence planners at Marine Corps components and Major Subordinate Commands (MSC) may use these techniques.
3. **SUPERSESSION:** Not applicable.
4. **CHANGES.** MSTP encourages recommendations for improvements to this pamphlet from commands as well as from individuals. Reproduce the attached User Suggestion Form and forward to:

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5. **CERTIFICATION.** Reviewed and approved this date.



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Part I

Introduction

1001. The Intelligence Planner

The intelligence planner is the AC/S G-2's direct representative to Operational Planning Teams (OPT), responsible for leading the intelligence planning efforts associated with the development of operation plans (OPLANs), concept plans (CONPLANs), and operation orders (OPORDs). As such, the intelligence planner contributes to the planning effort by providing intelligence subject matter expertise and ensuring the transmission of the OPT's Intelligence Requests for Information (RFI) and RFI answers to and from the Intelligence Operations Center (IOC) or Combat Intelligence Center (CIC). The intelligence planner briefs the OPT on updated Intelligence Preparation of the Battlespace (IPB) products daily and ensures the integration of relevant products into each step of the Marine Corps Planning Process (MCP).

1002. Intelligence Planning Support

Based on the requirement, the G-2 provides support to the planning effort to meet the needs of the OPT.

The Intelligence Planner holds a key billet on the intelligence staff. The intelligence planner should fully comprehend MCP, intelligence collection, and possess a deep understanding of the adversary. The intelligence planner fully participates in determining the Most Likely/Most Dangerous Course of Action ML/MDCOA(s) and the enemy Center of Gravity (COG). The Collection Manager (CM), Target Intelligence Officer (TIO), and the Red Cell all assist the Intelligence Planner.

The CM ensures the MAGTF's collection plan evolves to support the selected course of action (COA) throughout the MCP. Specifically, the collection manager applies collection assets and resources to Named Areas of Interest (NAIs) in order to answer the commander's Priority Intelligence Requirements (PIRs). The

collection manager also confirms or denies adversary COAs and locates High Value Targets (HVT)/High Payoff Targets (HPT).

The TIO identifies HVT, HPT, High Value Individuals (HVI), and recommends Target Areas of Interest (TAIs) pertaining to MAGTF targeting and fires. The intelligence planner's coordination with the Collection Manager and Target Intelligence Officer is essential to effective intelligence planning. The senior analyst with a deep understanding of the adversary provides the most important resource to the intelligence planner.

In addition, the intelligence planner works closely with aviation, force reconnaissance, and representatives from Intelligence Battalion and Radio Battalion to ensure the incorporation of available MAGTF Intelligence, Surveillance, and Reconnaissance (ISR) capabilities into the concept of intelligence support.

1003. The Red and Green Cells

The intelligence planner may also work with dedicated Red and Green Cell representatives throughout the planning process, particularly during COA development and COA wargaming. MSTP Pamphlet 2-0.1, *Red Cell – Green Cell*, provides a detailed discussion of the composition, roles, and responsibilities of these cells. Ideally, the Red and Green Cells include subject matter experts from each warfighting function as well as experts on the adversary's military and culture within the operating environment. Under the staff cognizance of the AC/S G-2 and in conjunction with the intelligence planner, the Red Cell assists in the determination of the adversary's COG, Critical Vulnerabilities (CV), and Most Likely/Most Dangerous Courses of Action (ML/MDCOA). During the COA war game, the Red Cell presents doctrinal or historically-based adversary reactions to friendly actions. The Green Cell provides for the independent will of the population and may provide consideration for non-Department of Defense (DOD) entities such as intergovernmental organizations (IGOs) or nongovernmental organizations (NGOs), anticipating civilian responses to friendly and adversary actions, reactions, and counteractions. The OPT may employ its dedicated Red and Green

Cells in various ways according to the nature of the problem, the size of the OPT, available subject matter expertise, and time available. Absent dedicated Red and Green Cells, the intelligence planner develops the adversary's COG/CV and incorporates adversary and civil COAs and reactions during wargaming.

1004. The Role of the G-2/S-2. The G-2/S-2 provides the Intelligence Planner with guidance and intent to include expectations throughout the planning process. Throughout the MCPP, the intelligence planner and the G-2/S-2 must maintain a common understanding of the problem set. Therefore, the G-2/S-2 should ensure regular interactions with the Intelligence Planner in order to keep abreast of the OPT's activities and keep situational awareness of the adversary's mission, objectives, capabilities, limitations, courses of action, and COG/CV. In addition, the G-2/S-2 approves or provides recommended priority intelligence requirements presented to the OPT for both planning and execution. The intelligence planner's interaction within the OPT throughout the MCPP helps the G-2/S-2 refine understanding of the adversary, weather, terrain, and civil considerations as they impact planning. This, in turn, allows the G-2/S-2 to refine the intelligence staff estimate throughout the planning process.

1005. Intelligence Preparation of the Planning Space

Prior to the initiation of planning, the intelligence planner conducts an "intelligence preparation of the planning space." Specifically, the planner places appropriate maps and IPB products in the planning spaces and makes them available to OPT members before the problem framing step of MCPP begins. This forms part of the OPT's "plan to plan" effort. Though the intelligence planner will continuously update maps and IPB products throughout the MCPP, the intelligence planner must anticipate the OPT's needs based on understanding of the current situation, the nature of the problem, and the MAGTF's mission.

Note: Page 2-6 of MCRP 2-10B.4 (formerly MCWP 2-26), *Geospatial Intelligence* recommends that "Marine Expeditionary

Force staff planners focus on the AOR at a 1:250,000 scale equivalent with the appropriate data density (although 1:50,000 and 1:100,000 scale products are needed for specific requirements).”

Part II

Problem Framing

2001. Introduction to Problem Framing

The OPT initiates problem framing by applying design to enhance its understanding of the environment and defining the nature of the problem. Design embodies the conception and articulation of a framework for solving a problem based on critical thinking and dialogue. This enhanced understanding allows the commander to visualize the operation and describe the conceptual approach to solving the problem.

The intelligence planner's role in design is critical; the planner presents the initial IPB to the OPT, thus beginning the problem framing process. The initial IPB products help develop the OPT's understanding of the environment and the nature of the problem. In general, IPB defines the operational environment, describes its effects on operations, evaluates the adversary two levels down, and determines adversary COAs. IPB products provide essential injects that must exist before problem framing can truly begin. Historically, the intelligence planner focused on the land domain and prioritized supporting the decisive action, usually the Ground Combat Element's (GCE) close fight. Given the Marine Corps' re-orientation towards the Maritime environment in support of Distributed Maritime Operations (DMO), Littoral Operations in a Contested Environment (LOCE), and Expeditionary Advanced Base Operations (EABO), the intelligence planner must consider a broader perspective across multiple domains.

For example, in supporting the planning for an EABO in the South China Sea, the planner must provide the OPT an integrated understanding of the adversary's use of the Land, Air, Maritime, Space, and Cyber domains. The planner must take a systems approach to analyzing both the enemy and the operating environment, tying together seemingly unrelated actions that directly impact the outcome of an engagement.

The intelligence planner, depending on the nature of the problem, may not have sufficient time to generate adequate IPB products before problem framing begins. Generally, a MEF or a MEB plans according to pre-existing OPLANs, anticipated contingencies, and/or large exercises. Under such circumstances, the G-2 can refine and use IPB products already “on the shelf” to satisfy the majority of IPB requirements. Alternatively, a crisis requiring a military response can emerge without warning. In this case, the intelligence planner may enter problem framing with little more than a current situation update. Meanwhile, the G-2/S-2 should leverage theater and national organizations. These agencies include Joint Warfare Analysis Center (JWAC), Marine Corps Information Operations Center(MCIOC), Marine Corps Intelligence Activity (MCIA), the Marine Corps cyber and space service components, and the Marine Corps’ Civil Military Operations community. Doing so enables the G-2/S-2 to generate the necessary IPB products concurrently with the planning effort and inject them as they are provided.

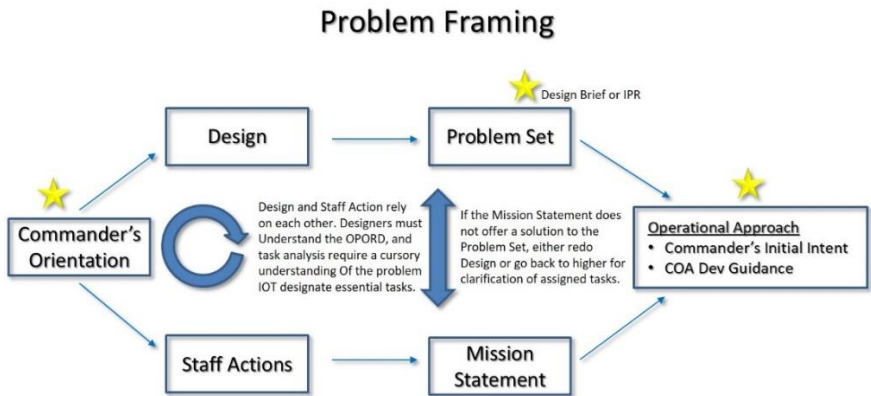


Figure 2-1: Problem Framing

2002. The Commander’s Orientation

The commander’s orientation provides the first opportunity for the commander, staff, and subordinate commanders to exchange information regarding the problem. For this event, the intelligence planner provides, at a minimum, a situation update and an overview of currently known information about the adversary, weather, terrain, and the civil situation. In deliberate planning, the intelligence planner

normally enjoys sufficient lead time to coordinate with the IOC/CIC for the development of more detailed IPB products for inclusion in the commander's orientation. These products can include the Modified Combined Obstacle Overlay (MCOO), adversary unit organization charts, adversary situational templates, and an initial event template. The level of detail these products provide will vary with the nature of the problem, theater and national collection resources dedicated to the region, and the lead time available to the G-2 to develop the necessary IPB products.

Higher Headquarters (HHQ) IPB products, if available, will form the basis of the intelligence planner's input. However, these products will start out broad in scope and will not contain sufficient detail for planning at the MAGTF level. The MAGTF G-2 must produce IPB products with the additional detail required by MAGTF planners.

IPB products that the intelligence planner injects into the design construct (such as the Combined Information Overlay, Target Audience Analysis, the MEF Information Group's (MIG) Running Estimate, and a variety of Green/Red/White cell contributions) , facilitate a common understanding between the commander and staff on the environment and the problem set. These IPB products highlight relevant aspects of the climate and weather; the land, maritime, air, cyber, and space domains; and civil considerations that may impact MAGTF operations. Civil considerations should include the Areas, Structures, Capabilities, Organizations, People, Events (ASCOPE) and Political, Military, Economic, Social, Informational, Infrastructure (PMESII) analytic constructs. The MAGTF OPT may initially have limited resident expertise in areas such as space, cyber, MISO, CMO, and the Maritime domain. If such shortfalls exist, it is critical that the G-2/S-2 generate the appropriate RFIs and collection and production requirements to satisfy these initial requirements until these gapped requirements are satisfied.

Finally, the intelligence planner must identify how the adversary can impact MAGTF operations. One could argue that the traditional depiction of the adversary with enemy units arrayed on a map with range rings of major weapons systems, etc. may not be the best

approach in today’s multi-domain environment. Multi-domain activities produce effects at the tactical, operational, and strategic level that are difficult to effectively portray with traditional map-based graphics. A more appropriate depiction may be to display adversary activities by both domain and warfighting function temporally along a phased operational timeline.

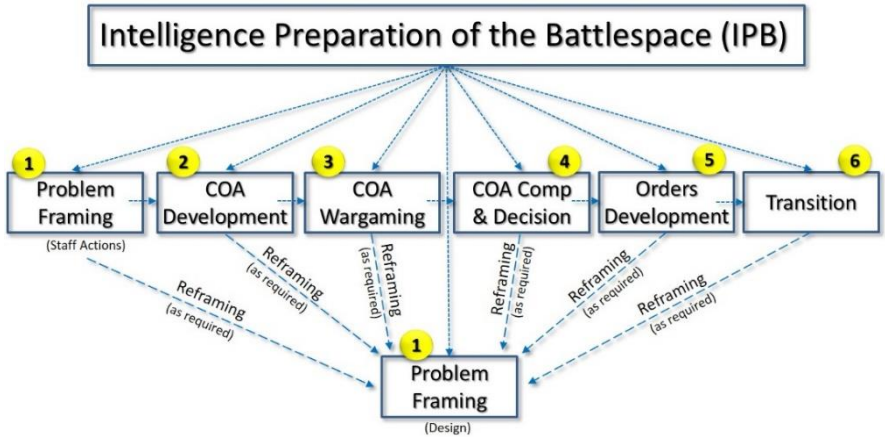


Figure 2-2: Intelligence Preparation of the Battlespace

2003. Staff Actions and Ongoing Activities

During problem framing, the intelligence planner performs certain staff actions and ongoing activities in conjunction with other OPT members. These actions and activities include analyses of tasks and enemy COG, making assumptions regarding the adversary and environment, and identifying limitations from HHQ or other agencies.

a. Analyze Tasks and Determine Intelligence Tasks

During task analysis, the OPT analyzes the HHQ’s order to derive specified and implied tasks and to determine essential tasks for the MAGTF. Generally speaking, intelligence tasks will be a subset of implied tasks and will not rise to the level of essential tasks. Nevertheless, the intelligence planner can use all listed intelligence tasks as a “check list” to ensure that all tasks are assigned to appropriate entities/subordinates during the war game and orders

development. While such tasks may not be presented in the problem framing brief, the intelligence planner will capture them for further refinement during the COA development and war game steps of MCPP. The MAGTF G-2 will eventually incorporate them into Annex B as intelligence tasks for the G-2 staff, its organic and attached assets, and subordinate commands during the orders development step of MCPP.

b. Analyze Adversary Center of Gravity and Critical Vulnerabilities

The intelligence planner, based on guidance from the AC/S G-2, conducts a COG analysis of adversary forces that may impact the MAGTF. Depending on the time and resources available, the planner may conduct this analysis in conjunction with a larger Red Cell under the staff cognizance of the AC/S G-2.

Regardless of the construct employed, the staff must conduct a disciplined COG analysis focused at the tactical level on the units within the MAGTF's AO. The intelligence planner will review the operational and strategic COGs provided by HHQ and submit critical feedback as required. MAGTFs remain tactical-level warfighting organizations that must focus on the adversary within their AO and the adversary organizations outside the AO that can affect MAGTF activities.

More importantly, the intelligence planner must conduct the COG analysis within a clearly defined analytic methodology or framework. Joint and USMC doctrine defines a general COG framework but does not provide an analytic methodology. Therefore, the intelligence planner in conjunction with the OPT leader, must select a methodology or model to conduct COG analysis. The OPT must analyze both the friendly and adversary COGs using the same methodology. Appendix A of this pamphlet shows a non-doctrinal analytic methodology suitable for tactical level COG analysis.

