MEF Information Group

Fighting the information environment

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"Marines must understand that controlling physical terrain is no longer a sufficient condition for battlefield success; we must also navigate the landscape of knowledge and perception."[1]

Large Scale Exercise 2017 (LSE-17)[2] commenced shortly after the *MAGTF Information Environment Operations Concept of Employment* was signed on 6 July 2017 as part of Marine Corps Force 2025 modernization efforts. The exercise provided a venue for the newly minted II MEF Information Group (II MIG)—an information-warfare-focused command—to rehearse the latest concepts for operations in the information environment (OIE) which support MAGTF operations. During preparation and execution, the Marines of II MIG focused on information as a warfighting function by synchronizing lethal and non-lethal effects within the targeting process and combining diverse MEF-wide information-related capabilities (IRCs). Properly executed, OIE can support tempo, increase situational awareness, and ultimately enhance the commander's bid for success throughout all phases of an operation. In supporting 2dMarDiv in its role as II MEF(FWD), II MIG endeavored to shape perceptions and influence the cognitive domain in order to meet the commander's intent of "compelling the enemy to withdraw." The execution of LSE-17 revealed challenges associated with implementing this new organization and illustrated the necessity for significant future training and resourcing to develop a standing information warfare capability for the MAGTF commander. As the exercise concluded, II MIG demonstrated the tremendous potential of coordinated and synchronized OIE as a force multiplier for a battlefield commander.

Background

LSE-17 was a multinational exercise aboard Marine Corps Air-Ground Combat Center, Twentynine Palms, CA, in August 2017. Led by 2dMarDiv, the MAGTF included elements from the United Kingdom, France, Canada, and II MEF. When planning for LSE-17, the leadership of II MEF(FWD) and II MEF Headquarters Group (MHG) sought to incorporate the Information Warfare Coordination Center (IWCC) and OIE into the exercise, viewing it as a proof of concept for the information warfare tenets of Marine Corps Force 2025. A core OIE planning cell formed in order to develop basic OIE planning capabilities and leverage resident expertise in the MHG. The MHG sponsored information briefings and working

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groups to familiarize the MEF's major subordinate commands and major subordinate elements with the draft OIE concepts. The staffs, major subordinate commands, and major subordinate elements created a supportive environment in which the then-II MHG's OIE planning cell could align its efforts within LSE-17.

For II MHG, participation in LSE-17 provided an opportunity to represent the future MIG structure and lean into the transition from II MHG to II MIG. Post-exercise analysis revealed significant gaps in personnel, training, and resources. Subject-matter expertise was sourced from within II MHG and its battalions, workspaces were located, and training courses were identified to mitigate some gaps. While deficiencies in trained and qualified personnel will remain until the MIGs are fully staffed, venues such as the Intermediate MAGTF Information Operations Planners' Course, Joint Electronic Warfare Theater Operations Course, and the Marine Corps Information Operations Command Combined Unit Exercise have been leveraged to build knowledge within the planning cell. The core staff participated in the academics phase of LSE-17, which built relationships with key individuals across the II MEF(FWD) and identified challenges in the planning and employment of IRCs. While none of the nascent IWCC members had formal information operations training, they leveraged knowledge from their primary occupational specialties, which included intelligence, electronic warfare, communications, aviation, fire support, and law enforcement. Subject-matter experts from additional IRCs, such as military information support to operations (MISO), communications strategy and operations (COMMSTRAT), and civil-military operations (CMO), augmented the group to fill staffing shortfalls for the exercise. On 21 July 2017, II MHG was redesignated as II MIG. Shortly thereafter, the IWCC deployed to Twentynine Palms in support of II MEF(FWD) during the LSE.

The MIG is learning how OIE will sychronize within the planning process. *(Photo by SSgt Kowshon Ye.)*

In the case of LSE-17, the MIG COC (combat operations center) functioned primarily as an IWCC, as it did not provide supporting functions to the group writ large. Until the MIG is fully staffed, the division of effort between IWCC capabilities and the MIG COC will require development. The importance of the MIG as an element of the MAGTF and a MIG commander focused on the seven functions of MAGTF OIE became clear as II MEF(FWD) drove the tempo of LSE-17 and sought greater synergy within the MAGTF. While planners and staff sections were eager to integrate information capabilities across their functions, maintaining tempo and forward-focused planning during the decision-making cycle was challenging, given personnel constraints in the absence of trained billet holders. This highlighted the well-thought-out MIG table of organization, which includes both current and future operations planners across critical areas. The temporary sourcing solution of 21 MIG personnel provided great insight into what fully staffing the MIGs in fiscal years 2018 and 2019 will bring to the MAGTF and our combined arms way of fighting.

