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Battle Command Battle Laboratory-Leavenworth

Final Report

Corps Level
Digital Warfighter Experiment 2008 (DWE08)

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14. ABSTRACT

The Digital Warfighter Experiment 2008 (DWE 08) was a Human-in-the-Loop (HITL) experiment co-hosted by the Command and General Staff School (CGSS) and the Battle Command Battle Lab (BCBL-L) at Fort Leavenworth, Kansas. The experiment was embedded in a student exercise conducted from 11-15 February. The student exercise is the culminating event of the Advanced Operations Warfighting Course (AOWC) Block II curriculum. CGSS students participated by playing key leadership positions in the main Command Post (CP) of a modular division (v8.0) headquarters or as the commanders of the maneuver and support brigades subordinate to the division. The C/JFLCC headquarters and the theater brigades and commands were role-played by subject matter experts (SMEs) provided by the Army schools and centers through Combined Arms Center (CAC) and TRADOC taskings.

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Executive Summary

In November of 2004 the Combined Arms Center Commander, then LTG Wallace, directed that the Battle Command Battle Lab – Leavenworth (BCBL-L) would integrate CGSS students into battle command experiments on a recurring basis. This integrated event has become known as the Digital Warfighter Experiment and was conducted for the fourth time in February 2008.

The Digital Warfighter Experiment 2008 (DWE 08) was a Human-in-the-Loop (HITL) experiment co-hosted by the Command and General Staff School (CGSS) and the Battle Command Battle Lab (BCBL-L) at Fort Leavenworth, Kansas. The experiment, conducted from 11-15 February, was embedded in a student exercise that was the culminating event for the Advanced Operations Warfighting Course (AOWC) Block II curriculum. CGSS students participated by playing key leadership positions in the Division Main Command Post (CP) or as the commanders of the subordinate maneuver and support brigades. The CGSS faculty provided teaching points and lessons to the students and represented student interests, goals and learning objectives in the experiment EXCON meetings. The division CP staff organization reflected the modular division (v8.0) Table design. The C/JFLCC headquarters and the theater brigades and commands were role played by subject matter experts (SMEs) provided by many of the Army schools and centers through Combined Arms Center (CAC) and TRADOC tasking. The Corps staff organization reflected the modular corps (v3.3) design.

The exercise/experiment was set in an unclassified Georgia, Armenia, Azerbaijan, Turkey (GAAT) scenario. The classification level of the scenario allowed full participation by international student officers and coalition member representatives. The Digital Leader Development Center (DLDC) provided a simulation to represent the maneuver, fires, intelligence, battle adjudication and other actions of the units represented in the scenario. The scenario was further enhanced by the use of Master Scenario Event List (MSEL) events which were developed between CGSS and BCBL personnel. These MSEL events were the mechanism that supported the exploration of the analytical objectives.

The student staff and other role players were supported by a suite of Army Battle Command System (ABCS version 6.4), Command Post of the Future (CPOF) terminals, Voice Over Internet Protocol (VOIP) phones, e-mail, and file sharing through a DLDC SharePoint portal (TACWEB). The analysts had access to the same systems as the players and recorded and communicated observations using the TRADOC – Experiment Support System (TRAC-ESS).

The experiment was executed with sixty two student role players, sixty six role players from TRADOC schools and centers, and twenty six analysts from the TRADOC Analysis Center (TRAC) and Army battle labs, and approximately thirty technical and experiment support personnel from Fort Leavenworth.

This year the experiment examined how the emerging organizational design of the Corps headquarters, employed as a Coalition/Joint Force Land Component Commander (C/JFLCC) headquarters, conducts information operations and enables joint and coalition interoperability during full spectrum operations. The specific issues were:

Issue one. Assess the effectiveness of two organizational models to integrate information operations into the operations process to provide the commander with an operational advantage in full spectrum operations.

Issue two. Explore interoperability gaps that may exist when the C/JFLCC headquarters is conducting operations with joint and coalition units during full spectrum operations.

The following insights and significant observations emerged after examining the data collected during the experiment:

- Issue 1. Assess the effectiveness of two organizational models to integrate information operations into the operations process to provide the commander with an operational advantage in full spectrum operations.

  Finding 1: Information Operations needs a single coordinator to be an effective tool for the commander. This finding, implied by observations made during this experiment and supported by other studies and experiments, suggests that a single coordinator with the responsibility and authority to represent information operations within the staff, and to senior and subordinate headquarters, would improve the integration of information operations in the operations process.

