INTELLIGENCE DISSEMINATION WITHIN THE MAGTF

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Intelligence Dissemination within the MAGTF

The timely dissemination of intelligence on the battlefield is critical to the success of any military operation. A lack of sufficient intelligence about an enemy may cause the commander to develop an inaccurate picture of his adversary and take action that ultimately brings failure and death to his unit. Conversely, a bombardment of information to a commander without any regard to its usefulness can also cause disaster.

Col. John Boyd's observation-orientation-decision-action (OODA) loop addresses the time-competitive nature of warfare and how it relates to the decisionmaking process. The availability of intelligence is paramount to commanders if they are to move through this process faster than their foes. Col. Boyd states, "If one party moves through this OODA loop consistently more quickly than the other, by the time the slower party has made a decision, the action of the faster party has already altered the situation and the slower party's decision is inappropriate." (19:43)

The dissemination of combat information and intelligence to subordinate commanders within the MAGTF is a difficult task. Complicating this undertaking is the enormous volume

and diversity of information that will be made available by a myriad of intelligence collection organizations. To combat these problems the Marine Corps intelligence community has undergone several changes. The creation of the C4I2 department at Headquarters Marine Corps, as well as the organization of the surveillance, reconnaissance, and intelligence group (SRIG), are changes that will add a new focus to the flow of intelligence within the MAGTF. Yet the actual "hand off" or dissemination of real-time intelligence to subordinate MAGTF commanders is one area that still needs improvement. Thus, the focus of this analysis will be to identify how we disseminate combat information and intelligence and look at ways in which digital technology might improve this flow.

Intelligence Sources

Before embarking on a discussion of how intelligence is disseminated within the MAGTF, it is important to have an appreciation for the large number of organizations capable of providing intelligence. With this knowledge, the reader will better visualize how the MAGTF can be easily overrun with information from a variety of sources.

National systems are controlled by such agencies as the Central Intelligence Agency, Defense Intelligence Agency, National Security Agency, National Photographic

Interpretation Center, Federal Bureau of Investigation, and the Drug Enforcement Agency. These agencies are capable of providing both near-real-time combat information as well as finished intelligence from a variety of imaging, human, acoustic, and signals intelligence sources. Dissemination of intelligence received from these sources is predominately accomplished via record message traffic to the MAGTF G/S-2 for further internal routing. Some systems utilize unique terminal equipment and communication paths that increase response time with no additional MAGTF communications requirements. In addition, most national agencies allow for the establishment of point-to-point voice or teletype circuits for technical information exchange that may also be used to pass information. More and more national agencies are standing up teams to support military commanders. These teams bring their own equipment and personnel, providing intelligence to the MAGTF.

Other U.S. services (Army, Navy, and Air Force) and allied forces can also provide the MAGTF with a wealth of combat information and intelligence, particularly during joint and combined operations. This information can range from ground-based electronic intelligence reports from the Army Combat Electronic Warfare and Intelligence battalion to visual sightings from Air Force fighter aircraft. Intelligence obtained from other services is disseminated in

the same manner as that obtained from national systems.

The majority of the MAGTF's intelligence collection assets are found in the SRIG. The units and their general functions are listed below:

Radio Battalion - Tactical signals intelligence and ground-based electronic warfare operations.

Force Reconnaissance Company - Preassault and deep postassault reconnaissance and surveillance operations and direct action missions.

Remotely Piloted Vehicle (RPV) Company - Target intelligence, indirect fire adjustment, reconnaissance, surveillance, bomb damage assessment, and radio relay operations from remote controlled airborne platforms.

Intelligence Company - Composed of various smaller platoons and teams responsible for collection, interpretation, analysis, and dissemination of intelligence.

Counterintelligence teams - Conduct counterintelligence and human intelligence (HUMINT) collection operations.

Interrogator-Translator platoon - Interrogates prisoners of war and detainees and translates captured documents.

Force imagery interpretation unit - Provides processing and exploitation of photographic, infrared, and other types of imagery.

Topographic platoon - Provides geodetic, topographic, and coastal hydrographic surveys as well as providing mapping products.

MAGTF all-source fusion center (MAFC) - Provides fused, all-source intelligence products to MAGTF commanders.

Sensor control and management platoon - Conducts surveillance operations through the use of a variety of unattended ground sensors.

Tactical deception platoon - Provides training, planning and execution support for military deception operations.

The MAGTF all-source fusion center (MAFC) has the mission of providing fused, all-source intelligence to the MAGTF commander to enable him to make timely and accurate decisions on the battlefield. Additionally, the MAFC must be able to get fused intelligence to the subordinate commands within the MAGTF. But just as important, combat information from subordinate commands and collection assets must flow to the MAFC in a timely manner and in a usable form for inclusion in the analysis process.

