

21st Century Combined Arms

Integration of lethal and non-lethal actions and effects across multiple domains

by Col Brian P. Duplessis

The proliferation of information related capabilities (IRCs) has exacerbated the challenge of effectively integrating—in time, space, and purpose—IRCs with lethal, traditional fires as envisioned in current and emerging doctrine. The *Marine Corps Operating Concept (MOC)* captures our Service ambitions for lethal/non-lethal (L/NL) integration and directs:

We will confront adversaries who seek to disrupt, degrade, or destroy our information capabilities and systems. We will counter them with an information warfare approach integrated with C2, ISR, and precision fires from the MEF to the small-unit level.¹

The Corps is searching for answers on how to integrate these capabilities as the 2017 Earl “Pete” Ellis essay contest asked entrants:

Col Duplessis is the Director of Operations and Training, Expeditionary Warfare Group, Atlantic.

How can the Marine Corps better integrate traditional means of fire support with lethal and non-lethal fires, especially emergent capabilities such as cyber and electronic warfare?²

Furthermore, the most recent MAGTF Fires Operational Advisory Group saw L/NL integration considerations account for two of six out-brief items.³ This article analyzes considerations for MAGTF-level L/NL actions and effects integration within the naval Services and joint force answering the Commandant’s task to, “Integrate a

21st century combined arms approach into education, training, exercises, and organizations.”⁴

Considerations

As a point of departure, we must remember where MAGTFs belong in the joint and naval force in order to properly envision how we will integrate L/NL actions and to what effect(s). Once we have identified those requirements, we have to consider how we can best organize our staffs; highly qualified personnel improperly organized will achieve nothing at best and often prove counterproductive. MAGTFs, to include MEFs, are tactical formations with an operational focus fighting as part of the larger joint and naval force aligning operations, objectives, and actions within the naval battle(s) of the joint force commander’s (JFC) campaign. Consequently, JFC guidance and objectives drive MAGTF targeting objectives and supporting effects;⁵ all actions must adhere to JFC constraints and restraints. Naval integration is required as MAGTF commanders fight seamless naval battles in conjunction with the joint/combined force maritime component commander. Fully integrated action across all warfighting functions, to include fires and operations in the information environment, is imperative.

Staff organization. To achieve effective L/NL integration, the staff must be properly organized. Multiple considerations drive organization to include weight of effort between L/NL actions, battle rhythm, and available personnel and resources. Regardless of the model selected, the organization must move at



Fully integrated action across all warfighting functions is imperative. (Photo by SSGT Daniel Wetzel.)

- 2015: I MEF had a FECC with three elements (Lethal Fires, IO, Air).
 - Participated in DB15.
 - Used EFSTs, IRC specific Objectives.
 - Lacked utility and integration.
- 2016: I MEF had a FECC, G-39 IO Section, and Air Section.
 - Participated in MEFEX-16.
 - Used EFSTs, IO Support Tasks, IRC specific Objectives.
 - Lacked integration and synchronization.
- 2017: I MEF has a FECC (IO and Fires) and an Air Section.
 - Participated in OCA-17, Pacific Sentry 17.2, and MEFEX.
 - Used Targeting Objectives and Effects.
 - Fostered increased staff integration and effects synchronization.

Figure 1. (Image provided by author.)

the speed of war and fulfill the commander's vision. Potential staff models include separate L/NL sections with a common senior decision-maker responsible for L/NL integration, separate L/NL sections with the fires and effects coordinator (FEC) as sole integrator, or a fully integrated entity with the FEC as sole integrator. Regardless of the model selected, the designated integrator should reside at the MAGTF CE, the lowest common commander for multiple fires and effects providers. The recently published *Functional Concept for MAGTF Fires* advocates this approach.⁶

The first model has little chance for success as potential integrators have many other weighty responsibilities significantly limiting their ability to give L/NL integration the attention and effort required. The end result trends toward separate L/NL lines of effort which never meet; when they do meet it is by accident vice design. The second model moves closer to true integration but still has the potential for separate, uncoordinated efforts. Conversely, JFCs have selected variations of the last model almost universally. For example, U.S. Strategic Command (USSTRATCOM) stood up a Joint Fires Element (JFE) empowering the JFE chief with authority to integrate cyber, space, and global strike operations. Similarly, U.S. Pacific and European Commands rebuilt their previously divested targeting capability by selecting a JFE construct with the chief designated as L/NL integrator. In both cases, the existing information op-

erations cell was deemed inappropriate for L/NL integration during potentially high-end operations against near-peer competitors. This trend continues at the joint task force (JTF) level where, after some experimentation, CJTF-OIR (Commander Joint Task Force—Operation INHERENT RESOLVE) ultimately settled on a combined JFE with L/NL fires divisions under the JFE chief as single integrator. At the Service level, I MEF experimented with each of the previously described models over the past two years (see Figure 1) with varying degrees of success before settling on a fully integrated fires and effects coordination center (FECC) under cog-

nizance of the FEC as the sole L/NL integrator. The results achieved during a joint exercise, JTF certification, and MEF exercise validate this decision.