  Insight 1: Some of the staff roles in the five IO tasks require clarification. The Corps 3.3 design appears to have the organizational resources to execute information operations in full spectrum operations. However, large changes in doctrine and organization as a result of the transition to modularity have necessitated new definition of the roles of the OPSEC officer and the sustainment staff.

  Insight 2: Information operations, however organized, requires an additional education effort. The rapid evolution of information operations since the publication of FM 3-13 in 2003 suggests that the operational experience of current leaders does not reflect current thought or doctrine on information operations. While this problem is not unique to information operations it can be mitigated through education. Other observations made during the experiment suggest that OPSEC is a staff function that is not well understood by other staff organizations and therefore not well integrated into operations.

- Issue 2: Explore interoperability gaps that may exist when the C/JFLCC headquarters is conducting operations with joint and coalition units during full spectrum operations.

  Insight 1: The role of the Corps headquarters has unique requirements for SOPs. The experiment did not reveal any significant interoperability problems between the traditional staff organization of the U.K. brigade and the functional staff organization of the U.S. headquarters. However observations suggest that there is a requirement for multinational force SOPs for sustainment, information operations, host nation support, resource management, and knowledge management.

Section 1 Introduction

A. Experiment Description

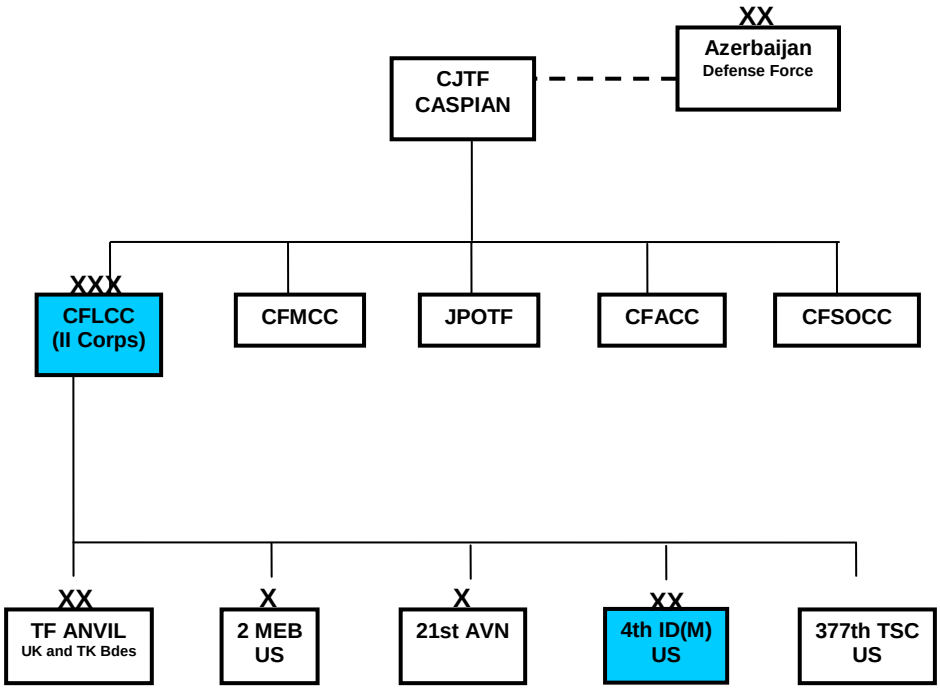
1. The Digital Warfighting Experiment 2008 (DWE 08) was a student exercise and a Human-in-the-Loop (HITL) experiment co-hosted by the Command and General Staff School (CGSS) and the Battle Command Battle Lab (BCBL-L) at Fort Leavenworth, Kansas.

2. The purpose of the CGSS exercise was to assess, as the culminating experience of the Division Operations block of the Advanced Operations Warfighting Course (AOWC), the student's ability to analyze division full spectrum operations as it applies to: the Contemporary Operating Environment (COE) and cultural awareness, irregular warfare and detainee handling, and full spectrum missions including simultaneous offense, defense, support, stability and reconstruction, and modular force configuration and employment. The exercise also served as a venue for BCBL – L battle command experiments as part of the Army Concept Development and Experimentation Program (ACDEP).

3. The event was set in an unclassified Georgia, Armenia, Azerbaijan, Turkey (GAAT) scenario. The classification level of the scenario allowed full participation of international student officers and multinational member representatives.