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Successes

The engagement of the MIG during LSE-17 offered a variety of accomplishments to inform future OIE and MIG employment, specifically the synchronization of OIE with planning processes and battle rhythm events, the integration of MIG personnel and capabilities across the MAGTF, and close coordination with coalition partners.

Almost every battle rhythm event required the participation of MIG personnel to ensure that OIE and IRCs supported the operational approach and were synchronized with the scheme of maneuver. MIG liaisons in the fires and effects coordination center (FECC) synchronized effects during the targeting

cycle and processed IW-related requests from the MEF(FWD) and coalition forces. Battle rhythm events supporting targeting were the most critical points of engagement; the incorporation of MIG representatives into the targeting process expedited the synchronization of non-lethal targeting methods, including electronic warfare, key leader engagement, MISO messaging, and other technical capabilities. IRCs were employed to achieve a combined arms effect alongside lethal targeting methods and to shape perceptions. The integration of OIE capabilities into the targeting process, coordinated through the MIG and synchronized throughout phases of the operation, enhanced operational effectiveness.

Each battle rhythm cycle in the MIG began with an informal working group to identify what IRCs could be applied against targets and phases of the operation to achieve operational success, to shape perceptions, or to synchronize with maneuver. For example, electronic fires supported offensive maneuver, and communications strategy messaging reinforced operational success. MIG personnel looked ahead to determine how messaging could create the conditions necessary to satisfy the commander's end state in support of maneuver. Embedding the MIG and IWCC into battle rhythm events is essential to "baking in" the employment of IRCs and assessments to support the preparation of the environment, tactical maneuver, and the commander's end state—in this case, compelling the enemy to withdraw. These efforts include monitoring the IE and pre-conflict sensing, supporting maneuver, shaping perceptions, and exercising the seven functions of MAGTF IE operations.[3] The construct of IW-related working groups requires significant development to maximize the planning and coordination of OIE within the battle rhythm.

II MIG personnel networked across II MEF(FWD), projecting capabilities throughout the MAGTF and attaching elements to maneuver units. The ANGLICO Marines embedded in coalition partner units to conduct liaison for fires and IE effects;

Leaders at all levels must be aware of how the IE informs their situational awareness. *(Photo by SSgt Kowshon Ye.)*

the COMMSTRAT planner worked with COMMSTRAT Marines across the MAGTF ensuring public releasable information supported maneuver; the MIG CMO planner liaised with the civil affairs cell to ensure messaging supported stability efforts. Radio Battalion Marines attached to 3 Commando, UK Royal Marines (3CDO), and Regimental Combat Team Eight (RCT-8) to provide electronic fires in support of the scheme of maneuver. MISO planners supported messaging requests from across the coalition. The judge advocate's role proved essential as he generated tactical decision authorities matrices tailored to IRCs, which expedited decision making and enabled the planners and staff to rapidly identify what authorities could be delegated or requested to leverage IRCs faster. The employment of IRCs throughout the MAGTF drove additional requests for information warfare support from units to support maneuver. The federation of OIE capabilities across the force enabled tempo within MAGTF operations and the rapid integration of IRCs in branches and sequels in response to dynamic changes in the battlespace.

The MIG COC was a venue to coordinate with coalition partners. The relationship built with the 3CDO and the 30 Commando Information Exploitation Group, Royal Marines (30CDO(IX)) was beneficial, as 30CDO(IX) brought a wealth of knowledge and experience about OIE. The MIG integration into the FECC facilitated requests from 30CDO(IX) to ensure that MISO broadcasting, electronic fires, and additional technical capabilities could be leveraged in support of 3CDO's scheme of maneuver. The MIG COC and the Information Warfare Working Group served as a point for the request, synchronization, and deconfliction of OIE capabilities and efforts. Coordination with the 5th Canadian Mechanized Battle Group (5CMBG) helped deconflict messaging efforts when it became the main effort.