Based on these examples, the ideal FECC—more appropriately an effects coordination center—is a fully integrated entity reflecting a mindset, not merely an organization chart. For example, a label of current effects vice current fires personifies the approach. Furthermore, the addition of an information warfare (IW) watch officer (WO) on the combat operations center floor is wise. As the MEF information groups gain maturity, a MIG liaison officer—separate and distinct from the information-warfare watch officer—warranted and will pay dividends. In pursuit of naval integration, Navy lethal fires and IW reps are also required. While the addition of these personnel will prove challenging in terms of resources and space, particularly when aboard ship, gains far outweigh costs as we must maintain understanding of operations in the information environment to the same degree, sometimes to a greater degree, as we do in other domains. Going one step farther, we need an aggressive, short-term personnel exchange program (PEP) initiative to rapidly build expertise we lack, but our sister Services have in spades. A

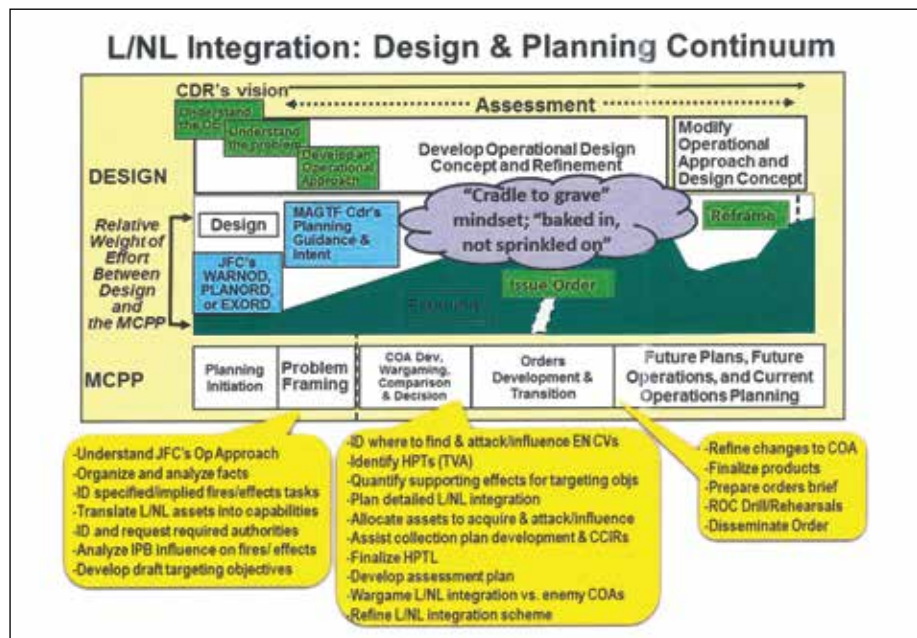


Figure 2.⁸ (Image provided by author.)

rapid infusion of joint experts would significantly enhance our nascent efforts while Marines sent to PEP billets would return with experience we could not replicate as quickly. To limit impacts, we should consider one or two year PEP billets where our selectees rapidly gain experience and insights but return in a timely fashion putting their newly gained expertise immediately into action. Potential PEP billets include Air Force (cyber, space), Army (electronic warfare, special technical operations, military deception (MILDEC), and Navy (all IRCs in a naval setting).

Design and Planning

We must think integration from the start, begin early in design and planning, and not think of integration as a “bolt on” or afterthought during execution.⁷ Figure 2 graphically depicts the design and planning continuum in terms of L/NL integration. Specifically, commanders must identify desired outcomes or effects up front; a starting point is the commander’s battlespace area evaluation (CBAE), specifically the center of gravity (COG) analysis with critical vulnerabilities (CV) driving the “decide” step of the targeting cycle. We then integrate L/NL actions and effects, within the scope of current and planned authorities, to protect our CVs while attacking and/or influencing adversary CVs. Effective integration takes a holistic approach seeking to use all available IRCs vice a few preferred tools or ignoring IRCs altogether in favor of lethal-only solutions. Consequently, we must include diverse IRC experts in all OPTs and fires/targeting venues. Other considerations under the design and planning umbrella include event horizon management, authorities, targeting objectives/essential fire support tasks, “effects fratricide,” and the incorporation of joint, coalition and other government partners.