In addition to the SRIG, the air and ground combat elements (ACE and GCE) possess significant intelligence collection assets. A Marine division has the reconnaissance battalion, whose mission is to provide reconnaissance and surveillance support to the GCE. Also internal to the GCE is the surveillance and target acquisition (STA) platoon. It is organic to each infantry battalion. The ACE has two organizations with significant collection capability. The Marine tactical electronic warfare squadron (VMAQ) conducts airborne electronic warfare operations, and the Marine observation squadron (VMO) conducts airborne reconnaissance, surveillance, and target intelligence operations.

Current Means of Dissemination

Intelligence possessed solely by the G/S-2 is of little value. Only when intelligence is in the hands of combatants can it be used to effectively and efficiently destroy enemy forces and protect friendly troops. One of the problems that the Marine Corps faces today is getting the intelligence collected by the organizations reviewed above to the frontline commanders who require it. When asked to describe how intelligence is passed to units today, one member of the 2d Intelligence Company MAFC described the typical method as being "...a yellow canary and a radio." He was referring to the manual, note-taking style of monitoring radio traffic. (2:NA) Although the Marine Corps is making some improvements to this time-consuming, manual method, the frustrations felt by both the intelligence and user communities over the lack of a more efficient dissemination system is clear. In a survey conducted by the Atlantic Research Corporation to determine what improvements the FMF thought were needed in the intelligence cycle, those surveyed identified dissemination as one of their greatest concerns. (10:Encl 15)

In discussing our current dissemination methods it is convenient to refer to the four principles of intelligence dissemination established by our current doctrine. OH 3-30, Commander's Guide to Intelligence, defines them as follows:

Timeliness - The product must reach the consumer in time for it to be used.

Pertinence - Requirements and needs of the recipient determine intelligence dissimination.

Usability of form - The form and transmitted means used must be the most responsive to the needs of the recipient.

Security - The extent of friendly intelligence must not be noticed by the enemy.

Prior to the start of an operation the primary methods of intelligence dissemination are documents, data bases, and record message traffic over established circuits. These means are, for the most part, satisfactory for a peacetime, garrison setting. When deployed, the MAGTF utilizes record message traffic, single-channel radio and telephone, aviation data links, briefings, and messengers to disseminate intelligence. We shall examine each of these methods in terms of the principles explained above and with regard to the type of intelligence being passed. Our emphasis will be on the flow down from the MAGTF MAFC to the intended unit, be it an infantry battalion, aviation unit, or a combat service support organization.

With regard to record message traffic, we find that timeliness is generally poor due to the time necessary for message preparation, transmission, and distribution. Timeliness also suffers due to the very limited number of circuits and the fact that the potential recipient must

review many messages before he gets to the one of interest. Security is very good because of on-line encryption on the transmission paths and well-established message handling procedures. Usability of form is poor since the message must be read, understood, correlated with other information and then distributed by some other means to the affected commanders. Since timeliness is poor, pertinence also suffers because by the time the information is received by the user it is often too late to be of any value.

The briefing is a tried and true method of passing intelligence to subordinate commanders. Security is ensured by controlled access to the briefing. Usability of form is also good because the brief has been tailored for the audience. Pertinence is equally sufficient because the briefer filters out the useless information prior to the presentation. Timeliness can suffer because most briefers will establish a cutoff time and will begin briefings with a statement like, "As of 12 hours ago...". Another factor affecting timeliness is the large amount of time it takes this method to work down the chain. The greatest limiting factor for this method is logistics. It can be extremely difficult, if not impossible, to bring all the commanders together for the briefing.

Voice radio and telephone are the most common means for the rapid dissemination of time-critical intelligence.

Timeliness can be very good provided that other users are not competing for the resource. However, this is not normally the case. Each echelon has but one voice radio circuit dedicated for passing intelligence information. Security is sufficient through the use of on-line encryption equipment and the proliferation of STU-IIIs. Usability of form is poor since the recipient is normally required to write the information down as he is receiving it and then must go back and plot it out to fully appreciate what has been passed. Pertinence is good since the sender filters and only passes information that is required by the recipient.

Aviation data links are very effective for passing time-critical information to their intended user. The data link nets are secure and timely, presenting the pertinent information in symbolic form on a video monitor. The drawback to this method is the limited types of information that can be passed and the almost total lack of any permanent record that can be referred to later. It also requires that someone always look at the scope.

Messengers are the oldest and most reliable method of dissemination and remain necessary today for passing maps, overlays, photos, film, and other documents. Timeliness is generally a factor of distance, and security now refers more to the messenger than the information he is carrying. Usability of form and pertinence are highly variable as they

relate directly to what is being carried and how long it takes to reach its destination.