Training and operating in coalition environments will provide opportunities to gain proficiency in OIE and execute capabilities in order to create efficiencies and build shared awareness. While the MIG COC serves as a physical venue, virtual environments and coalition networks must be tailored to encourage shared awareness in the information environment. In some cases, a partner nation may have capabilities or authorities which can be utilized in support of MAGTF operations. Foreign partner interactions, habitual relationships, network connectivity, and

combined exercises must be stressed as a tenet of MAGTF operations in the information environment.

Pathways to Momentum

The integration of II MIG during LSE-17 successfully demonstrated the potential for the MIG to be a force multiplier in the information environment; however, the exercise also revealed areas that require significant effort as the MIGs develop. Some challenges will resolve as trained personnel transfer to the MIGs to fill specific billets, as tables of organization and equipment incorporate new technology, and as billet holders receive appropriate clearances. Many challenges can be addressed now, such as employing a holistic approach to OIE across the scope of an operation, employing OIE as a defensive capability synchronized with maneuver, and improving MIG integration and coordination with staff sections and established processes.

Operating in the information environment demands a holistic approach, incorporated from the outset of a planning process and synchronized across the planning cycle to maximize offensive, defensive, and exploitative capabilities to achieve effects. The II MEF(FWD) demand signal for situational awareness in the cognitive domain indicated the importance of this capability and pushed the MIG COC to develop different ways to assess the information environment. Two significant challenges the MIG faced were developing a relative cognitive power assessment and a running assessment of the information environment. While future operating concepts rely on connectivity, systems, and programs within the Integrated Battle Management and Control System and Tactical Services Oriented Architecture to command, control, monitor, and assess the information environment, we must close the gap in the ability to aggregate and analyze data until these systems come online. The range of information, from discrete technical data to nebulous sentiment analysis, will remain challenging to monitor, display, and assess. These challenges require commanders at all levels to engage regularly and provide clear guidance on how they see OIE informing their situational awareness, operational approach, and decision-making processes. Training and exercise environments must offer a depth of scenarios to accurately represent challenges in MAGTF OIE, reinforce the proper integration of IRCs, and provide appropriate feedback to commanders and training audiences.

Another challenge identified during LSE-17 was how to employ MIG and OIE capabilities to defend the force, specifically assuring C^2 (command and control) capabilities throughout the MAGTF and employing signature management effectively. Discussions between the G-6 (Communications) and the IWCC revealed capability limitations in planning and executing internal network defensive measures, which created risk to the MAGTF cyber security posture. Inherent tasks in securing the network include collaboration with the G-6 and MIG as well as the G-2, G-3, and external organizations to identify and counter threat actors on MAGTF critical network infrastructure and the synchronization of actions in cyberspace between the G-3, G-6, and Defensive Cyberspace Operations-Internal Defensive Measures (DCO-IDM) teams. An underappreciated and overlooked contributor in this regard is the information management officer (IMO), who brings an understanding of the MAGTF's C^2 systems, information flow, and underlying systems' dependencies. The IMO can identify and prioritize applications and systems required to maintain critical MAGTF functions in a degraded or contested environment or restricted information operations conditions status. During the exercise, the MIG was not staffed with a dedicated cyberspace operations planner or DCO-IDM team and instead coordinated with the coalition forces' land component command information operations team to request support from cyber teams and planners. As DCO-IDM teams join the MIGs, this capability must be heavily emphasized in training and operations. The lack of trained personnel will challenge the effective employment of these capabilities until the MIG is fully manned. The use of OIE to defend the network and assure C^2 will remain an essential part of operations.

Signature management must also be emphasized in future exercises. The initial signature management plan focused on radiated emissions, visual signatures, and communications security practices. During the exercise, the signature management considerations expanded to include operational security processes, physical deception, administrative sig-

Operating within the IE requires that all elements of the MAGTF be part of the planning process. ***(Photo by LCpl John Baker.)***

natures, information proliferation on networks, and messaging designed to reinforce signature management plan efforts, including increasing signatures where appropriate. Future exercises must employ a wide variety of IRCs to support signature management rather than focus solely on electromagnetic or visual signatures.