Event Horizon Management. Deliberate lethal fires are chiefly planned for the future operations horizon and executed in the current operations horizon. IRCs, conversely, often require significant lead times for effective preparation, approval of required authorities, execution, and for effects to manifest and undergo as-

essment while creating desynchronization with lethal planning. For example, while we might influence behavior in a reasonably short period, efforts to change cognitive perception are rarely feasible within 24 to 48 hours whereas a scheme of lethal fires is routine. All of this begs for a single planning approach where pre-planned and approved actions and effects—L/ NL alike—are executed, vice reactive requests for effects that may prove unsupportable given time constraints.

A potential mitigation technique is the conducting of a targeting deep dive periodically at the end of the daily target coordination board. Based on the type and tempo of the operation, combined with the commander’s decision-making style and information requirements, this could be executed every three days, once a week, or less frequently. CJTF-OIR previously used this technique to good effect often updating the commander on largely NL actions to set conditions for major operations more than a year in advance; the results of recent operations validate this technique. Another possible approach is the use of a plans management board (PMB) chaired by the deputy CG or chief of staff or other senior decision maker. The PMB coordinates and deconflicts multiple, simultaneous, and competing planning efforts across all three event horizons.

While not a targeting exclusive event, a PMB can potentially foster L/NL integration across multiple horizons.

Authorities. Authorities confer legitimacy to the missions, methods, and end states that commanders pursue.⁹ While commanders are generally unconstrained to employ lethal, conventional weapons within their area of operations—in consonance with the Law of Armed Conflict and rules of engagement—the same does not hold true for most IRCs compelling commanders to request authorities. These requests should be specific; a blanket request to employ IRCs for an operation’s duration is not likely to succeed. For example, a request for MILDEC authorities for the duration of Phase III has far less chance of success than a request for MILDEC authorities during Phase 3B to deceive XX formation until Objective Y is secured. Requisite authorities must be identified and requested as early as possible because many require high-level and/or multi-lateral approval. Given the importance of authorities, a staff judge advocate representative is critical to effective L/ NL integration and must be part of the process from design and planning through execution. This representative needs to understand the JFC’s process to request supplemental authorities while developing and maintaining a graphical

Targeting Objectives & Effects Analysis

1. Limit 999th Mixed Artillery Brigade’s (MAB) ability to mass fires IVO MEF Objective 1 enabling GCE’s (Main Effort) seizure of MEF Obj A

- Effect 1.1: HQ 999th MAB unable to communicate w/ firing units (EW, SIGINT, OAS, HIMARS) CV: 1, 2, 4, 5
- Effect 1.2: Firing units unable to displace/make survivability moves (EW, SIGINT, MISO, OAS, HIMARS) CV: 1, 4, 5, 6
- Effect 1.3: Firing units unable to receive replenishment (EW, SIGINT, MISO, OAS, HIMARS) CV: 1 - 6

Critical Vulnerabilities (CVs): 999th Mixed Artillery Brigade

CV 1: Lack of IADS	CV 4: Reliance on Centralized C2
CV 2: C2 Nodes	CV 5: Lack of Communications Security
CV 3: Sustainment	CV 6: Limited Mobility Corridors for displacement

Or...

Essential Fire Support Task (EFST)

Task: Limit 999th MAB’s ability to mass fires IVO MEF Obj A

Purpose: Enable the GCE’s (Main Effort) seizure of MEF Obj 1

Method:

- **Priority of Fire:** 1) GCE; 2) ACE; 3) FAHQ
- **Allocation:** 1) Disrupt HQ 999th MAB’s ability to C2 firing units: EW degrades C2, SIGINT locates C2 nodes, MISO erodes morale, OAS & HIMARS lethally strike C2 nodes; 2) Deny firing units’ ability to displace/make survivability moves: EW degrades C2, SIGINT intercepts movement orders, MISO erodes morale, OAS & HIMARS lethally strike displacing units; 3) Firing units unable to receive replenishment: EW degrades C2, SIGINT intercepts replenishment orders, MISO erodes morale, OAS & HIMARS lethally strike replenishment actions.
- **Restrictions:** BCL 1 in effect; cluster munition approval w/ O6 COs; tactical MISO authority to O6 COs

Effect: 999th MAB unable to mass fires above battery level

Figure 3. (Image provided by author.)

matrix depicting authorities by phase/event. While we plan for and anticipate required authorities, we will not foresee every scenario. Thus, when confronted with unexpected events, resident authorities will drive our dynamic targeting and integration efforts. Finally, our adversaries are largely unconstrained and do not require authorities to act in the same manner we do. We must understand this state of affairs and not allow the adversary to exploit this to his advantage.