Upon completion of the COG analysis, the intelligence planner should also provide a recommendation - based on an understanding of the

adversary revealed by the IPB process - regarding how the MAGTF can best attack the COG via its CVs.

COG	Critical Capabilities	Critical Requirements	Critical Vulnerabilities	Force Fires Mitigation	Enemy Actions	Enemy Assets
Div. C2	Maintain comms to fight the single battle concept	-Ant farms -SATCOM -Hardware networks	-EW -Mobility -Site Selection	Standoff Site Security Counter EW COOP	Attack retrains & C2 nodes EW jamming	SOF Bn. EW/Comm. IDF Brigade / Bn.
	Maneuver the Division	-Friendly battle tracking (COP) -Coordinate MSE efforts	-Cyber attack -Physical attack against Div. Main	Counter Cyber Backup Comm COOP HQ Security	CI OPSEC	Cyber EW SOF 35 th Airborne
	Shape the Div. Deep Fight	-Deep recon assets -HIMARS -AFATDS	-Cyber attack -EW -Resupply to HIMARS	CPTs Redundancy	Cyber attack GPS jamming SA20 SKYGUARD	Cyber EW ADA Bde/Bns
	Sustain the fight	-Coordination with MLG -Facilitate distribution for 2 CMBG	-CSSAs -GLOCs	Secure CSSAs Convoy self defense Counter MANPAD TTP	Sever GLOCs Attack CSSAs	SOF
	Protect the Force	-Counter battery radars -Counter G-RAMM -CASEVAC	-Limited CBRs -MANPAD threat to RW -Location Role II facilities	Leverage 2 CMBG Radars Patriot Btry RFF for MLRS SEAD	Employ SCUDs Mask artillery positions Target CASEVAC	SMB CAG / DAG / SAG ADA Bde/Bns

Table 2-1: Center of Gravity Analysis

c. Relative Combat Power Analysis

In order to develop feasible, acceptable, and suitable friendly COAs and to better understand the interaction between friendly and adversary forces during wargaming, the intelligence planner and the OPT leader should conduct a Relative Combat Power Analysis (RCPA) that blends a quantitative and qualitative analysis of the relative combat power of two forces and estimates the outcome of engagements between them. Completing step 3 of IPB, Evaluate the Adversary, will yield the necessary detail to conduct a detailed quantitative and qualitative assessment of the adversary’s equipment and overall combat power. The intelligence planner works with the IOC/CIC to ensure the OPT receives a detailed evaluation of the adversary to facilitate its RCPA.

Whenever possible, a blended approach that leverages the data driven aspects of quantitative analysis and the more abstract aspects of a qualitative approach will yield the best results.

Upon completing a quantitative assessment of tangible combat power, planners must draw qualitative conclusions to provide the “so what” for commanders and recommend TTPs to mitigate any relative combat power imbalance for consideration during COA development and wargaming.

The OPT will further refine its RCPA during the COA war game step of MCPP. As the OPT wargames specific friendly and adversary COAs against each other, it must adjust the RCPA to reflect the impacts of actions across multiple domains.

RCPA tools usually focus on the land domain. The OPT must leverage expertise across multiple domains and warfighting functions and adjust combat power to accurately reflect and correlate adversary and friendly capability and forces. The OPT must agree to these qualitative adjustments to the force correlation process and uniformly and consistently apply them during the wargame. Shaping operations present another issue the OPT must address during the wargame. Shaping will likely change the quantities and dispositions of friendly and adversary forces across the battlespace. This will require an adjustment of the RCPA for each turn of the war game.

Appendix B of this pamphlet explores RCPA and Correlation of Forces in more depth and provides a copy of the Excel-based TRADOC Correlation of Forces tool.

d. Develop Assumptions

Assumptions involve suppositions about the current situation or about future events made in order to allow planning to continue and enable the commander to make a decision. Non-validated assumptions become risks. However, the intelligence planner should translate assumptions into RFIs in order to mitigate that risk. The intelligence planner should capture assumptions related to the adversary, weather, terrain, and civilian population as RFIs and task them appropriately.

e. Determine Limitations

Limitations include actions required or prohibited by higher headquarters or other authoritative sources such as laws or treaties. We can characterize limitations as constraints (things you must do) and restraints (things you must not do). The intelligence planner supports the OPT by identifying intelligence-related limitations. These can include restrictions on where ISR assets can and cannot operate, particularly during the early phases of an operation. Limitations may also deal with intelligence sharing restrictions and foreign disclosure requirements during combined operations.

f. Perform Ongoing Activities

Throughout problem framing and the remainder of the MCPP steps, the intelligence planner performs or coordinates a variety of ongoing activities.

- **Determine Resource Shortfalls and External Support Requirements**

The collection manager provides the intelligence planner with a list of available organic ISR assets and identifies shortfalls based on the MAGTF's task organization. Additionally, the collection manager conducts a detailed analysis of the HHQ order to determine the availability of national, theater, and adjacent ISR resources to support the operation. While the collection manager will focus on collection assets and resources needed to support each COA, the intelligence planner must also determine analytic, production, and dissemination shortfalls. As described below, these shortfalls and requirements become part of the intelligence staff estimate.

Specifically, the collection manager must coordinate with Intelligence Battalion and Radio Battalion regarding the capabilities and limitations of available organic ISR assets such as CI/HUMINT Detachments (CHD), Sensor Employment Teams (SET), GEOINT Support Teams (GIST),

SIGINT Support Teams (SST), and Radio Reconnaissance Teams (RRT).

The collection manager also coordinates with the AC/S G-3 and/or the Force Reconnaissance Company representative regarding the availability, capabilities, and limitations of ground reconnaissance assets. The participation of a Force Reconnaissance planner in the OPT is critical for ensuring that the ground reconnaissance and surveillance portion of the collection plan is supportable and executable.

The collection manager must also coordinate with the MAGTF Air Officer, aviation planner, and ACE G-2's Air Combat Intelligence representative in order to determine the MAGTF's organic aerial reconnaissance capabilities and limitations. This should include a consideration of available Unmanned Aerial Systems (UAS), Advanced Tactical Airborne Reconnaissance System (ATARS), and the dissemination of Mission Reports (MISREPs).

Finally, in coordination with the G3, the G2 should request support from external organizations and agencies to mitigate multi-domain resource shortfalls. Assets such as an Army Space Support Team (ARSST), MCIIOC Regional Support Team (RST), or elements from MARFORCYBER provide planners the domain-specific expertise required to succeed in a multi-domain environment.

- **Commander's Critical Information Requirements**

The DoD Dictionary of Military and Associated Terms defines Commander's Critical Information Requirement (CCIR) as "an information requirement identified by the commander as being critical to facilitating timely decision making." Priority Intelligence Requirements (PIRs) and Friendly Force Information Requirements (FFIRs) represent subsets of CCIRs. PIRs concern the intelligence-related CCIRs that the AC/S G-2 must answer. FFIRs concern

friendly-related information requirements answered by the remainder of the staff under the cognizance of the AC/S G-3.

The DoD dictionary defines a PIR as “an intelligence requirement, stated as a priority for intelligence support that the commander and staff need to understand the adversary or other aspects of the operational environment.” MCRP 1-10.2 (formerly MCRP 5-12C) amplifies this definition by stating that a PIR is “an intelligence requirement associated with a decision that will critically affect the overall success of the command’s mission.” Page 2-7 of MCWP 5-10 (formerly MCWP 5-1) more specifically states that PIRs are “tied to decision points needed for execution.” MCWP 2-10 (formerly MCWP 2-1) elaborates further on the characteristics of a PIR. A comprehensive PIR contains the following characteristics:

- Asks only one question. Focuses on specific facts, events or activities concerning the enemy or the battlespace. Is tied to mission planning, decision making, and execution. Provides a clear, concise statement of what intelligence is required.
- Contains geographic and time elements to limit the scope of the requirement.

During problem framing, the intelligence planner must distinguish between planning PIRs and execution PIRs. Relevant throughout the MCPP, planning PIRs will generally focus on how the MAGTF can access the area of operations (locations of suitable landing beaches, APODs, SPODs, HLZs) and potential objectives as well as the adversary’s composition, disposition, capabilities, limitations, and potential COAs. Answers to these PIRs allow the commander to generate COA guidance and the OPT to develop COAs, prepare for wargaming, and anticipate branch plans.

- Example: Planning PIR #1: Are there landing beaches on the southeast coast of Country Orange suitable for the conduct of an amphibious assault by a regimental landing team between August and November 20XX?

- Rationale: The answer to this PIR will support the commander's ability to determine available options and provide COA guidance to the OPT.

Execution PIRs tie directly to commander's decisions and confirm or deny adversary COAs. The intelligence planner drafts execution PIRs, and the entire OPT refines them during COA development, COA wargaming, and COA comparison and decision. The OPT ties these PIRs to the friendly concept of operations and tailors them to each phase and stage of the operation.

- Example: Phase III, Stage A, PIR #1: Will Country Orange's 1st Armored Division counterattack 1st Marine Division in the vicinity of LF Objective A along Axis Chargers between D+1 and D+3?
- Rationale: The answer to this PIR will support the commander's decision to transition to the Phase III, Stage B, commit ground reserve, or surge the ACE in response to the adversary's undertaking the anticipated MDCOA.

Observation of Named Areas of Interest (NAI) will reveal the answers to PIRs. As the OPT transitions to COA development, the intelligence planner works with the OPT leader, G-2 analysts, and the collection manager to identify NAIs that will support each friendly COA under development and answer the commander's PIRs as they evolve. This supports development of the concept of intelligence support and eventually the collection plan.

TTP: The intelligence planner must coordinate with the OPT leader to ensure the proper recording and tracking of CCIRs once the commander approves them. One technique uses CCIR only as an umbrella term and avoids numbering CCIRs separately. The G-2 tracks and sequentially numbers PIRs while the G-3 does the same for FFIRs.

CCIRs for Phase III Stage A:

- FFIRs

- FFIR #1
- FFIR #2
- FFIR #3
- PIRs
 - PIR #1
 - PIR #2
 - PIR #3

TTP: Track and display the status of execution PIRs. Once the commander approves the PIRs, the G-2 tracks and displays their status in order to facilitate the commander's decision-making. The G-2 should maintain a running display in the COC and a corresponding slide for briefings and dissemination via the daily INTSUM. Because each PIR includes several associated indicators, it may prove difficult to state emphatically whether or not we definitively answered a PIR. A number of methods exist to graphically represent the status of specific PIRs. We can use stoplight charts, bolding, italicizing, highlighting text, or the addition of a check mark or star to identify a change in PIR status. The key to success lies in developing an intuitive methodology that resonates with the MAGTF commander.

- **Requests for Information**

Throughout problem framing, the intelligence planner records intelligence-related RFIs and passes them to the G-2 for action. Normally, the OPT leader designates an OPT Information Manager (IM). Given the established intelligence RFI procedures at the MEF level and above within a given geographic combatant command, the intelligence planner must work with the OPT leader and the intelligence RFI manager at the MAGTF G-2 to ensure the proper recording of intelligence-related RFIs generated by the OPT and prompt submission to the MAGTF IOC/CIC. If the MAGTF IOC/CIC cannot answer the RFI, it logs them and routes them to HHQ for a response via established intelligence RFI

procedures. The entire OPT must understand this process and ensure it is operational upon commencement of problem framing. Key components of an RFI tool include the following: number, date/time, information requested, LTIOV (Last Time Information of Value), and point of contact. The RFI Manager validates and assigns it for action. Unsatisfied RFIs should become collection requirements.

- **Identify Adversary Biases and Preconceptions**

Based on what the IPB process reveals about the adversary's culture and cognitive processes, the intelligence planner must identify adversary biases and preconceptions regarding how MAGTFs fight and how to fight MAGTFs. The intelligence staff estimate incorporates this information in order to inform friendly COA development. Specifically, the intelligence planner should consider what the adversary thinks the MAGTF's ML/MDCOAs will try to accomplish.

- **Develop Initial Intelligence Staff Estimate**

The intelligence planner begins to form an initial intelligence staff estimate for the AC/S G-2 during problem framing. Staff estimates examine the factors that support decision-making and affect mission accomplishment. The intelligence staff estimate provides the commander with essential information on areas of concern within the intelligence warfighting function such as capabilities, shortfalls, requirements, and potential solutions. In order to develop the intelligence staff estimate, the intelligence planner queries operations officers/detachment OICs/air officers from the Intelligence Battalion, Radio Battalion, and Force Recon Company as well as the ACE planner and ACE G/S-2 in order to determine the status of available ISR resources and assets. The format for the staff estimate will depend on unit SOPs and time available. Regardless of format, the intelligence staff estimate should include the following information:

- Facts. Identify key aspects of the adversary, terrain, weather, and civil considerations that will impact planning.
- Assumptions. Identify suppositions about the adversary, weather, terrain, civil considerations, and the friendly ISR capabilities necessary for planning to continue.
- Specified Tasks. Identify any intelligence tasks specified in higher headquarters' operations order.
- Implied Tasks. Identify unique intelligence tasks required to support the accomplishment of a specified task.
- ISR Resources/Assets Available. List higher, adjacent, and organic ISR units, teams, and platforms available to support the operation.
- ISR Shortfalls. Identify gaps in organic ISR capabilities such as lack of Group 4/5 UAS or a shortage of Category II/III interpreters.
- Limitations (Constraints/Restraints). Identify required or prohibited intelligence activities such as diplomatic restrictions on intelligence collection operations or requirements for intelligence sharing and foreign disclosure.
- Recommendations / Solutions. Provide recommendations for filling or overcoming identified shortfalls.
- Risks. Identify risks associated with invalidated assumptions and unfilled shortfalls.

Note: The intelligence staff estimate differs from the intelligence estimate generated as part of the IPB process and embodied in Appendix 11 to Annex B to the operations order. The intelligence staff estimate informs the commander, staff, and subordinate commands regarding how the intelligence warfighting function supports COA development and mission accomplishment. The intelligence estimate contains the encyclopedic information generated by the IPB process regarding the adversary, terrain, weather, and civil considerations specific to the operation.

2004. Problem Framing Brief

Once the OPT finishes framing the problem, it will develop the problem framing brief for the commander. The list below contains the baseline inputs from the intelligence planner to the problem framing brief.

- **Geographic Orientation.** Provide a graphic depiction of time/distance factors from MAGTF's current location(s) to the area of operations, the proposed area of operations, area of interest, and area of influence, and any time zone considerations.
- **Situation Update.** Describe "how we got here" or "road to war" and any changes to the situation since the commander's orientation brief.
- **Refined IPB Products.** Present refined IPB products such as a MCOO, adversary SIT TEMP with major weapon system range rings, weather impacts, multi-domain considerations, and relevant civil considerations. The focus of these products should concern effects on the MAGTF or the "so what." We can provide encyclopedic IPB products as a read-ahead to the MAGTF commander, and we should retain these products as backup slides in the event the commander requires more detail. We should also provide these backup slides to subordinate commands in order to facilitate concurrent planning once the command releases the warning order.
- **Review of Adversary COG/CV.** Brief this with the IPB or later in the brief with the friendly COG/CV analysis.
- **High Value Targets.** Provide a list and/or graphic based on the COG/CV analysis of assets the adversary commander requires to accomplish the mission. HVTs should include the adversary's critical requirements and critical vulnerabilities.