The Marine Corps is making strides in improving intelligence flow by using DCTs and FAX machines as terminal devices on existing radio and/or telephone circuits. This is greatly improving speed and accuracy of message transmission and offers the capability of electronically disseminating graphical information. However, these technologies have their own definite limitations. The DCT is limited to small messages that the user must manually input. Thus, there is currently no capability to input information into the device from other terminal equipment. Also, the memory storage capability is limited to a few small messages. This shortage of memory does not allow for any type of information buildup or data base over the course of an operation or engagement. The FAX machine is equally important for passing overlays, imagery or other graphic information. However, it has no large memory storage and is a point-to-point device that requires human coordination at both ends for each transmission.

There is still room for improvement in the speed and manner in which we disseminate information and intelligence. For example, what if a battalion or squadron commander had a digital intelligence link capable of communicating directly with the MAFC, and the MAFC had just received information

about an enemy tank battalion moving toward his position? Almost at the same time the MAFC received the information, they would be able to forward it directly to that battalion, removing the enemy's advantage of surprise and giving the commander decision time. The technology to accomplish such a task is not so new--only the concept and realization of using such technology on the battlefield. The ability to have more power at one's "fingertips" has already been proven by a few Marines with a vision of success within their community.

Digital Technology to Enhance Intelligence Flow

During a recent visit to Camp Lejeune, the authors had the opportunity to discuss the matter of intelligence dissemination with the Marines of the 2d Intelligence Company. Eager to discuss ideas and methods, the commanding officer was quick to introduce us to the Marines of the Technical Support Branch. Not only were these Marines involved in becoming area experts for their specifically assigned mission, but they were constructing and testing an intelligence dissemination system designed to improve the flow of intelligence to supported units.

The Technical Support Branch of the 2d MAFC has been working with digital communications equipment in order to develop an automated intelligence system to support MAFC elements in their direct support role to assigned command

elements. The entire project, coined "Project Linebacker," entailed several subprojects, all with the same focus--automated data processing equipment, secure communications, and intelligence-specific data support. The project was broken down into four different areas:

1 - Tactically extend the MAFC intelligence link beyond 50 miles.

2 - Tactically extend the MAFC intelligence link within 50 miles.

3 - Develop an automated intelligence system support architecture for 2d Intelligence Company.

4 - Establish data connectivity with existing intelligence systems resident within II MEF and 2d SRIG.

Their most recently completed test was Operation Fullback (Item 2). This project tested the feasibility of providing a direct support MAFC detachment to a unit commander (in this case an infantry battalion) in order to provide an automated intelligence capability with connectivity to the MAGTF G-2.

With Exercise Solar Flare as the tactical scenario, a MAFC detachment of several Marines was equipped with a mobile automated intelligence system consisting of VHF single channel radio equipment, an AN/UYK-85 laptop computer, and the PRC-6064 packet modem. The concept was engineered to allow real-time transfer of tactical intelligence to the unit

that most needed it. The electronic link connected the MAGTF command element (CE) to the supported unit. Packet modem technology allows any information stored in a microcomputer to be changed to an analog form so that it can be sent over a radio link. The unit "packetizes" or compacts the information so that it can be sent in a short burst transmission similar to the DCT. The system requires radio line-of-sight with the unit that is sending or receiving information. However, if another unit is in between, the system is designed so that it will "digipeat" or retransmit off the secondary unit and eventually end up at its final destination.

The demonstration of using computer-to-computer digial links to disseminate and receive intelligence from a central fusion point, as well as receiving combat information from combat units was successful. It showes commanders what can be done if the appropriate emphasis is placed on intelligence dissemination. In the scenario, the MAFC detachment located with the battalion operated and maintained a digital link with the fusion center located at the MAGTF headquarters. Targeting information and unit activity derived from RPV missions, signals intelligence, and other sources were sent directly to the forward battalion. In turn, the infantry battalion submitted intelligence reports up the chain to further enhance the fusion process.

Operationally, the mission was declared a success by the MAFC and the tactical units that participated in the exercise. Several deficiencies were noted concerning radio connectivity during mobile operations. However, the after action report commented that, "The battalion S-2 and others, notably the fire support coordinator, claimed that they were better able to accomplish their missions due to the information received from the radio wide-area network." (20:3)

In a recent Marine Corps Gazette article, Major Robert Coats discussed how packet modem technology, used for years by amateur radio enthusiasts, can add depth to the information flow on the battlefield. Before making any recommendations, he started by quoting some guidance from the commandant:

> With...the improved computer technologies of the 1980s, we now have a unique opportunity to field...an integrated and automated command and control system with supporting tactical communications that cover all battlefield functional areas.