Targeting objectives and supporting effects vs. essential fire support tasks. L/NL integration needs to be commander-focused conveying information in the commander's preferred manner to support informed decision making and understanding of the operational environment. Two commonly observed methods are the use of targeting objectives or traditional essential fire support tasks (EFST).

The use of targeting objectives at the MAGTF level is a recent trend. The author's draft of a revised *MCWP 3-31, MAGTF Fires*, defines targeting objectives as, "Goals describing aspects of adversary capabilities or parts of the battlefield system the MAGTF Commander wants to affect."¹⁰ Targeting objectives provide a single, commander-centric lens focusing targeting efforts

across the enterprise; one set of objectives generating one set of supporting effects linked to enemy CVs. Well-developed targeting objectives and supporting effects promote an integrated approach vice assigning separate lethal and information operation (IO) tasks. Targeting objectives can also serve as a framework for ACE apportionment and allocation.

While EFSTs are doctrinal, recognized, and widely used, they should be re-branded "essential effects tasks" as "fire support" conjures a lethal focus and does not inherently promote L/NL integration. The chief challenge to effective L/NL integration via EFSTs is properly wording the method portion. All too often, this key narrative limits L/NL integration to a poorly defined statement such as, "employ IO." A more useful and effective statement will separate IRCs either individually or by groupings of similar functions/effects. These would need to provide a detailed, yet concise, narrative of employment providing desired effect(s), and the manner of aiding/complementing lethal effects. Despite this challenge, EFSTs remain doctrinal and may prove "user friendly" to a rapidly assembled staff not familiar with targeting objectives and without time to learn. Figure 3 provides a simplistic

comparison between EFSTs and targeting objectives.

Regardless of selected method, graphical depiction of effects integration on a single product is a recommended practice and follows USTRATCOM's integrated tasking order used to integrate global strike, cyber, and space operations. Another method to further L/NL integration is organizing IRCs into inform, influence, and electromagnetic spectrum operations/space/other contingency operations groupings vice a nebulous, overarching label IO or listing fourteen disparate IRCs. This practice creates a concise framework that more precisely considers application of groups of IRCs in conjunction with lethal actions in pursuit of targeting objectives. Again, commander preference will drive the form adopted. Figure 4 provides an example of a simple effects synchronization graphic depicting the EFST/Targeting Objective from Figure 3.

"Effects Fratricide." Almost without exception, every IRC employment is a "cross boundary" event. While we know with reasonable certainty the effects of all manner of lethal ordnance and select non-lethal ordnance (smoke, illumination etc.), we cannot say the same for IRCs as no scientific studies predict the effect of MILDEC operations with the same degree of accuracy associated with a lethal munition. Likewise, we often fail to properly predict and/or assess the moral effect(s) of lethal fires on adversaries and friendlies alike. We have proven procedures to route aircraft flight paths to avoid indirect fire trajectories enabling simultaneous engagement; deconfliction by time, space, or a combination of both is second nature. This cannot be said for IRCs as few, if any of us, innately visualize the hazards of simultaneously employing multiple IRCs in conjunction with lethal fires against the same target sets. Without some manner of deconfliction and synchronization, IRCs have the potential of working at cross purposes and, far from creating a combined arms effect or creating conditions for effective use of L/NL actions as the primary defeat mechanism, we stymie our own efforts.