- **Intelligence RFIs.** The intelligence planner can brief these separately or in conjunction with all significant outstanding RFIs.
- **Intelligence Assets Available and Resource Shortfalls.** The intelligence planner can brief this separately or in conjunction with the overview of CE, GCE, ACE, and LCE assets available and resource shortfalls. We should give consideration to collection assets from the CE's Intelligence Battalion, Radio Battalion, and Force Reconnaissance Company; the ACE's aerial reconnaissance assets; and the GCE's Reconnaissance Battalion. The intelligence planner should also highlight the availability of national, theater, and adjacent ISR resources to support MAGTF operations.
- **Recommended PIRs.** The intelligence planner can brief these with the IPB or later in the brief with the FFIRs as part of the overall CCIRs.

2005. Commander's COA Guidance

Regardless of whether the commander gives guidance based on warfighting functions, domains, or decisive/shaping/ sustaining actions, the intelligence planner must focus on the commander's COA guidance. The intelligence planner should outline the concept of intelligence support for friendly COAs and further refine adversary COAs based on the commander's appreciation of the adversary's options. This guidance allows the intelligence planner to task organize organic intelligence assets in support of the main effort, supporting efforts, and the reserve. It also allows the intelligence planner to orient appropriate intelligence assets on the deep, close, and rear aspects of the single battle.

During the planning for amphibious operations and EABO, the intelligence planner must consider intelligence actions that will take place during advance force and pre-landing operations. Higher and adjacent intelligence resources, such as Joint Force Air Component Command (JFACC), Joint Force Maritime Component Command

(JFMCC), and Joint Special Operations Task Force (JSOTF) capabilities, will play a crucial role in these operations. The intelligence planner should also pay special attention, in conjunction with the G-3 and the reconnaissance and aviation planners, to the employment of organic ground and aerial reconnaissance assets (particularly ship-borne UAS assets) during advance force and pre-landing operations.

The intelligence planner should seek guidance on the command and control and employment of MAGTF ground and aerial reconnaissance assets if this information is not contained in unit SOPs.

2006. Issue the Warning Order. The intelligence planner assists the OPT leader in the drafting of the Warning Order (WARNORD). Specifically, the intelligence planner participates in the drafting of the situation paragraph and outlining the adversary's composition, disposition, COG, and CV. If possible, the intelligence planner provides an initial draft ML/MDCOA narrative. The WARNORD should specify where users can access detailed IPB products, such as on a SharePoint site.

2007. Intelligence Tips for Problem Framing

- Prior to the initiation of planning, the intelligence planner ensures the preparation of OPT spaces with appropriate scale hard-copy maps (generally 1:50,000 or 1:100,000 scale Topographic Line Maps, 1:250,000 scale JOG Airs, Littoral Planning Chart (if available), and nautical charts) in order to facilitate situational awareness and detailed planning.
- The intelligence planner should take a multi-domain, systems-based approach to the enemy. Do not become fixated on the land domain close fight.
- Prior to the initiation of planning, the intelligence planner ensures the posting of initial, baseline hard-copy multi-domain IPB products in the OPT spaces. These include, at a

minimum, the MCOO, adversary unit organizational charts (two echelons down), an adversary situation template displaying units two echelons down (with associated range rings for air defense, coastal defense, and indirect fire assets), major weapon system “smart cards,” climate/weather impacts, the Combined Information Overlay, and Target Audience Analysis. Once the initial IPB becomes available, provide updates and incorporate “whole of staff” inputs as planning continues.

- In conjunction with the G-3, the intelligence planner should promulgate standard map chips for use in slide presentations to ensure consistency throughout the various output briefs.
- The intelligence planner should orient all images and imagery products used in output briefs with north to the top of the slides. This facilitates commander and staff understanding and prevents confusion and disorientation. Oblique imagery or images where north appears somewhere other than the top of the slide remain suitable for detailed planning but can distract observers during output briefs.
- Brief all times using either Zulu (Z) or the relevant local time zone designation. Never use “L” to express local time. Be specific, particularly when forces supporting or participating in an operation/exercise are spread across multiple time zones.
- If other OPT members display adversary units on their slides or products, ensure they use G-2 generated base products or allow the G-2 to validate adversary unit locations and capabilities before publishing slides or products. Carefully analyze intelligence products focused on domains such as space and cyber and warfighting functions such as information to ensure the analytic assessments of the external organizations that produced these products nest with the overall G-2 assessment. Ultimately, the G-2 is responsible for the adversary situation template and the G-2 should approve

any externally generated products prior to presentation to the OPT and commander.

- Even in cases where the G-2 is not the security manager, the intelligence planner should take the lead in collaboration with the information manager to ensure that slides and products contain proper classification markings. This holds equally true for unclassified exercises. The OPT must practice discipline and establish good habits early in order to avoid security violations and “spillages.”

Part III

Course of Action Development

3001. Introduction to Course of Action Development

During Course of Action (COA) development, the intelligence planner's primary tasks include:

- Develop a concept of intelligence support for each friendly COA under consideration.
- Further develop the adversary COAs generated by the G-2 section as part of the IPB process during problem framing.
- Contribute to the creation of planning support tools such as the decision support template, decision support matrix, and synchronization matrix.
- Participate in refining relative combat power analysis.

Additionally, the intelligence planner, in conjunction with the MAGTF G-2, continues to refine the staff estimate for intelligence, the commander's PIRs, the adversary's COG/CV and HVTs, and IPB products. The latter includes adversary doctrinal and situation templates, the MCOO, the event template, and the event matrix.

3002. Concept of Intelligence Support

As described in the MSTP Pamphlet 5-0.2, *OPT Leader's Guide*, the G-2 and intelligence planner develop a concept of intelligence support for each COA to ensure the integration and synchronization of MAGTF actions. The concept of intelligence support allocates intelligence resources and provides the functional level detail necessary for a complete friendly COA. Once a commander selects a COA (after the COA war game and COA comparison and decision steps of the MCPP), the G-2 refines the concept of intelligence support associated with that COA into the concept of intelligence operations that will appear in Annex B. This occurs during the orders development step of MCPP.

The intelligence planner and collection manager must understand the collection assets available to them in order to develop a concept of intelligence support. The aviation planner and ACE representative to the OPT will advise them regarding the capabilities, limitations, and concept of employment for available MAGTF aerial reconnaissance assets. Likewise, the operations officers or detachment OICs from the Intelligence Battalion, Radio Battalion, and Force Reconnaissance Company will advise them regarding the capabilities, limitations, and concepts of employment for these organic MAGTF assets. Also, the intelligence planner and collection manager should confer with the appropriate representatives of any higher or adjacent command that might possess additional collection resources available to the MAGTF.

Besides remaining aware of available collection assets, development of a sound concept of intelligence support requires the MAGTF intelligence planner to also consider the intelligence analysis, production, and dissemination resources available (including those of higher and adjacent commands). In addition, the intelligence planner should identify analytic and production assets that should be attached to MSCs. The intelligence planner should ensure the MSCs also know what capabilities the MAGTF may contain to answer their RFIs. To this end, the intelligence planner considers all aspects of the Marine Corps ISR Enterprise (MCISRE). This should include the MAGTF Intelligence Centers (MIC) and the Marine Corps Intelligence Activity (MCIA). When appropriate, the MAGTF concept of intelligence support must also include the analytic and production capabilities of the larger MCISRE that the MAGTF may access through reach back within the limits of MCISRE dissemination capabilities.

A sound concept of intelligence support also requires the intelligence planner and collection manager to build on the work accomplished by the OPT during problem framing and clearly list assets and resources in order to highlight the MAGTF's available ISR, as well as production and analysis capabilities, limitations, and shortfalls. See Appendices C through H for a listing of baseline MEF-level and joint ISR assets.

Additionally, the collection manager diagrams the Tasking, Collection, Processing, Exploitation, and Dissemination (TCPED) architecture for each ISR asset and resource. These diagrams define the overall intelligence architecture, illustrate sensor to shooter linkages, and inform the OPT as to how intelligence information will flow throughout the MAGTF.

3003. Adversary Courses of Action

In order to adequately support the COA war game, the intelligence planner, and/or the red cell must develop adversary COAs in the same detail as the remainder of the OPT develops friendly COAs. The intelligence planner/red cell typically characterizes the appropriate adversary COAs as Most Likely (MLCOA) and Most Dangerous (MDCOA). When describing an adversary's MDCOA, the intelligence planner should specify whether it appears most dangerous in terms of risk to mission or risk to force. When the MAGTF performs a supporting effort, a MDCOA based on risk to force may prove advantageous in terms of risk to HHQ's mission. Whether developing MDCOA or MLCOA, the Red cell must take a systems-based approach to adversary COA's. This becomes especially important as it relates to near peer competitors and the sophisticated capabilities they bring to the fight from multiple domains.

As with friendly COAs, adversary COAs must be:

- **Suitable.** The COA must accomplish the purpose and tasks and comply with the commander's guidance.
- **Feasible.** The COA must accomplish the mission within the available time, space, and resources.
- **Acceptable.** The COA must be proportional and worth the cost in personnel, equipment, materiel, time involved, and position. It must be consistent with the law of war as well as militarily and politically supportable.
- **Distinguishable.** The COA must differ significantly from the other COAs.

- **Complete.** The COA must include all tasks to be accomplished. It must address the entire mission (main and supporting efforts, reserve, and associated risks).

A complete adversary COA must include tasks and purposes for the designated main effort, supporting efforts, and reserve. The intelligence planner should graphically display adversary COAs on a map with the appropriate symbols and task graphics. The map should also depict the adversary's close, deep, and rear areas, and associated boundaries and control measures. The intelligence planner must accompany each COA with a detailed narrative that discusses the main effort, supporting efforts, and the reserve, as well as the adversary's concept for decisive, supporting, and sustaining actions. This narrative description must address the adversary's actions across all domains and warfighting functions. Of note, the graphics and narrative must also highlight the adversary's ability to collect intelligence on friendly forces. The OPT must understand the adversary's ability to sense friendly deception efforts as the adversary's ISR capabilities will prominently figure into the reaction phase of the COA war game. Templating adversary reconnaissance units will facilitate counter-reconnaissance planning.

For more detailed guidance on the process for developing complete COAs, see pages 3-2 through 3-4 of MCWP 5-10, *Marine Corps Planning Process* and pages 45 through 53 of MSTP Pamphlet 5-0.2, *Operational Planning Team Leader's Guide*.

TTP: When developing and briefing adversary COAs, it helps to describe the conditions or triggers under which the adversary will likely adopt a particular COA. For example, "The adversary will adopt the MDCOA of reinforcing LF Obj 1 prior to H-Hour on D-Day if the 1st Mechanized Infantry Brigade is shaped down to 50% of its indirect fire and armor assets, or if the adversary's ISR determines the Amphibious Force's landing area." Identifying these conditions assists the OPT in developing PIRs and identifying NAIs and decision points (DPs). Planners can use the following formula to craft adversary COA adoption criteria:

- MLCOA if condition A and condition B are met, or if condition C is met.

- MDCOA if condition D is met or if condition E and condition F are met.

3004. Planning Support Tools

During COA development, the intelligence planner works with the OPT leader and other OPT members to develop the decision support template, the decision support matrix, and the synchronization matrix. This builds on the work already completed on the situation template, event template, and event matrix. The OPT continually adjusts the decision support template, decision support matrix, and synchronization matrix throughout the COA war game.

The intelligence planner contributes to the development of the decision support template, decision support matrix, and synchronization matrix by playing both sides and capturing, by phase and stage, friendly ISR actions as well as adversary and civil reactions to friendly actions.

Part IV

COA War Game

4001. Introduction to the COA War Game

Wargaming pits friendly COAs against adversary COAs to identify strengths and weaknesses of the friendly COA as well as the opportunities they may create for future operations. The purpose of wargaming is to improve the friendly plan, synchronize actions, and identify friction points. We conduct COA war games in a series of turns each consisting of a friendly action move, an adversary and civil reaction move, and a friendly counteraction move. OPT wargamers make these moves within the context of a war game method (sequence of events, avenue in depth, belts, or box) recommended by the OPT leader and specified by the CG. For more details on the general mechanics of conducting a war game, see MCWP 5-10 and MSTP Pamphlet 5-0.2.

As in problem framing, the intelligence planner is responsible for “intelligence preparation of the planning space” prior to initiation of the COA war game. During COA development, the intelligence planner coordinates with the OPT leader to determine the type of map the war game will require. Options include an electronic map projected on a large screen or a large hardcopy map of appropriate scale (usually 1:50,000, 1:100,000, or 1:250,000 for MEB and MEF operations) laid out on a map table. The OPT may also use a terrain model. The situation will dictate the details, but the OPT leader and intelligence planner must determine the scope. Regardless, the intelligence planner will need to coordinate with the MAGTF G-2 to ensure production of the required map prior to the initiation of the war game. Additionally, the intelligence planner coordinates the creation of adversary icons two levels down including adversary indirect fire and air defense system range rings. The G-3 creates friendly icons and depicts friendly weapons system range rings, objectives, and other friendly control measures.

The intelligence planner also ensures the immediate access to the following intelligence-related war game materials throughout the war game:

- MCOO with terrain and weather analysis/impacts.
- Adversary order of battle/doctrinal templates.
- HVT/HPT characteristics.
- Adversary current situation overlay.
- Adversary situation and event templates for ML/MDCOAs.
- Adversary event matrix for ML/MDCOAs.
- Adversary COG and critical vulnerabilities analysis.
- Relative Combat Power Analysis.
- Priority Intelligence Requirements.
- Civil considerations.
- Other relevant considerations (such as terrain, weather, etc.)

4002. Conduct of the War Game

During the friendly actions move of a war game turn, the intelligence planner presents the current friendly ISR laydown and critical friendly ISR actions that take place during the move. This may include the role of national and theater ISR resources, employment of organic UAVs and other aerial reconnaissance assets, insertion/location of ground reconnaissance and surveillance (R&S) teams, and the attachment of various collection teams to the MSCs. The intelligence planner also briefs which NAIs the players must observe in order to answer the PIRs, locate HPTs, and confirm or deny adversary COAs.

Note: In the event the OPT decides to not wargame advance force or pre-landing actions during the first turn due to the selected war game method and the CG's guidance, the intelligence planner must ensure the OPT understands the national, theater, and organic ISR resources and assets in place that began collecting prior to the start of the first war game turn.