Major Coats' recommendations are similar to that of the 2d Intelligence Company. In addition to intelligence support, his proposal suggests that commanders encourage other staff sections to get on the bandwagon and automate the reporting process. OH 6-1A contains 20 GCE report formats that could easily be automated and passed horizontally and

vertically within the MAGTF using this digital packet technology. (4:36-39)

Intelligence Analysis System (IAS)

Another possible solution to improving intelligence dissemination is being addressed by the Warfighting Center and the Marine Corps Research, Development, and Acquisition Command. The Marine Corps intelligence dissemination system of the future will offer commanders much more than what is currently available through piecemeal radios, wirelines, and terminals. The Corps will eventually integrate computer networking technology on the battlefield.

The need for an automated Intelligence Analysis System (IAS) originated from the Required Operational Capability (ROC) No. INT 250.1. As outlined in the ROC, the new IAS will be a fully automated interoperable system allowing for rapid receipt, integration and utilization of intelligence information. The document further addresses the following requirements:

> IAS will be employed by Marine Corps intelligence sections in garrison, in the field and aboard ship. It will be expeditionary and will deploy with the unit to which it is assigned. Although the composition and size will vary with echelon, the IAS will essentially consist of a data storage device, several workstations, and printers, tied together by a local area network (LAN).

Specific missions to be performed by the IAS include:

> ...support to the direction of intelligence effort, collection management, and all-source intelligence analysis and fusion. An additional critical battlefield mission for the IAS shall be to provide Sensitive Compartmented Information record traffic communications connectivity to the SSCC, AN/MSC-63A. This connection will facilitate the dissemination of intelligence information within, and external to, the MAGTF. The IAS will support the dissemination, internal routing, and alphanumeric or graphic display of the sorted intelligence and information. Additionally, the IAS will provide word processing capability to facilitate the preparation and dissemination of intelligence products. Standard Marine Corps End User Computing (EUC) software applications packages will be used to perform these functions wherever possible.

The location of the MAGTF version of the IAS will vary but normally will be located in the combat information center (CIC), combat operations center (COC), or MAFC. While the MAGTF is aboard ship it will remain inside the joint intelligence center (JIC). Intelligence sections within each element of the MAGTF will have similar systems. Lower echelon units will have downsized systems that will meet their needs as well. Eventually, single computers with connectivity to higher echelons will be collocated with battalion and squadron-sized elements.

Additional requirements as set forth in the ROC will require IAS to have the capability for SI and GENSER communications with other intelligence systems internal and external to the MAGTF. The primary method of connectivity between the IAS systems at different echelons will be digital communications. This will be accomplished via the Marine

Corps Digital Backbone System consisting of digital switches, multi-channel radio, single-channel radio, and satellites.

The fielding of an automated intelligence system is not new to the intelligence community. The IAS concept is a product improvement program designed to enhance and downsize the capabilities of the older intelligence analysis center (IAC), AN/TYQ-19. Before describing the "new" IAC, the author of a 1974 Gazette article got his audience's attention by stating, "In modern warfare, the great improvements made in firepower, mobility, and communications make combat intelligence even more important today than in the past...". He then continued to describe a new piece of equipment called the "Intelligence Analysis Center" and how it would provide the capability to "store and retrieve intelligence data, and coordinate special intelligence and electronic warfare activities and intelligence reports." The author concluded by stating "The Marine air-ground team can now look forward to a well-integrated combat intelligence system matching the needs of modern warfare." (8:30-36) One of the older IAC's described in the 1974 article was being stored in a back lot while the 2d Intelligence Company deployed to Saudi Arabia. As envisioned in the ROC, the new IAS will be deployable system providing mapping, graphics, database and message handling capablilites to the intelligence and user communities.

Conclusions

Commandant Gray commented on C4I2 stating, "The timely, accurate, efficient, and secure flow of vital processed and tailored information is the key to removing the uncertainty associated with the chaos of war." (6:81) The March issue of Signal magazine describes a "soldier's" computer. This system will put an integrated communications computer in the hands of individual soldiers down to the squad level. The system includes a headset display, joystick, voice-data terminal, and global positioning receiver and will permit users to see a map generated in real time depicting friendly and enemy positions as well as contaminated areas. Voice recognition will enable users to access remote data bases to retrieve information stored at a central location. This technology is available, and acquisition of such a product could begin as early as 1995. With the current budget crunch it is unlikely that the Marine Corps will procure such a system to augment the flow of intelligence. However, digital and automated technology can help improve the current "yellow canary and a radio" method of passing intelligence. Short-term solutions like those offered by "Operation Fullback" prove that technology combined with training and command attention can give commanders a combat multiplier in a tactical situation. For units that are the focus of main effort, this concept could very well mean the difference

between success and failure on the battlefield. In the long term, the Intelligence Analysis System (IAS) has the potential to be a dynamic and interactive C4I2 system designed with the needs of battlefield commanders in mind. Regardless of the method, we must continue to refine the means in which we disseminate intelligence to those who need it most.

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