Coalition, Joint, and other Mission Partners. We fight in a joint, combined,

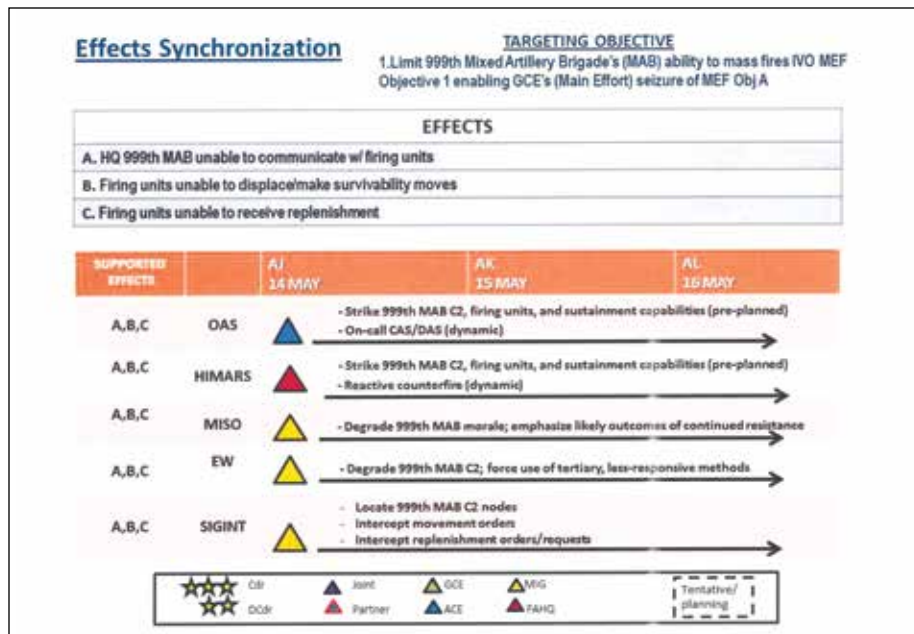


Figure 4. (Image provided by author.)

and whole of government environment to include L/NL integration efforts introducing challenges in information sharing, foreign disclosure, and authorities. Coalition partners will bring non-lethal capabilities but may not be able to disclose sources, methods, or tools. Likewise, we are limited in what we can share with partners, even our closest allies. In response, we must become comfortable with only knowing what effect(s) can be provided while stifling our innate curiosity for complete information and understanding. This reality also creates requirements for separate secure spaces. Coalition partners will also operate with different authorities and national caveats. Often this can prove limiting; but, however, we may have coalition partners with authorities to execute actions we would like to, but cannot. We must never use coalition partner authorities and actions to circumvent established norms and laws.

Similarly, we fight with joint and non-DOD partners who operate under different authorities, answer to separate chains of command, and possess different organizational cultures and mindsets. To achieve unified action, we must understand capabilities and limitations, information exchange requirements and methods, and the preferred lexicon. At times we may have to adjust—within reason—for the greater good. Successful

unified efforts are predicated on close cooperation aided by a spirit of compromise informed by shared purpose.

Execution

While the preponderance of L/NL integration takes root in design and planning, much can still go astray during execution. Potential execution

may have to modify existing targeting methodologies to better incorporate combined effects. In order to achieve this ideal, the targeting process must be fully integrated beginning with a venue to pass the commander's guidance—combined with the latest assessments—and culminating with a targeting board or other decision-making venue. In be-

Event	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR
Staff															
Admin Unit	18-Oct-12	18-Oct-12	18-Oct-12	18-Oct-12	18-Oct-12	18-Oct-12	18-Oct-12	18-Oct-12	18-Oct-12	18-Oct-12	18-Oct-12	18-Oct-12	18-Oct-12	18-Oct-12	18-Oct-12
Chair	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR	CDR
Facilitator (CDR)	17C Smith	17C Smith	CDL Jones	CDL Rogers	17C Smith	17C Smith	17C Smith	17C Smith	17C Smith	17C Smith	17C Smith	17C Smith	17C Smith	17C Smith	17C Smith
JTF CDR															
Dep CDR															
Col															
POAID															
SA															
DIRM															
U1															
U2															
U3															

Figure 6. (Image provided by author.)

friction points include targeting cycle, battle rhythm and boards, bureaus, centers, cells, working groups (B2C2WGs), and assessment.

Targeting cycle, battle rhythm, and B2C2WGs. Proper L/NL integration is predicated on a single targeting cycle not separate L/NL cycles. Therefore, we

tween these initiating and culminating events, a series of mutually supporting iterative working groups serve as connecting tissue. Each event needs clearly defined inputs and outputs avoiding the “bridge to nowhere” syndrome. These connecting files should use as little time as necessary giving the excess back to subordinates for staff work and critical thinking. Figure 5 depicts an example integrated B2C2WGs structure such as previously described.