During the adversary reaction move of a war game turn, the Red Cell presents the adversary's current ISR laydown and ISR actions. It also notes which NAIs they must observe in order to answer the adversary PIRs and determine friendly COA. Finally, it indicates what friendly actions the adversary would reasonably observe during the preceding friendly move. The Red Cell then presents the adversary's tactical reactions to these friendly actions. These actions must encompass all domains and warfighting functions. The Red Cell bases these reactions on the selected adversary COA and the adversary's doctrinal or historical force employment model. Remember the purpose of the COA war game is to improve the friendly plan. The adversary reactions serve to identify weak points in the friendly plan so that the OPT may further refine the friendly scheme of maneuver, decision points, PIRs, NAIs, and TAIs.

The Green Cell presents civil reactions to friendly and adversary moves if time allows or when we expect significant civil considerations. It considers the local civil government, local population, Non-Governmental Organizations (NGOs), and any other significant civilian groups present in the area of operations. The civil reactions identify potential civil-military friction points in the friendly plan in order to further refine its scheme of maneuver, decision points, PIRs, and NAIs. It also refines the conduct of friendly information and civil affairs operations and public affairs concepts.

See MSTP Pamphlet 2-0.1, *Red Cell – Green Cell* for more information regarding the role of the Red and Green Cells during COA war game.

Note: If the OPT decides to not establish separate Red and Green Cells due to personnel constraints, the intelligence planner briefs friendly ISR actions as well as adversary and civil reactions. After the adversary and civil reaction moves, the OPT finishes the game turn with a friendly counteraction move. The intelligence planner identifies any changes to the PIRs, NAIs/TAIs, and concept of intelligence support required to better anticipate and observe the identified adversary reactions. Specifically, the intelligence planner identifies new requirements for national and theater ISR, changes to the organic intelligence task organization, and changes to the

employment of organic assets in response to adversary and civil reactions.

4003. COA War Game Tools/Products

The primary tools and products that result from the COA war game include the COA war game worksheet, decision support template/matrix, and the synchronization matrix. Importantly, note that the intelligence planner focuses on and captures the friendly ISR actions and counteractions as well as the adversary/civil reactions during each turn.

During the war game, the intelligence planner uses the COA war game worksheet to capture key friendly ISR actions, adversary and civil reactions, and friendly ISR counteractions. The intelligence planner also identifies the ISR assets required to undertake these friendly ISR actions and counteractions. The intelligence planner also identifies the PIR(s) related to adversary reactions and the CG's decision point(s). Depending on the time available and level of detail that OPT leaders desire, some friendly ISR actions and counteractions may not get captured on the OPT's final COA war game worksheet. Regardless, the intelligence planner must capture these actions/counteractions. The intelligence planner will include them in the synchronization matrix and, more importantly, as collection requests to HHQ and as tasks to organic ISR assets in Annex B during the orders development step of the MCPP.

The synchronization matrix is derived from the COA war game worksheet. Time constraints and the methods selected may prevent the war game from covering possible action, reaction, and counteraction. The synchronization matrix, therefore, records all significant adversary-related events over time as well the actions of ISR assets/resources relative to the PIRs and NAIs necessary to support the COA. The synchronization matrix feeds into the orders development step of the MCPP, capturing these actions as collection requests to HHQ or as tasks to organic ISR assets in Annex B.

4004. COA War Game Brief

Based on the CG's guidance and the desires of the OPT leader, the intelligence planner should perform the following actions during the COA war game brief:

- Provide current intelligence update (weather, terrain, adversary, civil considerations).
- Review wargamed adversary COA(s).
- Review wargamed civil reactions.
- Contribute to the revised friendly COA graphic/narrative regarding changes to key friendly ISR activities (such as advance force or pre-landing reconnaissance).
- Contribute refined friendly ISR actions, adversary and civil reactions, and friendly ISR counteractions to the COA war game worksheet and synchronization matrix.
- Contribute refined adversary/civil events, NAIs/TAIs, and friendly ISR actions to the decision support template/matrix.
- Contribute to resource shortfalls.
- Contribute to new RFIs.
- Contribute to risk assessment.

For more detailed guidance on wargaming, see Appendix F of MCWP 5-10, *Marine Corps Planning Process*.

Part V

COA Comparison and Decision

5001. Introduction to COA Comparison and Decision

During this step of the MCPP, the commander evaluates all friendly COAs against established criteria, compares the COAs against each other, and decides which COA will best accomplish the mission. In part, the commander bases decisions on input the principal staff, special staff, and subordinate commanders provide. The results of the war game, staff estimates, and estimates of supportability provide the basis for this input.

5002. Role of the Intelligence Planner and AC/S G-2

Having participated in the COA war game, the intelligence planner provides the AC/S G-2 feedback with the results of friendly ISR actions and adversary reactions based on the selected adversary COA. The intelligence planner must keep the AC/S G-2 informed throughout the planning process so that the AC/S G-2 can provide an informed staff estimate to the commander. As with the other OPT members, the intelligence planner now serves in a support role vis-à-vis the staff principals and subordinate commanders. The running intelligence staff estimate provides a key component of this support. Based on the intelligence staff estimate, the results of the war game, and the intelligence planner's input the AC/S G-2 advises the commander which COA the force can best support. As part of this recommendation, the AC/S G-2 discusses each COA's advantages, disadvantages, risks, and shortfalls. The AC/S G-2 considers each COA from both the adversary's perspective (which friendly COA the adversary would least prefer) and the friendly ISR perspective (which friendly COA national, theater, and organic ISR resources and assets can best support).

5003. Concept of Intelligence Support

After the CG's decision, the intelligence planner refines the Concept of Intelligence Support. It should outline the purpose of intelligence

operations and summarize the means and agencies that will plan, direct, collect, process, exploit, produce, disseminate, and evaluate the applicable intelligence. When appropriate, it integrates the resources of other services and allied nations. This becomes the Concept of Intelligence Operations within Annex B once orders development begins.

5004. Input to the WARNORD /PLANORD

Upon selection of a COA, the OPT prepares an updated warning order or planning order for dissemination to the subordinate commanders. The intelligence planner provides the following input to the OPT leader for inclusion in the WARNORD or PLANORD:

- General Situation
- Adversary
 - Composition
 - Disposition
 - COG Analysis
 - ML/MDCOAs
- Terrain
- Weather
- Civil Considerations
- Priority Intelligence Requirements
- Concept of Intelligence Support

5005. Continuing Actions

As the OPT and staff transition to the orders development step of the MCPP, the intelligence planner continues to participate (as necessary) in the refinement of the following:

- IPB Products
- PIRs
- Intelligence Staff Estimate

- Concept of Intelligence Support
- Adversary COAs
- Adversary Branches and Sequels

Part VI

Orders Development

6001. Introduction to Orders Development. Orders development translates the commander's decision into oral, written, and/or graphic communication to guide implementation and promote initiative by subordinates. The Chief of Staff directs orders development by dictating the format for the order, setting and enforcing the time limits and development sequence, and assigning annexes to specific staff sections. While OPT members to this point served as the principal participants in the planning effort, the remainder of the staff now takes over by generating their respective portions of the order. The AC/S G-2 develops Annex B (Intelligence) as well as Annex H (Meteorological and Oceanographic Operations) and Annex M (Geospatial Information and Services) if the information in these annexes becomes too comprehensive for inclusion in the Annex B.

6002. Annex B

MCWP 5-10, *Marine Corps Planning Process* and CJCSM 3130.03, *APEX Planning Formats and Guidance* provide the format for the Annex B and list the standard appendices. The intelligence planner does not normally write the entire Annex B and its appendices. Instead, the Deputy AC/S G-2 designates which G-2 staff members and subject matter experts from the intelligence units will write specific appendices to Annex B as well as Annexes H and M if used.

TTP: The G-2 should not list MSC and intelligence unit tasks below the appendix level. Tasks appearing in tabs, exhibits, or attachments often become invisible to subordinate units which may not account for or accomplish them.

See appendix guidance and formats in the following publications:

- Appendix 1 (Priority Intelligence Requirements): CJCSM 3130.03, *APEX Planning Formats and Guidance*

- Appendix 2 (Signals Intelligence): MCRP 2-10A.1, *Signals Intelligence* and CJCSM 3130.03, *APEX Planning Formats and Guidance*
- Appendix 3 (Counterintelligence): MCRP 2-10A.2, *Counterintelligence* and CJCSM 3130.03, *APEX Planning Formats and Guidance*
- Appendix 4 (Targeting Intelligence): CJCSM 3130.03, *APEX Planning Formats and Guidance*
- Appendix 5 (Human Resource Intelligence): CJCSM 3130.03, *APEX Planning Formats and Guidance*
- Appendix 6 (Intelligence Support to Information Operations): CJCSM 3130.03, *APEX Planning Formats and Guidance*
- Appendix 7 (Imagery Intelligence): MCRP 2-10B.5, *Imagery Intelligence*
- Appendix 8 (Measurement and Signature Intelligence): CJCSM 3130.03, *APEX Planning Formats and Guidance*
- Appendix 9 (Captured Adversary Equipment): CJCSM 3130.03, *APEX Planning Formats and Guidance*
- Appendix 10 (National Intelligence Support Team): CJCSM 3130.03, *APEX Planning Formats and Guidance*
- Appendix 11 (Intelligence Estimate): MCTP 2-10B, *MAGTF Intelligence Production and Analysis* and CJCSM 3130.03, *APEX Planning Formats and Guidance*
 - Tab A (Tactical Study of Terrain): MCRP 2-10B.4, *Geospatial Intelligence*
 - Tab B (Beach Studies): MCRP 2-10B.5, *Imagery Intelligence* and MCWP 2-10B.4, *Geospatial Intelligence*
 - Tab C (Climatology Study): MCRP 2-10B.6, *MAGTF METOC Support* (note, MCRP 2-10B.6 provides a format for Annex H; Appendix 1 to Annex H can be used as a baseline for Tab C to Appendix 11 to Annex B if Annex H is not used)

- Tab D (Airfield Studies): MCRP 2-10B.5, *Imagery Intelligence*
- Tab E (HLZ/DZ Studies): MCRP 2-10B.5, *Imagery Intelligence* and MCRP 2-10B.4, *Geospatial Intelligence*
- Tab F (Port Studies): MCTP 2-10B, *MAGTF Intelligence Production and Analysis*
- Tab G (Lines of Communication Study): MCTP 2-10B, *MAGTF Intelligence Production and Analysis*
- Tab H (Order of Battle Study): MCTP 2-10B, *MAGTF Intelligence Production and Analysis*, and MCRP 2-10B.1, *Intelligence Preparation of the Battlespace*
- Appendix 12 (Intelligence Products): MCTP 2-10B, *MAGTF Intelligence Production and Analysis*
- Appendix 13 (Intelligence Collection Plan): MCTP 2-10A, *MAGTF Intelligence Collection*
- Appendix 14 (Reconnaissance and Surveillance Plan):
 - Tab A (Ground Reconnaissance and Surveillance Plan)
 - Tab B (Sensor Surveillance Plan): MCRP 2-10A.5, *Remote Sensor Operations*
 - Tab C (Unmanned Aerial Vehicle Plan): MCRP 2-10B.5, *Imagery Intelligence*
 - Tab D (Aerial Imagery Plan): MCRP 2-10B.5, *Imagery Intelligence*
- Appendix 15 (Geographic Intelligence): MCRP 2-10B.4, *Geospatial Intelligence*
- Appendix 16 (Intelligence Operations):
 - Tab A (Intelligence Collection Plan): MCTP 2-10A, *MAGTF Intelligence Collection*
 - Tab B (Intelligence Production Plan): MCTP 2-10B, *MAGTF Intelligence Production and Analysis*
 - Tab C (Intelligence Dissemination Plan): MCTP 2-10C, *MAGTF Intelligence Dissemination*

- Tab D (Intelligence Communications and Information Systems Plan): MI Publication 2-01.2, *Establishing the Intelligence Architecture* and ATP 2-19.3, *Corps and Division Intelligence Techniques*
- Appendix 17 (Support to SERE):

6003. Orders Reconciliation

Orders reconciliation occurs as an internal process when the staff conducts a detailed review of the entire order to ensure that all parts of the order itself, plus its annexes, appendices, etc. agree with one another. During this process, the AC/S G-2's and intelligence planner's responsibilities extend beyond just Annexes B, H, and M. They must ensure the consistency of intelligence-related information throughout the entire order by reviewing and contributing to its various annexes. This should begin during COA development and extend through orders reconciliation during orders development. A list of relevant portions of the operations order that the G-2 should contribute to and review appears below:

Basic Order (refer to MCWP 5-10, *Marine Corps Planning Process* for the format)

- The listing of references, specifically relevant maps and charts.
- Paragraph 1.a. (General Situation). Provide a description of the general threats within the geopolitical and military environments.
- Paragraph 1.b. (Battlespace). Provide inputs to area of interest and area of influence.
- Draft paragraph 1.c. (Adversary Forces).
- Paragraph 1.e. (Civilian Populace).
- Paragraph 1.f. (Attachments and Detachments). List external ISR attachments to the MAGTF and organic ISR detachments provided to MSCs.
- Paragraph 3.b. (Concept of Operations). As a sub paragraph, provide a narrative for the concept of intelligence support.

- Paragraph 3.c. (Tasks). List key ISR tasks assigned to each subordinate unit.
- Paragraph 3.e. (Commander's Critical Information Requirements). Provide the PIR subset of the CCIRs.
- Draft paragraph 4.e. (Meteorological and Oceanographic Services).
- Draft paragraph 4.f. (Geospatial Information and Services).

Annex A (Task Organization)

- Refer to MCWP 5-10, *Marine Corps Planning Process* for the format. The intelligence planner ensures that Annex A accurately reflects the intelligence task organization outlined in the concept of intelligence support. Specifically, list the Intelligence Battalion, Radio Battalion, and Force Reconnaissance Company under the MAGTF command element / MEF Information Group (MIG). More importantly, clearly list attachments provided to MSCs as Intelligence and/or Radio Battalion detachments under the MSC headquarters. These detachments may be identified under a larger MIG Detachment. Furthermore, identify the specific teams that constitute the detachment (i.e., CHDs, SETs, SSTs). In this way, Annex A accounts for all organic ISR capabilities.
- A clear listing of ISR capabilities in the Annex A facilitates tasking of the MSCs and the intelligence battalion, radio battalion, and force reconnaissance company attachments listed in Annex B and/or Annex C.

Annex C (Operations)

- App 3 (Information Operations Environment): See MCWP 5-10, *Marine Corps Planning Process* and MCWP 3-32, *MAGTF Information Operations* for this appendix's format.
 - Contribute to paragraph 1.a. (Adversary). Ensure consistency of this paragraph with Appendix 11 to Annex B and emphasize the adversary's use of and susceptibility to information operations.