A final area for maturity is the integration of the MIG COC with staff sections, predominantly the G-2, G-3, and G-6, as well as maneuver elements. As information has recently been recognized as a seventh joint warfighting function, the integration of information with longstanding functions, sections, and processes requires refinement and adaptation. While the G-2 conducted intelligence assessments and created collection plans, determining how to collect on and assess measures of effectiveness and performance in the OIE was challenging. The G-6 was responsible for information assurance and network security; however, discussions were required to determine who was responsible for addressing capability gaps in defensive cyberspace operations. The division of responsibilities for cross-cutting functions requires further development via SOPs.

The Way Forward

The evolution of the II MIG and its employment in LSE-17 has set the conditions for further integration of OIE during MAGTF training and operations. Future employment considerations should address amphibious operations and include integrating the MIG with the U.S. Navy's composite warfare construct, the information warfare commander, and the transition of command and control to forces ashore. The integration of OIE across the spectrum of Service, joint, and coalition operations and exercises will be a nuanced and complex set of challenges that can facilitate efficient exploitation of the information environment to achieve operational success. Regular incorporation of IRCs, planners, and robust IE environments during training, exercises, and operations will be critical in the holistic integration of information as a warfighting function, is essential to maximizing the effectiveness of OIE, and will enable commanders to understand and shape how their respective units operate in the information environment. Specific recommendations are:

- Consider organizational constructs for future operational employment, such as a systems-like approach with information warfare support elements—able to synchronize organic and non-organic IRCs at lower tactical echelons—or larger MIG composite detachments with enabler unit detachments[4] that can synchronize OIE on behalf of the forward deployed commander.

Identify, develop, and enhance training environments and scenarios for IRCs ...

- Continue the employment of MIG capabilities and personnel during exercises and operations; synchronize and embed IRCs into training scenarios, exercises, and operations.
- Source trained personnel from across the MAGTF to support significant training events until the MIGs are properly staffed to incorporate the full range of IRCs and develop or reinforce best practices.
- Identify, develop, and enhance training environments and scenarios for IRCs that reinforce proper planning, coordination, and capability employment in support of operations.

In conclusion, *MCDP 1, Warfighting*, reminds us that:

> Although material factors are more easily quantified, the moral and mental forces exert a greater influence on the nature and outcome of war. This is not to lessen the importance of physical forces, for the physical forces in war can have a significant impact on the others. For example, the greatest effect of fires is generally not the amount of physical destruction they cause, but the effect of that physical destruction on the enemy's moral strength. Because it is difficult to come to grips with moral and mental forces, it is tempting to exclude them from our study of war. However, any doctrine or theory of war that neglects these factors ignores the greater part of the nature of war.[5]

Or perhaps more simply stated by Napoleon, "The moral is to the physical as three to one."

By further incorporating OIE into the MAGTF, Marine forces will create a decisive advantage over an adversary which can be exploited in the chaos, fog, and friction of warfare where Marines and Sailors, empowered by mission orders and commander's intent, function at their very best.

Notes

1. Headquarters Marine Corps, *Marine Corps Operating Concept*, (Washington, DC: September 2016).

2. Large Scale Exercise 17 (LSE-17) was a multinational exercise executed aboard Marine Corps Air-Ground Combat Center, Twentynine Palms, CA, from 5 to 22 August 2017. The exercise was led by 2d MarDiv, with elements from the United Kingdom, France, Canada, and II MEF, and focused on integrating all capabilities of the MAGTF and coalition forces.

3. The seven functions of MAGTF OIE include: assure enterprise C^2 and critical systems; provide IE battlespace awareness; attack and exploit networks, systems, and information; inform domestic and international audiences; influence foreign target audiences; deceive foreign target audiences; and control IW capabilities, resources, and activities.

4. MIG units include ANGLICO, Communications Battalion, Communications Strategy and Operations Company, Intelligence Battalion, Law Enforcement Battalion, MISO Company, and Radio Battalion, and they provide task-organized detachments with specific capabilities to a deployed MAGTF.

5. Headquarters Marine Corps, *MCDP 1, Warfighting*, (Washington, DC: 20 June 1997).