An overambitious battle rhythm degrades quality staff work and is unsustainable for long-term combat operations. Therefore, we must distill the battle rhythm down to only those truly critical events and, when possible, combine similar events to create efficiencies. For example, a combined targeting/collections board links complementary requirements and limits the number of events senior leaders must attend. Given the need for L/NL representatives to attend a wide array of working groups, we must closely manage personnel bandwidth as it is easy to lose sight of demands on key personnel, particularly high-demand, low-density experts such as the staff

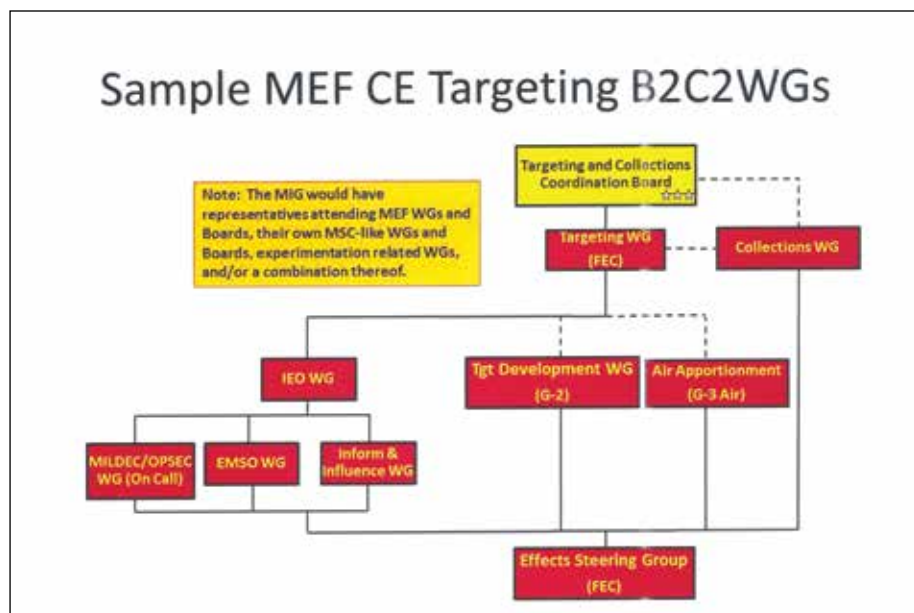


Figure 5. (Image provided by author.)

judge advocate. A proven management tool is a staff utilization matrix graphically depicting the staff's ability to support multiple, simultaneous, and competing events. A similar tool can manage high demand resources such as spaces and video teleconferences. Figure 6 is an example of a notional JTF staff utilization matrix.

Assessment. Assessment enriches understanding and helps commanders manage limited resources, against seemingly unlimited tasks and objectives, while identifying when transition criteria are met. The results of fires and effects feed the overall command effort and are often among the most critical pieces of information required to produce an informed assessment. In order to best capture this critical information, collection plans allocate and focus collection assets against those enemy units and capabilities that the commander needs to strike and/or influence in order to achieve success. While this time-tested methodology has proved useful in assessing the results of lethal actions against tangible targets, it must be adjusted to better capture the results and effects of NL actions against intangible aspects such as enemy morale and cognitive perception. We have access to capabilities and techniques to do so, but they must be recognized early and properly allocated. For example, signals intelligence intercepts, validated by imagery, can assess the effectiveness of a deception plan; conversely, if we focus on the wrong indicators, we will derive a flawed assessment with negative cascading effects across the force. In order to properly identify the correct factors for NL/cognitive assessments, we must rely on cross-functional experts to include regional/foreign area officers and SNCOs as well as experts outside the MAGTF using a federated approach.

Training, Exercises, and Operations

Our current exercise continuum, focused almost exclusively on phase III current operations, does not foster true "cradle to grave" L/NL integration. Additionally, training in our formal learning centers need to include L/NL training at the lowest levels. We also need to enhance support to L/NL

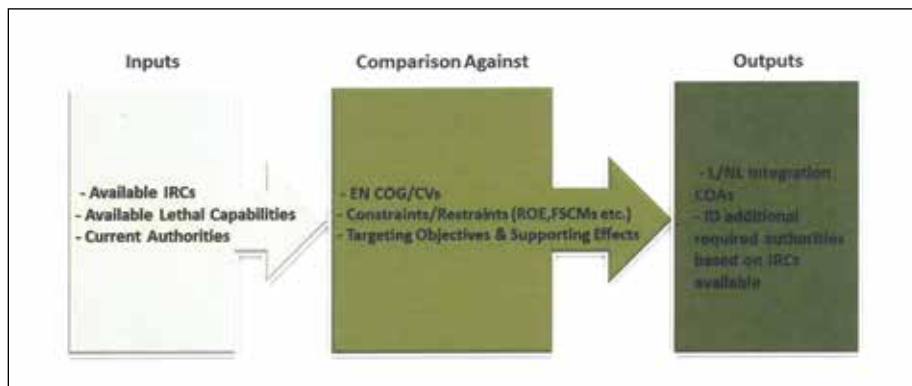


Figure 7. (Image provided by author.)

decision making to move at the speed of potential adversaries.