- Ensure consistency of the tabs to this appendix with the PIRs and adversary related information contained in Annex B.
- Draft Exhibit 2 (Intelligence) to Tab A (Military Deception) to Appendix 3 (Information Operations).
- App 7 (Reconnaissance)
 - Contribute to this appendix; ensure consistency with Appendices 13 and 14 to Annex B. Refer to CJCSM 3130.03, *APEX Planning Formats and Guidance* for format.
- App 19 (Fire Support)
 - Contribute to this appendix; ensure Appendix 4 and Appendix 13 to Annex B support the essential fire support tasks and other aspects of this appendix.

Annex H (Meteorological and Oceanographic Operations)

- Refer to MCRP 2-10B.6, *MAGTF METOC Support* and CJCSM 3130.03, *APEX Planning Formats and Guidance* for format.

Annex M (Geospatial Information and Services)

- Refer to MCRP 2-10B.4, *Geospatial Intelligence* for this annex's format.

Annex N (Space Operations)

- Refer to CJCSM 3130.03, *APEX Planning Formats and Guidance* for this annex's format. Ensure consistency of this annex with Annex B regarding space-based ISR support and SATCOM-enabled sensitive compartmented information (SCI) communications.

Annex W (Aviation Operations)

- Contribute to and review Appendix 4 (Reconnaissance and Surveillance Plan) to Annex W (Aviation Operations). Refer to MCRP 5-10A.1, *MAGTF Aviation Planning Documents* for this appendix's format. Note: this MCRP refers to Annex N as

the aviation operations annex; now referred to as Annex W per MCWP 5-10.

Annex X (Execution Checklist)

- Refer to MCWP 5-10, *Marine Corps Planning Process* for this annex's format.

6004. Orders Crosswalk

Orders crosswalk occurs as an external process in which the staff compares its order with the orders of higher, adjacent, and subordinate commanders. The objective achieves unity of effort and ensures meeting the superior commander's intent. The G-2 ensures consistency of the MAGTF's Annex B with higher, adjacent, and subordinate commands particularly with regard to the following:

- Availability and employment ISR resources from higher and adjacent units.
- Subordinate unit expectations for the employment of MAGTF ISR assets.
- Connectivity to HHQ's intelligence architecture.
- Procedures for utilizing HHQ's intelligence RFI.

Part VII

Transition

7001. Introduction to Transition. Transition involves the full range of briefs, drills, or rehearsals necessary to ensure a successful shift from planning to execution. At a minimum, this step includes a CONOPS brief plus the handover and explanation of any execution tools developed during planning, such as a decision support matrix or an execution checklist.

7002. The Intelligence Planner's Role

The intelligence planner participates in the CONOPS brief and/or the transition brief to the current operations section, being available to answer any questions regarding the current situation, adversary COAs, PIRs, and concept of intelligence operations. In order to do so, the intelligence planner must have a good understanding of how the anticipated adversary COAs relate to the PIRs, the collection plan, the commander's decision points, and any anticipated branches and sequels. The intelligence planner also ensures that the Marines working in the IOC/CIC understand how the concept of intelligence operations supports the friendly concept of operations. They should also become familiar with

Additionally, the intelligence planner coordinates intelligence support to any planned Rehearsal of Concept (ROC) drills. As with "intelligence preparation of the planning spaces" prior to the MCPP's problem framing and COA war game steps, the intelligence planner ensures the commander and staff can visualize the battlespace. A ROC drill may involve a very large map laid out on a gymnasium floor or the employment of engineers and earth moving equipment to assist in the creation of a very large terrain model. Regardless of the size and scope, the intelligence planner coordinates the employment of the G-2's geospatial intelligence expertise in preparing for the ROC drill.

Appendix A

Tactical Center of Gravity Analysis

A-1. Purpose and Expectations

Conduct COG analysis for both friendly and adversarial forces. However, for the purpose of this pamphlet, COG analysis will focus on the adversary where it is predominantly developed by the red cell and/or analysis section of the intelligence cell assigned to support an operational planning team. When done correctly, COG analysis will assist in determining the enemy's strengths and weaknesses in context of its mission and intent IOT assess its actions. It will also identify how to affect its COG through targeting its critical vulnerabilities. In order to mitigate against "land centric" group think, it is important for the OPT to leverage the expertise of military professionals with extensive backgrounds in areas other than the traditional land and air domains. This is especially important as we focus against the advanced capabilities of peer competitors and their ability to coordinate operations across multiple domains.

COG analysis is an art, and not a science. There are many right answers that cannot be proven to be "the right" answer; and there are many wrong answers that are tactically unsound and unsuitable. Any of the right answers will assist in planning by providing a common assumption of adversary capabilities and intentions. However, be cautious to not get bogged down with other staff members arguing inconsequential details in the art. The right answer is the one that works for the Commander and staff. Again, as an art, there are many different ways to conduct COG analysis. The right one is what works for the Commander and staff; and should be determined prior to contingency planning.

A-2. Definitions: Center of Gravity and Critical Factors

In the book, *On War*, Carl von Clausewitz introduces the COG concept. However, he does not provide a single, clear definition of this. The following phrase has most often been quoted in reference to Clausewitz's COG: "One must keep the dominant characteristics of

both belligerents in mind. Out of these...a certain COG develops, the hub of all power and movement, on which everything depends.”

In 1996, to further develop and standardize the COG concept, Dr. Joe Strange identified and defined four critical factors:

- **Centers of Gravity.** Primary sources of moral or physical strength, power, and resistance (NOUN).
- **Critical Capabilities.** Primary abilities that merit a COG identified as such in the context of a given scenario, situation, or mission (VERB).
- **Critical Requirements.** Essential conditions, resources, and means for a critical capability to become fully operative (NOUN [and VERB]).
- **Critical Vulnerabilities.** Critical requirements or components thereof that appear deficient or vulnerable to neutralization, interdiction or attack (moral/physical harm) in a manner achieving decisive results (NOUN [and VERB]).

Joint doctrine adopted these four critical factors but defines them differently:

- **Center of Gravity.** The source of power that provides moral or physical strength, freedom of action, or will to act.
 - MCRP 1-10.2 amplification: A key source of strength without which an enemy cannot function.
- **Critical Capability.** A means that is considered a crucial enabler for a center of gravity to function as such and is essential to the accomplishment of the specified or assumed objective(s).
- **Critical Requirement.** An essential condition, resource, and means for a critical capability to be fully operational.
- **Critical Vulnerability.** An aspect of a critical requirement which is deficient or vulnerable to direct or indirect attack that will create decisive or significant effects.

- MCRP 1-10.2 amplification. An aspect of a COG that, if exploited, will do the most significant damage to an adversary's ability to resist. A vulnerability cannot be critical unless it undermines a key strength.

Col Dale Eikmeier proposed a revised, more precise definition of COG: "The center of gravity is the primary entity that possesses the inherent capability to achieve the objective."

No matter the interpretation, the adversary will weight his main effort. This weight or bid for success will form part of a system and will depend on all parts of the system being effective. Through COG analysis, components of this system will reveal themselves, and through further analysis exploitable vulnerabilities will come to the forefront. Combat power directed at these vulnerabilities will weaken the system as a whole and eventually lead to the adversary's advantage or source of power becoming irrelevant, crippling the his bid for success.

A-3. Hybrid Method

COG analysis tends to become an academic debate. The following section details a methodology; but more importantly, the next section describes how COG analysis fits into the MCPP. The below analytic methodology forms a hybrid of Rueschhoff's and Dunne's "inside out" method and Eikmeier's "doer/uses and used" method. This method identifies an adversary's tactical-level center of gravity, critical capabilities, critical requirements, and critical vulnerabilities, thereby identifying the adversary's HPTs within the context of the Marine Corps Planning Process.

A Red Cell and/or the Intelligence cell of an OPT conducts adversary COG analysis during IPB, which feeds directly into Problem Framing. The OPT applies the design methodology supported by the IPB process to gain an enhanced understanding of the environment and the problem it faces. IPB clearly identifies the principal adversary unit in the MAGTF's AO along with that unit's mission/objectives. The COG analysis determines how the adversary will likely try to achieve its mission given the current situation (METT-TC).

Beginning with the assessed adversary's mission and intent, the intelligence planner and/or the red cell can identify the critical capability (verb) that the adversary needs in order to accomplish its mission. We must realize the adversary task organized for its original mission – not necessarily to counter friendly actions. This forms the heart of the “inside-out” approach; it begins with identifying the critical capability rather than trying to identify the COG first.

The critical capability comprises the action (verb) leading to a desired effect the adversary needs to accomplish its mission.

The COG is the adversary unit (noun) that possesses the critical capability.

Critical requirements equate to conditions or resources (nouns) essential to the COG achieving its critical capability.

Critical vulnerabilities surface as requirements that appear deficient or vulnerable to friendly action.

We can identify the COG as the “user” of the resources and the “doer” of the critical capability. The adversary's COG is situation dependent and may shift during progressive phases and stages of an operation as objectives or conditions change.

Critical requirements may include weather conditions, re-supply, adjacent unit objectives, or any other means to enable the critical capability.

Deficient critical requirements or those vulnerable to friendly action in a manner that will achieve decisive results become critical vulnerabilities. We can draw critical vulnerabilities from the list of critical requirements; therefore, the greater number of critical requirements, the greater the number of potential critical vulnerabilities. CVs allow for application of friendly strengths against adversary weaknesses while undermining the adversary's COG.

A-4. Hybrid Method in the MCPP

The MCPP utilizes COG analysis to inform design, CONOPS development, and the targeting concept. CVs and CRs will illustrate

decisive effects on the battlefield that are required to deny adversary mission success and enable friendly mission success. These decisive effects become targeting or maneuver objectives as the OPT develops the scheme of maneuver.

Throughout the remainder of MCPP and the operation, we must ensure COG analysis synchs with the intelligence assessment. As the situation changes or becomes clearer, the friendly assessment of the enemy's mission and intent, and composition and disposition may change, thus changing COG analysis.

Figure A-1 is a graphic depiction covering the evolution of center of gravity analysis throughout the Marine Corps Planning Process and specifically for Step 1, Problem Framing.

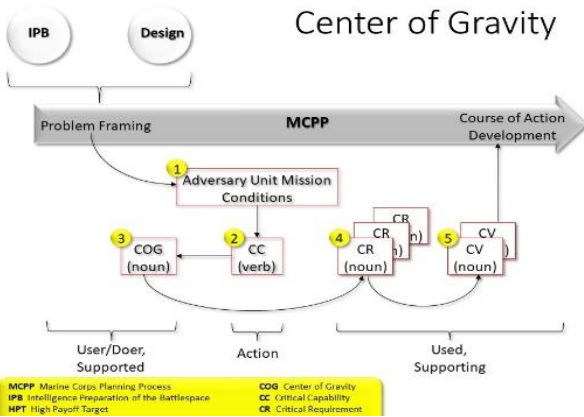


Figure A-1: Problem Framing

understanding of the intelligence section and/or the Red Cell will identify the adversary's mission and the conditions necessary for mission accomplishment. With the understanding of the composition and

planning scenario. More specifically, the

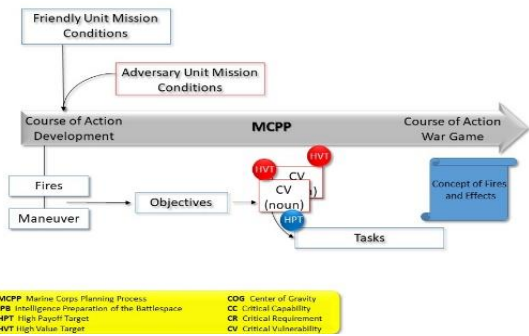


Figure A-2: COA Development

disposition of the adversary along with its intended mission, COG analysis breaks down the actions (fire and maneuver) and capabilities needed to accomplish the mission. Labeled #2 above, these critical capabilities associate with a unit identified as the center of gravity. Once we identify the COG the team deliberately identifies the critical requirements (#4) needed for that entity to operate and these become known as critical requirements. Lastly, we choose critical vulnerabilities (#5) in a priority order from the critical requirements list and, we use these to inform targeting priorities.

Figure A-2 identifies the development of High Value Targets (things advantageous for the adversary to have or do in order to accomplish its mission). It may be possible to identify High Payoff Targets (things that the adversary has or does that if exploited will be advantageous for friendly forces in accomplishing its mission) as well, but we usually complete this process during COA War Game. As we identify these targets by task, purpose, and end state, they eventually become a part of the concept of fires and effects.

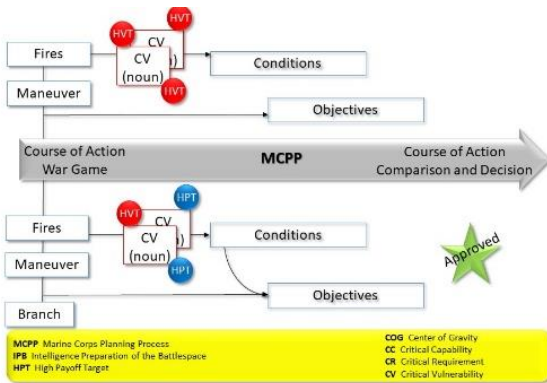


Figure A-3: COA Wargame

Figure A-3 validates COG analysis against a thinking adversary. Specifically, we measure effects against what we assessed and how it relates to the accomplishment of the mission. During this step, we change those HVTs

to HPTs which in turn become a higher priority on the target list. We must ensure the friendly collection plan nests with the Concept of Fires and Effects for tracking the movement of HVTs and HPTs in the wargame IOT locate targets on the battlefield, observe initial BDA indicators, and confirm or deny desired effects.

Figure A-4 validates the COG analysis while enabling the preparation of targeting packages for execution or nomination as part of the targeting cycle. At this point, planners associated with targeting develop target nominations, targeting priorities, and begin the development of the MAGTF Integrated Prioritized Target List. These documents further develop during orders development and get written into the operations order as Tabs in Appendix 19 Annex C.

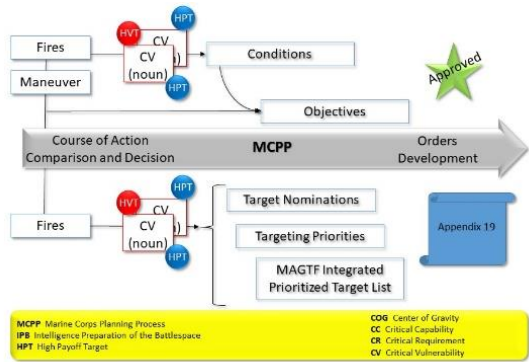


Figure A-4: COA Comparison and Decision

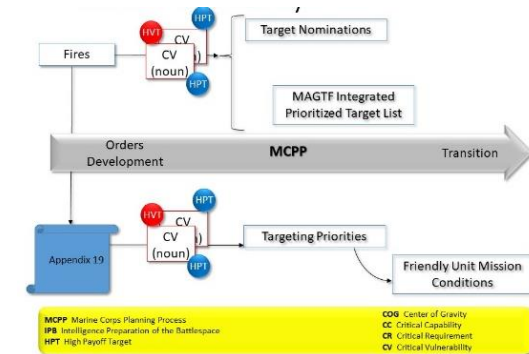


Figure A-5: Orders Development

Lastly, Figure A-5 codifies the COG analysis which finally turns into targeting guidance in Appendix 19 of Annex C. Based on the analysis of the previous steps of the MCPP and promulgated through the MAGTF Integrated Prioritized Target List, the various CVs and

CRs get targeted. This will also drive the prioritization of collections to ensure the right assets focus in the right areas with the right capabilities in order to confirm positive target identification and achieve the desired effect via the phased BDA process.