Continuum of Joint, Naval, and Service Exercises. Our current joint, naval, and Service exercises do not support, much less encourage, L/NL integration. Barriers to success include short duration exercises, an overabundance of lethal assets, and a failure to penalize commanders who do not achieve L/NL integration.

A senior flag officer's quote captures the chief shortcoming of our current exercise continuum, "It is very difficult to master the lethal/non-lethal integration process during a one-week training exercise and nearly impossible to replicate long-term non-lethal effects and measure/assess the impact of those effects to inform the commander."¹¹ While extending exercises is not viable, we can better structure exercises to capture the L/NL integration process validating and/or refining our methodologies. For example, prior to exercise commencement, phase zero through phase two NL actions could be executed, adjudicated, and assessed. The results, informed by assessment, will set conditions for opening the main exercise forcing commanders to make decisions and adjust plans based on outcomes from the onset rather than the average time it usually takes to meet a commander's critical information requirements and stress their decision cycle.

Even if the previous suggestion became reality, commanders may still ignore L/NL integration if they possess seemingly unlimited lethal resources. All too often, particularly when designated main effort, we have more

aircraft than airspace and seemingly unlimited preferred surface-to-surface munitions. If we had fewer resources, we could force commanders and planners to think L/NL from the start. To reach this ideal, we should bring back the mindset of the legacy combined arms exercise (CAX) program.

The CAX program emphasized combined arms at all levels actively penalizing commanders for not achieving combined arms, even when single arms were seemingly capable of achieving objectives. While pedantic to many, this approach enforced good habits of thought and action; a similar mindset needs to be instilled in terms of L/NL integration. While many naysayers will declare this constitutes "group think" and "ties" commanders' hands, it will change the way we approach attainment of desired effects across the force in the same manner combined arms became second nature due to the CAX program's influence. It usually took only one devastating antitank guided missile ambush to convince battalion commanders an unsupported, uncoordinated tank company assault on an infantry position was not a good idea.

Expeditionary Warfare Training Group Atlantic (EWTGLANT) initiative. EWTGLANT, alone among the Corps' formal learning centers, possesses resident subject matter experts with significant Service and joint experience in landbased surface, aerial, and naval surface fires, targeting, and diverse IRCs such as operational security, signals intelligence, MILDEC, military information support opera-

tions, and electronic warfare/cyber. EWTGLANT is uniquely postured to address the complex challenge of developing tactics, techniques, and procedures for L/NL integration. Accordingly, EWTGLANT is producing a L/NL integration handbook, informed by feedback from the community of interest (combat Development & Integration, EWTGPAC, Training Command, Fort Sill, MEFs, and MAGTF Staff Training Program, among others). EWTGLANT is also considering formal focused L/NL integration instruction ranging from resident courses to mobile training teams. Instruction could be unit or individual; for example, a mobile training team might train a MEB/MEF FECC as a single entity. Conversely, a resident course could bring together disparate personnel from across the Service and joint communities for training. In the short term, given the MOC's requirement for integration, "from the MEF to the small-unit level," EWTGLANT is already incorporating IRCs and L/NL integration into our FSCC and supporting arms coordination center resident courses and our FSCC mobile training team cultivating this mindset in tomorrow's senior leaders and decision makers.

Non-Lethal Joint Munitions Effectiveness Manual (JMEM). The JMEM series of ongoing studies informs our application of lethal munitions against targets or sets of targets; our primary fires planning system, Advanced Field Artillery Tactical Data System, draws extensively from JMEM. As touched on previously, the certainty of predicting NL results is limited; there is no NL JMEM and the viability of a similar study matching the accuracy inherent in JMEM is not promising. What we can do, however, is produce a decision support tool that takes L/NL capabilities and resident authorities as inputs, compares same to enemy CVs and desired effects, producing feasible L/NL integration courses of action for consideration as depicted in Figure 7.

Again, this would be a decision support aid and would still require analysis, critical thinking, and informed decision making. However, such a tool could

increase our ability to rapidly achieve L/NL integration particularly in dynamic situations such as the potential use of electronic warfare, combined with lethal fires. Given the largely unconstrained freedom of action our potential adversaries enjoy, such a tool could also tighten our planning and decision cycles regaining some lost competitive advantage.

Conclusion

While we have discussed a multitude of considerations, L/NL integration is ultimately the skillful application of lethal actions, IRCs, and authorities, properly coordinated in time, space, and purpose, to attack/influence the enemy center of gravity while defending our own. This is a continuous process, deeply ingrained in the commander's decision cycle and informed by continuous assessment; one we must master to remain relevant on the 2025 battlefield. Figure 8 graphically depicts this symbiotic relationship.

Secretary Mattis' quote encapsulates the preceding paragraphs and should spur us to action lest we continue to fall behind potential adversaries. As the Service that revolutionized combined arms—particularly the close integration of aerial, naval, and land-based surface fires—we have the legacy and mindset

to set the gold standard in this emerging approach to warfighting. Furthermore, the forward to the *Functional Concept for MAGTF Fires* states a purpose that:

Further develops the challenges and tasks described in the MOC, specific to the fires warfighting function, and is intended to generate professional debate and discussion about these challenges.

With the SecDef's call to action and DC/CD&I's guidance to generate professional debate, let this work contribute to the "opening gambit."

Notes

1. Headquarters Marine Corps, *Marine Corps Operating Concept (MOC)*, (Washington, DC: 2017).
2. 2017 Ellis Essay Contest Announcement, *Marine Corps Gazette*, (Quantico, 2017).
3. Headquarters Marine Corps, *MAGTF Fires OAG 18-1 Wrap-Up Message*, (Washington, DC: 8 February 2018).
4. MOC.
5. The joint definition of an effect is: "The physical or behavioral state of a system that results from an action, a set of actions, or another effect. The result, outcome, or consequence of

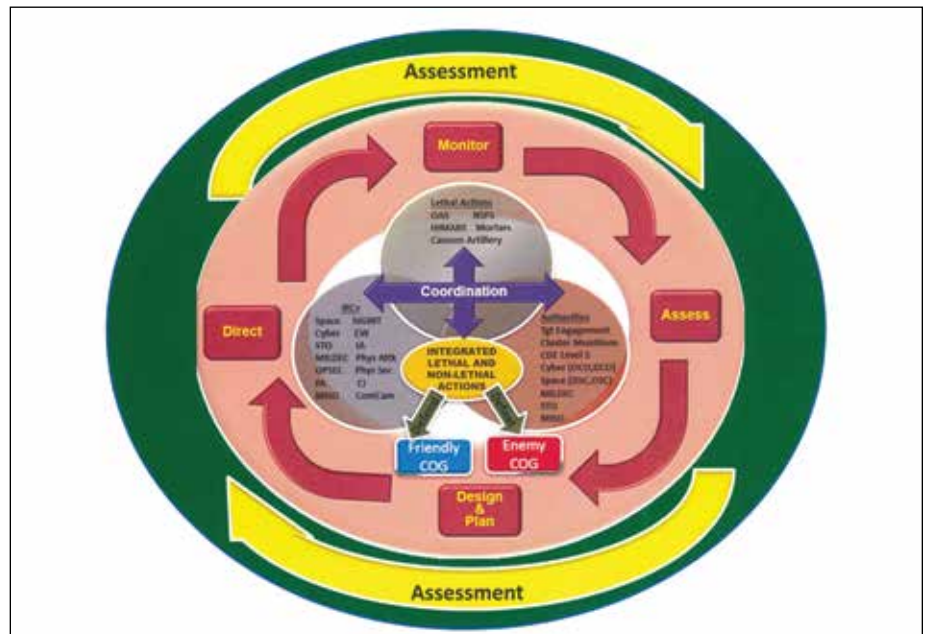


Figure 8. (Image provided by author.)

an action. A change to a condition, behavior, or degree of freedom.” (See, Joint Staff, *Joint Publication 3-0, Joint Operations*, (Washington, DC: January 2017)).

6. MCCDC, Functional Concept for MAGTF Fires (Quantico, VA: September 2017).

7. Joint Staff, “Insights and Best Practices Focus Paper: Integration of Lethal and Non-Lethal Actions,” Third Edition, Deployable Training Division, (Suffolk, VA: May 2016).

8. This graphic is based on a slide produced and used by the Deployable Training Division, Joint Staff J-7 for Senior Leader Education.

9. Joint Staff, “Insights and Best Practices Focus Paper: Authorities,” Second Edition, Deployable Training Division, (Suffolk, VA: October 2016).

10. Headquarters Marine Corps, *MCWP 3-31 MAGTF Fires*, author’s draft, (Washington, DC: draft November 2017).

11. “Insights and Best Practices Focus Paper: Integration of Lethal and Non-Lethal Actions,” (May 2016).

12. Available at <https://www.defense.gov>.