A-5. Tactical Center of Gravity Analysis Example

The simplified scenario below illustrates the process of conducting tactical COG analysis using the hybrid “inside out” and “user-doer/used” model described above. We base the adversary on the opposition force (OPFOR) contained in FM 7-100.1, *OPFOR Operations* and TC 7-100.2, *OPFOR Tactics*.

- **Situation.** The country of Orange invaded Portlandia in order to gain access to hydrocarbon resources. Orange’s Operational Strategic Command (OSC) South currently occupies Portlandia with three divisions. One motorized infantry division secures Portlandia’s oil-producing region, one motorized infantry division secures Portlandia’s principal port and airfield, and one mechanized infantry division remains in reserve. At the direction of the President, WESTCOM formed a JTF to conduct forcible entry operations in Portlandia, expel Orange forces, and restore Portlandia’s territorial integrity and sovereignty. The JTF’s JFMCC tasked its subordinate MEF to conduct the initial forcible entry to seize an air and sea port of debarkation (APOD/SPOD) in order to allow the introduction of follow-on forces. The terrain consists of a narrow coastal plain backed by high, steep hills and mountains. It offers few suitable landing beaches. Its steep slopes and dense vegetation restrict movement and offer excellent cover and concealment for the defender.

- **MEF Mission.** At H-Hour on D-Day, the MEF conducts an amphibious assault to seize Port City in order to allow JFLCC forces to enter the JOA.
 - *Step 1:* Identify the Adversary, Mission, and Conditions. The OPT identifies the 1st Motorized Division as the principal adversary force in the MEF’s proposed area of operations; analysis of the adversary’s center of gravity

will focus on this unit. The G-2 assesses the 1st Motorized Infantry Division's mission: conduct an area defense to defeat the MEF and retain Port City in order to deny the key APOD/SPOD to the JTF. The division defends on severely restricted terrain with excellent cover and concealment that favors the defender.

- *Step 2: Identify the Critical Capability.* The G-2 assesses the 1st Motorized Division organized and equipped as follows:
 - 101st Motorized Inf Bde (BTR-80)
 - 102nd Motorized Inf Bde (BTR-80)
 - 100th Mechanized Inf Bde (BMP-3)
 - 110th Integrated Fires Bde (GHN-45, SCUD)
 - 120th Air Defense Bde (SA-6, SA-7/14, various AAA)

After analyzing the 1st Motorized Infantry Division's range of capabilities based on the above task organization and within the context of its mission and the terrain, the OPT determines that the critical capability the division possesses to accomplish its mission is its ability to mass indirect fires on predictable landing areas and avenues of approach. This division capability most significantly threatens the MEF's mission accomplishment.

- *Step 3: Identify the Center of Gravity.* The OPT determines the 110th Integrated Fires Brigade possesses the capability to mass indirect fires within the 1st Motorized Infantry Division and identifies this unit as the division's center of gravity.
- *Step 4: Identify Critical Requirements:* In order to perform the critical capability, the 110th Integrated Fires Bde requires artillery tubes (GHN-45), surface to surface missile launchers (SCUD TELs), air defense assets (SA-6, SA-7/14, various AAA), camouflage, cover, concealment, and deceptive positions, ammunition resupply, radio communications architecture, forward

observers, battlefield surveillance and counterbattery radars, unmanned aerial vehicles, and automated fire control systems.

- *Step 5: Identify Critical Vulnerabilities:* The OPT determines the following critical requirements present critical vulnerabilities based on the MEF’s capabilities: radio communications architecture (vulnerable to COMINT intercept and jamming), battlefield surveillance and counterbattery radars (vulnerable to ELINT intercept and jamming), UAVs (vulnerable to friendly anti-air capabilities), and automated fire control systems (vulnerable to friendly offensive cyber operations). The OPT can depict COG analysis output in one slide as shown in Figure A-6.

① Adversary: 1st Motorized Infantry Division
 Mission: Conduct an area defense to defeat the MEF and retain Port City in order to deny key APOD/SPOD to the JTF
 Conditions: Severely restricted terrain with excellent cover and concealment that favors the defender

<p>② Critical Capability</p> <p>The ability to mass indirect fires on predictable landing areas and avenues of approach</p>	<p>③ Center of Gravity</p> <p>110th Integrated Fires Brigade</p>
<p>④ Critical Requirements</p> <ol style="list-style-type: none"> 1. Artillery Tubes 2. Surface to Surface Missile Launchers 3. Air Defense Assets 4. Camouflage, Cover, Concealment 5. Deceptive Positions 6. Ammunition Resupply 7. Radio Communications Architecture 8. Forward Observers 9. Battlefield Surveillance and C-B Radars 10. Unmanned Aerial Vehicles 11. Automated Fire Control Systems 	<p>⑤ Critical Vulnerabilities</p> <ol style="list-style-type: none"> 7. Radio Communications Architecture 9. Battlefield Surveillance and C-B Radars 10. Unmanned Aerial Vehicles 11. Automated Fire Control Systems

Figure A-6: Tactical Center of Gravity Analysis Example

Appendix B

Relative Combat Power Analysis

Quantitative Relative Combat Power Analysis is a lost skill set within today's generation of MAGTF planners. The asymmetric nature of conflict in Iraq and Afghanistan drove planners to a more subjective qualitative comparison which was often the subject of significant discussion and debate across the MAGTF staff due to a lack of supporting analytic data.

Operations against a peer adversary require a more blended approach to RCPA, an approach that is informed by data, while at the same time considers the more subjective analysis contained in a qualitative analytic framework.

In developing a data centric approach to RCPA, a correlation of forces (COF) calculator is a tool used to help planners compare the relative combat power of two forces and estimate the outcome of engagements between them. There are a number of correlation of forces tools currently in use within the military services. MSTP has developed an RCPA tool that quantitatively measures the effects of shaping and decisive actions. The Department of Army Tactics (DTAC) at the Command and General Staff College (CGSC) has the most mature and comprehensive Correlation of Forces tool currently available to military planners. A copy of the tool is available as a supplement to this pamphlet and found on MSTP's SharePoint site at the following address: https://usmc.sharepoint-mil.us/sites/TECOM_MSTP_Pubs/AO/Forms/AllItems.aspx

In order to have confidence in the outputs of an analytic tool, it is important to understand the data set and the analytic framework applied to that data. DTAC's force values are based on analysis conducted by the Training and Doctrine Command Analysis Center (TRAC) focused on mobility, firepower, and protection of NATO and threat systems. CGSC instructors computed new unit values using approved Military Tables of Organization and Equipment (MTO&E) from the Force Management System website (FMSWeb)

for U.S. forces (to include USMC organizations) and decisive action training environment (DATE) opposing force (OPFOR) tables from the Army Training Network (ATN) for enemy forces. The instructors computed a combat potential for each unit from brigade down to company level by multiplying the approved number of systems for the organization against the TRAC-developed combat potential value for the system. Individual and crew-served weapon values multiplied against the TRAC value for each system replicated individual Soldiers in the formation. Company-through-brigade echelons allowed the calculator's use in deliberate planning for brigade-through corps operations. All system combat potentials were summed, and the value for each unit was added to the data spreadsheet in the calculator.

There are a number of significant benefits in utilizing a correlation of forces tool during planning and execution:

In COA development, COF provides an objective ratio of maneuver and fires resources available for an initial assessment of friendly combat power.

During COA wargaming, typical use of the calculator is at the end of the reaction portion. When the maneuver and fire support systems of both sides are entered into the calculator, and the appropriate type of operation is selected for both sides, the results are determined for each engagement. Based on the outcomes, planners might reconsider the allocation of forces to the engagement or tactical task to create a more favorable outcome — or accept greater risk by reducing forces when those additional forces result in the same outcome.

Planners can also use the calculator values as a means to determine appropriate commander's critical information requirements (CCIR) necessary for decisions. The calculator includes a strength field for the percentage of combat power remaining in the forces allocated to the engagement. The percentage strength of a unit affects the combat potential applied in the comparison. Therefore, manipulating the strengths of units (frequently based on assumptions in planning) can identify priority intelligence requirements (PIRs) and friendly force

information requirements (FFIRs) where the ratio of combat power indicates the engagement will potentially result in a loss for the friendly side.

The calculator can also facilitate decision making during execution. Current operations and future operations can use the calculator to compare current capabilities of friendly forces, to the templated enemy force, for an upcoming engagement to determine whether the outcomes are still consistent with the plan.

While the COF calculator is a valuable tool for the MAGTF planner, it has several limitations that require sound judgment from the user to mitigate.

First, the COF calculator in its current form makes no attempt to account for the effects of terrain. All units get the maximum value of all their weapon systems regardless of range. Clearly, all units do not fight equally well in all types of terrain. We would expect significantly poorer performance from a tank platoon in a marsh or from an infantry platoon in a barren desert. When terrain provides an obvious advantage to one formation or the other, the planner can either subjectively weight or devalue the combat power before it goes into the equation or subjectively adjust the outcomes.

Similarly, the calculator does not directly consider the effects of weather or light on operations. Combat potential values in the data worksheet include maneuverability and night-vision capability in the total values, but there is no bonus or penalty for restricted terrain or limited visibility operations. One or both sides might have degraded capabilities and therefore, fewer effects within the calculator. This typically applies to effectiveness of close air support and attack aviation. The OPT may degrade combat power for both by an agreed to percentage to account for these variables.

Asymmetries in weapon system capabilities can cause skewed results. For example, anti-tank platoons or air defense artillery (ADA) platoons often have very specific munitions that are only really useful against the targets for which they are designed. While

there are formulas to mitigate these asymmetries, the COF calculator does not attempt to account for them. Rather, these asymmetries average out when the engagement being modeled is a combined arms engagement, and the results are generally useful. But for an engagement where one side is predominantly one kind of specialized unit, the results do not always reflect what we would expect. For example, a U.S. tank company has a value of 23 while a self-propelled artillery battery has a value of 28. In a direct-fire engagement, the tank company clearly has an advantage, and the planner's judgment would need to adjust the criteria. The calculator focuses on the close-combat engagement and is not capable of assessing the effects of air defense against aviation or of counterfire against indirect fire systems. While staff officers might have the tools available to determine probability of kill for air defense or the reaction time of counterfire assets (and therefore the potential disruption of fire support to a close combat engagement), it might be easier to agree in advance to degrade the effects of aviation and artillery by 25 percent if engaged by ADA or counterfire, respectively. From the Marine Corps perspective, consider an engagement between a Marine Corps littoral infantry platoon and a Chinese Frigate in an EABO scenario requiring similar outside the model adjustments.

RCPA tools are usually land domain centric and to accurately correlate friendly and adversary forces, it is imperative that the OPT leverage expertise across multiple domains and warfighting functions to adjust combat power to accurately reflect adversary and friendly capability. These qualitative adjustments to the force correlation process must be agreed to by the OPT and uniformly and consistently applied during the wargame.

In utilizing the COF calculator, always try to compare elements at the same echelon. Because the combat values reflect the inclusion of logistics and command and control capabilities within each unit, larger formations have a higher combat potential value than the sum of their subordinate combat units. Whenever possible, only compare elements using the same echelon — probably two levels down to be

consistent with the doctrinal allocation of forces in COA development.

Additionally, it is important to know how long a turn your engagement is considering. If you are modeling a small tactical engagement that would play out over the course of minutes or hours, adding in all the HQ and logistics units should be avoided. If, however, you are working at a higher echelon and you are wargaming the events that take hours or days, the inclusion of HQ and logistics elements makes sense as it helps measure the unit's ability to sustain combat over time and recover from losses.

Finally, consider the footprint of the units in the engagement. A common mistake as planners try to achieve favorable ratios is to keep adding units to one side or the other. This is often done without regard to how much physical space is needed to mass that combat power. When the combat power of one side becomes too dense, it may not accurately reflect the unit's ability to use all that combat power simultaneously without fratricide or significant risk to massed indirect fires. When a planner spots this happening, they should break the engagement into parts and model the engagement into sequential fights. An analog display with unit pieces scaled to the doctrinal footprint of the unit can help ensure only those forces that can actually engage each other are included in the calculations.

The utility of the calculator is not so much to predict the outcomes of engagements as it is to add some objectivity to the force allocation process, data-based analysis, and to facilitate staff synchronization. While the tool does have some limitations, as identified in the previous paragraphs, many of these shortcomings can be mitigated by applying percentage-based adjustments to force ratios based on terrain, light, weather, morale, training, Domain considerations, etc. By consistently applying an agreed to "off the board" set of adjustments that Marine Corps planners have

historically applied as part of a qualitative analysis, we blend the best of both approaches.¹

A copy of the correlation of forces tool can be found on MSTP's SharePoint site as a supplemental to this pamphlet:

https://usmc.sharepoint-mil.us/sites/TECOM_MSTP_Pubs/AO/Forms/AllItems.aspx

¹ Note: This Appendix is drawn from information contained in LTC Dale Spurlin and LTC Matthew Green's article "Demystify the Correlation of Forces Calculator" in Infantry Magazine Jan-Feb 2017.

Appendix C

MEF Organic ISR Asset List

Note: the chart below represents a baseline MEF’s available organic ISR assets. Actual asset availability will vary with each MEF. For precise listings of available assets, the intelligence planner must coordinate with air planners, ACE representatives, GCE representatives, and the operations officers from the intelligence, radio, and reconnaissance battalions.

Asset (Quantity)	Intel Type Collected
CHD (9)	HUMINT
SET (6)	MASINT
MST (7)	METOC
DST	All Source
GIST	GEOINT
SST (18)	SIGINT
RRT (6)	SIGINT
LAV-EW (6)	SIGINT
Force Recon Team (12)*	HUMINT
Division Recon Teams (27)*	HUMINT
RQ-21A Systems (6)	IMINT
F/A-18D	IMINT
F-35B	Multi-INT

Table C-1: MEF Organic ISR Asset List

* The MEF commander tasks force recon teams; division (GCE) commander usually tasks the division recon teams.

Acronyms:

ATARSAdvanced Tactical Airborne Reconnaissance System
CHD CI/HUMINT Detachment
CIHEP Counterintelligence Human Intelligence Equipment Program

DST.....Direct Support Team
DTAMSDigital Terrain and Mapping System
GIST.....Geospatial Intelligence Support Team
LAV-EW Light Armored Vehicle – Electronic Warfare
MEWSS..... Mobile Electronic Warfare Support System
MST.....METOC Support Team
NITES-IV..... Naval Integrated Tactical Environmental
System Variant IV
RREP..... Radio Reconnaissance Equipment Program
RRT Radio Reconnaissance Team
SET.....Sensor Employment Team
SSTSIGINT Support Team
TEG/RWS..... Tactical Exploitation Group Remote Workstation
TPCSTeam Portable Collection System
TRSS.....Tactical Remote Sensor System

Appendix D

MEF Information Group Planning Considerations

D-1. MEF Information Group. The MEF Information Group (MIG) coordinates, integrates, and employs Operations in the Information Environment (OIE) in order to ensure the commander's ability to facilitate friendly forces maneuver and deny the enemy freedom of action in the Information Environment (IE). The MIG provides communications, intelligence, supporting arms liaison, electronic warfare (EW), inform, influence, deception, cyberspace, space, and law enforcement capabilities in support of MAGTF operations.

The MIG commander exercises command over assigned forces and reports directly to the MEF commanding general. The Intelligence and Radio Battalions are assigned to the MIG and provide the vast majority of the MIG's intelligence capability. Based on the MEF or Marine Expeditionary Brigade (MEB) concept of operations, task-organization, or mission requirements, the MIG commander directs and coordinates subordinate command relationships which may include directing subordinate units to support the MEF or MEB CE, support other MSC operational requirements, or provide information capabilities to other MSCs. The MIG commander may receive tasks from the MEF or MEB commanding general or staff and directs subordinate commands to fulfill the tasking requirements. The MIG deploys task-organized elements to a supported unit or element.

In accordance with the MIG's Mission Essential Tasks (MCT) 1.1.2 *Provide Task-Organized Forces* and MCT 2.1.2 *Conduct Intelligence Support*, the MIG commander may be tasked to provide intelligence support elements to the MEF or MEB CE. The MIG supports the MEF by providing intelligence support capabilities such as the Intelligence Operations Center (IOC) and the Operations Control and Analysis Center (OCAC).

The intelligence planner, collection manager, and the designated Intelligence and Radio Battalion representatives initially develop intelligence tasking during the OPT. It is important for the MIG to provide the intelligence planner subject matter experts (SMEs) from both the Intelligence and Radio Battalion to develop the concept of intelligence support, which outlines the allocation and employment of intelligence assets.

D-2. Intelligence Battalion

The intelligence battalion plans, directs, collects, processes, produces, and disseminates intelligence and provides counterintelligence support to the MEF. It also organizes, trains, and equips task-organized detachments for service with deploying MAGTFs, as required. The three active duty intelligence battalions in the Marine Corps include: 1st Intelligence Battalion (I MEF), 2d Intelligence Battalion (II MEF), and 3d Intelligence Battalion (III MEF). The 1st and 2d Intelligence Battalions each organized with a battalion headquarters, headquarters company, a Production and Analysis (P&A) company, a P&A support company, a Counterintelligence/Human Intelligence (CI/HUMINT) company, and a CI/HUMINT support company. 3d Intelligence Battalion is similarly organized but with no P&A support company or CI/HUMINT support company. The MEF AC/S G-2 tasks the intelligence battalion. It forms the core of the IOC when deployed. The intelligence planner, collection manager, and the designated intelligence battalion representative initially develop tasking for it during the OPT. The concept of intelligence support, as drafted by the intelligence planner outlines the allocation and employment of Intelligence Battalion assets.

- **CI/HUMINT Company**
 - The CI/HUMINT Company provides CI and HUMINT support to MAGTF operations. These may include screening operations, interrogation/debriefing of enemy prisoners of war and persons of intelligence interest, conduct of CI force protection source operations, conduct of CI surveys and investigations, preparation of CI

estimates and plans, translation of documents, and limited exploitation of captured material. In addition, the CI/HUMINT Company maintains a technical surveillance countermeasures team. CI/HUMINT Marines deploy as task-organized CI/HUMINT Detachments (CHD) in general or direct support of the MEF and subordinate commands, or as attachments to subordinate commands or smaller MAGTFs.

- The Counterintelligence and Human Intelligence Equipment Program (CIHEP) provides CHDs with the capability to rapidly collect, process, and disseminate intelligence information in support of the MAGTF. Each CHD provides integrated, standardized, and interoperable information and communication systems as well as specialized equipment to conduct the full spectrum of CI, HUMINT, and technical collection operations. CIHEP also includes a Technical Surveillance Countermeasures (TSCM) capability designed to detect, locate, identify, neutralize, and exploit adversarial efforts at audio, video, radio frequency, laser/infrared, optical, and telephonic surveillance at sensitive facilities. CIHEP provides CHDs with an organic capability to research collection requirements, process collected information, produce intelligence reports, disseminate those reports securely to supported commanders and the Intelligence Community, and provide limited organic technical support to CI and HUMINT operations.
- **Ground Sensor Platoon**
 - A Ground Sensor Platoon (GSP) plans the employment of, operates, and maintains a remote sensor system in support of MAGTF operations. Each Intelligence Battalion includes one Ground Sensor Platoon (GSP) consisting of six Sensor Employment Teams (SET). The SET represents the basic unit of employment for remote sensor operations. A SET consists of four Marines operating one

Tactical Remote Sensor System (TRSS). TRSS provides a ground surveillance capability for continuous, unattended, remote, all-weather detection, location determination, and monitoring of enemy activity. Current detection methods include seismic, acoustic, magnetic, and imaging (thermal and electro-optical) to include long-range imaging cameras. TRSS also integrates a satellite communications capability to overcome line-of-sight limitations. A SET can provide the following capabilities:

- Develop a limited-scope sensor surveillance plan.
 - Assist in the planning and execution of implant operations.
 - Provide sensors and relays for the employment of up to 24 sensor strings.
 - Operate a single monitoring site on a continuous basis.
 - Operate a remote monitoring site for limited periods.
 - Perform 1st echelon maintenance on remote sensor equipment.
- **Meteorological and Oceanographic (METOC) Platoon**
 - The METOC platoon collects, assesses, and disseminates METOC intelligence necessary to characterize the battlespace relevant to the planning and execution of operations. This includes atmospheric, space, climatic, and hydrologic intelligence for use in the production of tactical decision aids and METOC effects matrices. Each intelligence battalion has one METOC platoon. 1st and 2d Intelligence Battalions' platoons consist of one METOC officer, one METOC chief, 24 METOC forecasters, and seven Naval Integrated Tactical Environmental System variant IV (NITES IV) processor and sensor suites. 3d Intelligence Battalion's platoon consists of one METOC officer, one METOC chief, 20 METOC forecasters, and five NITES IV processor and sensor suites.

- Each platoon can form task organized METOC Support Teams (MST) equipped to provide a limited level of METOC support. MSTs can operate in general support of the MEF, in direct support of the GCE and/or LCE, or attached to smaller MAGTFs. They can rapidly deploy as stand-alone assets in response to a crisis or as a first-in METOC capability to establish METOC support in anticipation of follow-on forces. The MST deploys with the NITES-IV, a team-portable, ruggedized environmental collection and data processing equipment suite. One team per METOC platoon will have a NEXGEN Mobile Meteorological Facility that can collect and disseminate meteorological data from anywhere in the world.
- **Direct Support Teams.** Intelligence Direct Support Teams (DST) provide an enhanced analytical and dissemination capability to the supported unit's intelligence section and link the larger intelligence enterprise to the supported units.
- **Geospatial Intelligence Support Team**
 - A Geospatial Intelligence Support Team (GIST) normally consists of two imagery intelligence specialists and two geographic intelligence specialists. These Marines employ the Tactical Exploitation Group Remote Workstation (TEG/RWS) and the Digital Terrain and Mapping System (DTAMS), respectively. A GIST may also require a Global or Intelligence Broadcast System (GBS/IBS) to download large data files. A GIST can operate either attached or in direct support of a MAGTF, MSC, or subordinate unit. Normally, the GIST operates under the staff cognizance of the unit intelligence officer. The mission, tasks, and functions of a GIST parallel those of the topographic and imagery intelligence platoons within the intelligence battalions. GISTs provide tailored topographic and imagery intelligence analysis and production to the supported unit.

D-3. Radio Battalion

The radio battalion provides SIGINT, electronic warfare, limited cyberspace operations, and special intelligence communications support to the MAGTF and joint force commander. Three active duty radio battalions operate in the Marine Corps: 1st Radio Battalion (I MEF), 2d Radio Battalion (II MEF), and 3d Radio Battalion (III MEF). A Radio Battalion consists of a battalion headquarters in the Headquarters and Service (H&S) company and designated operational companies. The operational companies task-organize to form an Operations Control and Analysis Center (OCAC), Operational Control Elements (OCE), and collection teams. The Radio Battalion deploys and employs under the ADCON of the MIG. The Radio Battalion and its detachments remain in general support of the MAGTF. The MAGTF AC/S G-2 tasks the Radio Battalion for SIGINT operations while the G-3/S-3 tasks the battalion for electronic warfare and limited cyberspace operations. During the OPT, the intelligence planner, collection manager, and Radio Battalion Operations Officer or designated representative initially develop Radio Battalion tasks during the OPT. The concept of intelligence support as drafted by the intelligence planner outlines the allocation and employment of Radio Battalion assets.

- **Operations Control and Analysis Center (OCAC).** The OCAC performs SIGINT processing, analysis, exploitation, production, and reporting of signals intelligence products and information at the MEF level. Additionally, it forms the principle element that coordinates with other intelligence nodes to plan, direct, and integrate SIGINT operations with other intelligence and reconnaissance operations. OCEs perform similar functions for subordinate units supported by Radio Battalion detachments.
- **SIGINT Support Teams (SST).** SSTs consist of Marines and equipment for conducting SIGINT collection and direction-

finding operations. SSTs can operate on foot, mounted in vehicles, or operate from within tents or buildings. The team, equipped with a Team Portable Collection System (TPCS) provides a semi-automated, team transportable SIGINT collection capability.

- **Radio Reconnaissance Teams (RRT).** The RRT collects SIGINT during advance force, pre-landing, or other operations where the employment of conventional Radio Battalion teams may be unfeasible. The Radio Reconnaissance Equipment Program (RREP) provides RRTs with a man packable, modular, and scalable SIGINT capability.
- **LAV-EW/MEWSS.** Mounted in a Light Armored Vehicle, Electronic Warfare variant (LAV-EW), the Mobile Electronic Warfare Support System (MEWSS) provides SIGINT collection, direction finding, reporting, and communication jamming capabilities.

D-4. References

MEF Information Group Mission Statement Promulgation Letter. July 2019. Headquarters Marine Corps, Department of Defense.

MEF Information Group Headquarters Mission Statement Promulgation Letter. August 2019. Headquarters Marine Corps, Department of Defense

MCRP 1-10.1, *Organization of the United States Marine Corps*

MCWP 2-10, *Intelligence Operations*

MCRP 2-10.2, *Operational Level Integration of METOC Capabilities*

MCRP 2-10A.2, *Counterintelligence*

MCRP 2-10A.5, *Remote Sensor Operations*

MCRP 2-10B.4, *Geospatial Information and Intelligence*

MCRP 1-10.1, *Organization of the United States Marine Corps*

MCRP 2-10A.1, *Signals Intelligence*

Appendix E

Reconnaissance Battalion Planning Considerations

Reconnaissance Battalions conduct advanced force operations, battlespace shaping, amphibious reconnaissance, underwater reconnaissance, and ground reconnaissance or surveillance operations. They observe, identify, and report intelligence information on the enemy, weather, and terrain. A Reconnaissance Battalion consists of three organic subordinate organizations: the H&S Company, Reconnaissance Companies, and a Force Reconnaissance Company. Reconnaissance Battalions are organic to the MARDIV. The battalion, in consonance with the MARDIV, plans, coordinates, and directs the operations of its teams, platoons, and companies. It establishes a Reconnaissance Operations Center (ROC) with connectivity to the MARDIV's COC to exercise C2 over its subordinate units. If the MEF AC/S G-2 establishes a Surveillance and Reconnaissance Center (SARC), the ROC will either provide liaison to or integrate with the SARC.

The Reconnaissance Battalion's specialized insertion and extraction capabilities include but are not limited to the following:

- Small boat operations
- Combatant diving
- Scout swimming
- Helicopter insertion/extraction
- Static line, high-altitude, high-opening parachuting
- Military free fall, high-altitude, high-opening parachuting
- Helicopter rope suspension techniques
- Helicopter casting operations

The MEF commander retains primary authority for mission tasking of the Force Reconnaissance Company. The Force Reconnaissance Company is organized into a company headquarters and four reconnaissance platoons. It can operate in general support of the MEF

or in direct support or attached to a subordinate unit of the MEF or the Marine component of a joint force. The Force Reconnaissance Company headquarters establishes and maintains a ROC with connectivity to the MEF or supported unit's COC to control its subordinate units. The ROC will liaise or integrate with the SARC, if established.

Recon Bn: three companies of three platoons each with three teams per platoon for a total of 27 teams.

Force Recon Co: four platoons of three teams each for a total of 12 teams.

References:

MCRP 1-10.1, *Organization of the United States Marine Corps*

MCRP 2-10A.6, *Ground Reconnaissance Operations*

Appendix F

Unmanned Aircraft System Planning Considerations

F-1. Marine Unmanned Aircraft Systems. Unmanned Aircraft Systems (UAS) squadrons (VMU) support the MAGTF commander by conducting Electro-Magnetic Spectrum (EMS) warfare, multi-sensor reconnaissance and surveillance, supporting arms coordination and control, and destroying targets day or night and under all weather conditions.

VMUs task-organize to support the MAGTF based on operational requirements. These detachments can provide direct or general support depending on the nature and duration of the mission. The MAGTF commander sets the support relationships according to the tactical situation. The intelligence planner, in coordination with the OPT leader, the air planner, and the ACE representative recommends specific support relationships based on the requirements of each COA under development.

A fully staffed and equipped VMU operates six RQ-21A *Blackjack* systems. Each system includes five aircraft, one launcher, one Sky Hook Recovery System (SRS), two integrated Trailer-ECU-Generators (ITEG), four HMMVS, and associated support equipment. Of note, this all becomes a significant planning factor for employing a hub and spoke technique to support ISR operations. With a combat radius greater than 50 nautical miles, the *Blackjack*'s payload consists of EO/IR/IR Marker/Laser Range Finder.

Operating sites present a key consideration in UAS employment planning. A UAS requires a Launch and Recovery Site (LRS), commonly referred to as the "hub," and a split site, commonly referred to as a spoke. The LRS occupies a location where it can conduct maintenance, flight operations, and launch and recovery. The LRS may include a runway depending on the types of UAS operating from that location. A split site operates from a location where only in-flight operations are possible. UAS launch from and return to the LRS

and hand off to the split site for tactical mission execution. Some operations may not require a split site, but it may enhance the effectiveness of operations by extending the range of the UAS or overcoming the effects of terrain on communications.

Asset	Sensor
RQ-21A* Blackjack	EO/IR, FMV, LRD/LRF, IR Ptr, Comm. Relay
MQ-1B Predator	EO/IR, FMV, LRD / LRF, IR Ptr. SIGINT
MQ-1C Gray Eagle	EO/IR, FMV, SAR, IR Ptr, GMTI, LRD/LRF, SIGINT, Comm. Relay
RQ-4A BAMS-D	EO/IR, SAR, GMTI
RQ-4B Global Hawk	EO/IR, SAR, GMTI, SIGINT
MQ-4C Triton	EO/IR, SAR, FMV, Comm. Relay
MQ-5B Hunter	EO/IR, LRD/LRF, SIGINT, Comm. Relay, IR Ptr.
MQ-8B Fire Scout	EO/IR, LRD/LRF, SAR, Comm. Relay, IR Ptr.
MQ-9 Reaper	EO/IR, LRD/LRF, SIGINT, SAR, GMTI, IR Ptr.

*USMC systems

Table F-1: Unmanned Aircraft Systems Planning Data

F-2. Acronyms

ATARSAdvanced Tactical Airborne Reconnaissance System
EO/IR Electro-optical / Infra-Red
FMVFull Motion Video
GMTIGround Moving Target Indicator
IR Ptr..... Infra-Red Pointer
LRD/LRF.....Laser Range Detector / Laser Range Finder
SAR.....Synthetic Aperture Radar
SIGINT.....Signals Intelligence

References:

MCRP 1-10.1, *Organization of the United States Marine Corps*
MCRP 3-20.5, *Unmanned Aircraft System Operations*
MCRP 3-20.6, *MTTP for the Tactical Employment of UAS*

Appendix G

Fixed Wing Aerial Reconnaissance Planning Considerations

G-1. Fixed Wing Assets

Asset	Sensor
F-35B Lightning*	EO/IR, SAR, EW
F/A-18D Hornet*	EO/IR, SAR (ATARS)
AV-8B Harrier*	EO/IR (L-Pod)
KC-130J Hercules*	EO/IR, LRD/LRF (Harvest Hawk)
U-2S Dragon Lady	EO/IR, OBC, SAR, SIGINT
RC-135V/W Rivet Joint	SIGINT
E-8C JSTARS	GMTI, SAR
P-3C Orion	EO/IR, FMV
P-3C LSRS	GMTI, SAR, EO/IR
EP-3E Aires	SIGINT
P-8A Poseidon	EO/IR, FMV
RC-12 Guardrail	SIGINT

*USMC systems

Table G-1: Fixed Wing Aerial Reconnaissance Planning Data

G-2. Acronyms

ATARS.....Advanced Tactical Airborne Reconnaissance System
EO/IR Electro-optical / Infra-Red
FMV Full Motion Video
GMTI Ground Moving Target Indicator
LRD/LRF Laser Range Detector / Laser Range Finder
OBC Optical Bar Camera

SAR.....Synthetic Aperture Radar

SIGINT.....Signals Intelligence

References:

MCRP 2-10A.4, *MTTP for Air to Surface Radar System Employment*

MCTP 3-20G, *Air Reconnaissance*

Marine Aviation Plan 2019

U2 Product Card:

<http://www.lockheedmartin.com/content/dam/lockheed/data/aero/documents/u-2/U2productcard.pdf>

USAF Fact Sheets

<http://www.af.mil/AboutUs/FactSheets.aspx>

NAVAIR Fact Sheets

<http://www.navair.navy.mil/index.cfm?fuseaction=home.FixedWing>

Navy P-3 Fact Sheet

http://www.navy.mil/navydata/fact_display.asp?cid=1100&tid=1400&ct=1

RC-12X Product Card

http://www.northropgrumman.com/Capabilities/Guardrail/Documents/RC12X_datasht.pdf

Appendix H

Glossary

Section I Acronyms

Note: Acronyms change over time in response to new operational concepts, capabilities, doctrinal changes, and other similar developments. The following publications are the sole authoritative sources for official military acronyms:

1. Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*.
2. MCRP 1-10.2, *Marine Corps Supplement to the Department of Defense Dictionary of Military and Associated Terms*.

ACE	Air Combat Element
AO	Area of Operations
APE	Adaptive Planning and Execution
ASCOPE	Areas, Structures, Capabilities, Organizations, People, and Events
ATARS	Advanced Tactical Airborne Reconnaissance System
C2PC	Command and Control Personal Computer
CCIR	Commander's Critical Information Requirement
CIC	Combat Intelligence Center
COA	Course of Action
COG	Center of Gravity
CONOPS	Concept of Operations
DOD	Department of Defense
GCE	Ground Combat Element
HHQ	Higher Headquarters
HPT	High-Payoff Target
HVI	High-Value Individual
HVT	High-Value Target
IGO	Intergovernmental Organization
IM	Information Manager / Management
IOC	Intelligence Operations Center

IPB	Intelligence Preparation of the Battlespace
ISR	Intelligence, Surveillance, and Reconnaissance
JP	Joint Publication
LCE	Logistics Combat Element
MAGTF	Marine Air-Ground Task Force
MARDIV	Marine Division
MCDP	Marine Corps Doctrinal Publication
MCOO	Modified Combined Obstacle Overlay
MCPP	Marine Corps Planning Process
MCRP	Marine Corps Reference Publication
MCWP	Marine Corps Warfighting Publication
MDCOA	Most Dangerous Course of Action
MEF	Marine Expeditionary Force
MLCOA	Most Likely Course of Action
MSC	Major Subordinate Command
MSE	Major Subordinate Element
NAI	Named Area of Interest
NGO	Nongovernmental Organization
OPLAN	Operation Plan
OPT	Operational Planning Team
PMESII	Political, Military, Economic, Social, Informational, Infrastructure
RFF	Request for Forces
RFI	Request for Information
SOP	Standing Operating Procedures
TAI	Target Area of Interest
TIO	Target Intelligence Officer
TTP	Tactics, Techniques, and Procedures
UAS	Unmanned Aircraft System
WARNORD	Warning Order

Section II Definitions

Note: Definitions of military terms change over time in response to new operational concepts, capabilities, doctrinal changes, and other similar developments. The following publications are the sole authoritative sources for official military definitions of military terms:

1. Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*.
 2. MCRP 1-10.2, *Marine Corps Supplement to the Department of Defense Dictionary of Military and Associated Terms*.
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A

adversary—A party acknowledged as potentially hostile to a friendly party and against which the use of force may be envisaged. (JP 1-02)

area of influence—A geographical area wherein a commander is directly capable of influencing operations by maneuver or fire support systems normally under the commander's command or control. (JP 1-02)

area of interest—That area of concern to the commander, including the area of influence, areas adjacent thereto, and extending into enemy territory to the objectives of current or planned operations. This area also includes areas occupied by enemy forces who could jeopardize the accomplishment of the mission. (JP 1-02)

area of operations—An operational area defined by the joint force commander for land and maritime forces. Areas of operation do not typically encompass the entire operational area of the joint force commander, but should be large enough for component commanders to accomplish their missions and protect their forces. (JP 1-02)

assumption—A supposition on the current situation or a presupposition on the future course of events, either or both assumed to be true in the absence of positive proof, necessary to enable the

commander in the process of planning to complete an estimate of the situation and make a decision on the course of action. (JP 1-02)

B

branch(es)—A contingency plan or course of action (an option built into the basic plan or course of action) for changing the mission, disposition, orientation, or direction of movement of the force to aid success of the operations based on anticipated events, opportunities, or disruptions caused by enemy actions. (MCRP 5-12C)

C

centers of gravity—Those characteristics, capabilities, or localities from which a military force derives its freedom of action, physical strength, or will to fight. (JP 1-02) **See Appendix A for further discussion**

Commander's critical information requirements—Information regarding the enemy and friendly activities and the environment identified by the Commander as critical to maintaining situational awareness, planning future activities, and facilitating timely decision-making. Also called **CCIR**. (MCRP 5-12C)

course of action—1. A plan that would accomplish, or is related to, the accomplishment of a mission; 2. The scheme adopted to accomplish a task or mission. It is a product of the Joint Operation Planning and Execution System concept development phase. The supported Commander will include a recommended course of action in the Commander's estimate. The recommended course of action will include the concept of operations, evaluation of supportability estimates of supporting organizations, and an integrated time-phased data base of combat, combat support, and combat service support forces and sustainment. Refinement of this data base will be contingent on the time available for course of action development. When approved, the course of action becomes the basis for the development of an operation plan or operation order. Also called **COA**. (JP 1-02)

critical vulnerability—An aspect of a center of gravity that if exploited will do the most significant damage to an adversary’s ability to resist. A vulnerability cannot be critical unless it undermines a key strength. Also called **CV**. (MCRP 5-12C) **See Appendix A for further discussion**

D

decision support template—A combined intelligence and operations graphic based on the results of wargaming. The decision support template depicts decision points, timelines associated with movement of forces and the flow of the operation, and other key items of information required to execute a specific friendly course of action. (JP 1-02)

H

high-payoff target—A target whose loss to the adversary will significantly contribute to the success of the friendly course of action. High-payoff targets are those high-value targets that must be acquired and successfully attacked for the success of the friendly commander’s mission. Also called **HPT**. (JP 1-02)

high-value target—A target the adversary commander requires for the successful completion of the mission. The loss of high-value targets would be expected to seriously degrade important adversary functions throughout the friendly commander’s area of interest. Also called **HVT**. (JP 1-02)

I

intelligence preparation of the battlespace—The analytical methodologies employed by the services or joint force component commands to reduce uncertainties concerning the enemy, environment, time, and terrain. Intelligence preparation of the battlespace supports the individual operations of the joint force component commands. Also called **IPB**. (JP 1-02)

N

named area of interest — The geospatial area or systems node or link against which information that will satisfy a specific information requirement can be collected. Named areas of interest are usually selected to capture indications of adversary courses of action, but also may be related to conditions of the operational environment. Also called **NAI**.

O

operational planning team—A group built around the future operations section which integrates the staff representatives and resources. The operational planning team may have representatives or augmentation from each of the standard staff sections, the six warfighting functions, staff liaisons, and/or subject matter experts. Also called **OPT**.

P

priority intelligence requirements—An intelligence requirement, stated as a priority for intelligence support, that the commander and staff need to understand the adversary or the operational environment. Also called **PIR**. (JP 1-02)

S

sequel — In a campaign, a major operation that follows the current major operation. In a single major operation, a sequel is the next phase. Plans for a sequel are based on the possible outcomes (success, stalemate, or defeat) associated with the current operation. See also **branch**. (JP 5-0)

synchronization matrix—A format for the staff to record the results of wargaming and synchronize the course of action across time, space,

and purpose in relation to an adversary course of action. (MCRP 1-10.2)

T

target area of interest — The geographical area where high-value targets can be acquired and engaged by friendly forces. Not all target areas of interest will form part of the friendly course of action; only target areas of interest associated with high priority targets are of interest to the staff. These are identified during staff planning and wargaming. Target areas of interest differ from engagement areas in degree. Engagement areas plan for the use of all available weapons; target areas of interest might be engaged by a single weapon. Also called **TAI**.

Appendix I

References

I-1. USMC Publications

MCDP 1-0, *Marine Corps Operations*

MCRP 1-10.1, *Organization of the USMC*

MCRP 1-10.2, *USMC Supplement to DoD Dictionary*

MCDP 2, *Intelligence*

MCWP 2-10, *Intelligence Operations*

MCRP 2-10.2, *Operational Level Integration of METOC Capabilities*

MCTP 2-10A, *MAGTF Intelligence Collection*

MCRP 2-10A.1, *Signals Intelligence*

MCRP 2-10A.2, *Counterintelligence*

MCRP 2-10A.4, *MTTP for Air to Surface Radar System Employment*

MCRP 2-10A.5, *Remote Sensor Operations*

MCRP 2-10A.6, *Ground Reconnaissance Operations*

MCRP 2-10A.7, *Reconnaissance Reports Guide*

MCRP 2-10A.8, *ISR Optimization*

MCTP 2-10B, *MAGTF Intelligence Production and Analysis*

MCRP 2-10B.1, *Intelligence Preparation of the Battlespace*

MCRP 2-10B.4, *Geospatial Information and Intelligence*

MCRP 2-10B.5, *Imagery Intelligence*

MCRP 2-10B.6, *MAGTF METOC Support*

MCTP 2-10C, *MAGTF Intelligence Dissemination*

MCWP 3-20, *Aviation Operations*

MCRP 3-20.5, *Unmanned Aircraft Systems*
MCRP 3-20.6, *MTPP for Unmanned Aircraft Systems*
MCTP 3-20G, *Air Reconnaissance*
MCWP 3-31, *MAGTF Fires*
MCRP 3-16D, *MTPP for Dynamic Targeting*
MCWP 3-32, *MAGTF Information Operations*
MCIP 3-32Di, *Electro-Magnetic Spectrum Operations*
MCIP 3-32Ei, *Marine Corps Cyberspace Operations*
MCDP 5, *Planning*
MCWP 5-10, *Marine Corps Planning Process*
MCRP 5-10A.1, *MAGTF Aviation Planning*

I-2. Joint Publications

CJCSMI 3370.01A, *Target Development Standards*
CJCSM 3130.03, *APEX Planning Formats*
CJCSM 3162.01, *Joint Methodology for BDA*
CJCSM 3314.01A, *Intelligence Planning*
CJCSM 3375.01, *Target Intelligence Data Standards*
JP 2-0, *Joint Intelligence*
JP 2-01, *Joint and National Intelligence Support to Military Operations*
JP 2-01.3, *JIPOE*
JP 2-03, *GEOINT in Joint Operations*
JP 3-02, *Amphibious Operations*
JP 3-09, *Joint Fire Support*
JP 3-12 (R), *Cyberspace Operations*
JP 3-60, *Joint Targeting*

JP 5-0, *Joint Operation Planning*

MIL STD 2525D, *Joint Military Symbolology*

I-3. Army Publications

ATP 2-01, *Plan Requirements and Assessments*

ATP 2-19.3, *Corps and Division Intelligence Techniques*

ATP 2-19.4, *Brigade Intelligence Techniques*

ATP 3-60, *Targeting*

FM 3-38, *Cyber Electromagnetic Activities*

FM 7-100.1, *OPFOR Operations*

MI Pub 2-01.2, *Establishing the Intelligence Architecture*

TC 7-100, *Hybrid Threat*

TC 7-100.2, *OPFOR Tactics*

TC 7-100.3, *Irregular OPFOR*

TC 7-100.4, *Hybrid Threat Force Structure Organization Guide*

World Equipment Guide Volume 1, Ground Systems

World Equipment Guide Volume 2, Airspace and Air Defense Systems

World Equipment Guide Volume 3, Naval and Littoral Systems