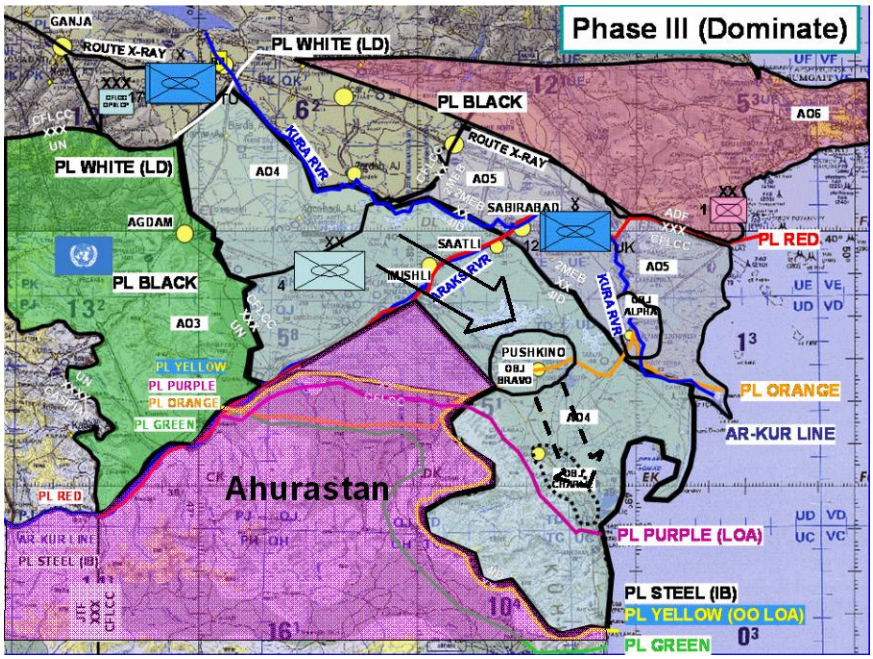
Location of Scenario Events

The scenario depicted a coalition force intervention in a conflict between Azerbaijan and a fictional nation to the South named Ahuristan. The force that was committed to restore the pre-war borders of Azerbaijan was led by a U.S. CJTF organized with functional commands.



Coalition Task Organization

4. The mission portrayed in the scenario is a U.S. division/U.K. brigade attack through central Azerbaijan to drive Ahuristani forces out of Azerbaijan to re-establish the pre-war borders in the region



5. Tactical interaction was represented through the use of the Decisive Action simulation and further enhanced by the use of Master Scenario Event List (MSEL) events that were developed between CGSS and BCBL personnel. These MSEL events were the mechanism that supports the exploration of the analytical objectives.

6. All of the role players were supported by a suite of Army Battle Command System (ABCS version 6.4), CPOF terminals, Voice Over Internet Protocol (VOIP) phones, e-mail, and file sharing through a Sharepoint internet portal (TACWEB). The analysts had access to the same systems as the players and recorded and communicated observations using the TRADOC Experiment Support System (TRAC-ESS).

7. The students participated by role playing key leadership positions in the 4th Division Main Command Post (CP) or as the commanders of the subordinate maneuver and support brigades. The CFLCC headquarters and the theater brigades and commands were role played by Subject Matter Experts (SMEs) provided by Army schools and centers through Combined Arms Center (CAC) and TRADOC taskings.

8. The collaborative nature of the experiment imposed limitations and constraints on the experiment.

a. A limitation is defined as a factor which impacts on the scope of the study and the application of results and conclusions. Limitations in the DWE08 design include:

(1) Only one unit was available to represent the multinational force.

(2) There were no units available to represent the joint force.

(3) The role played staffs only represented between 5 and 6 percent of the actual staffs they replicated.

(4) The ad hoc nature of the CFLCC staff.

(5) The personnel replicating the division and CFLCC staffs had similar levels of military experience (Annex E), but neither group was specifically trained for information operations.

b. A constraint is defined as a directed restriction or condition that must be met and are placed on the experiment by a higher authority. The constraints on the DWE08 experiment include:

(1) Student learning objectives have priority over experimental objectives.

(2) The exercise/experiment is limited to four days representing about 40 hours of stimulated operations.

(3) Data collection must be minimally invasive to the students.

Section 2 Overview

A. Analytical issues

1. The battle command battle lab at Fort Leavenworth (BCBL-L) was given, as part of TRADOC's on-going campaign of experimentation, 10 Integrated Question List (IQL) questions in 2007 to focus experiments conducted in 2008. The question that best fit the DWE venue was question 2006-II.B-0025: What are the required capabilities of the echelons above brigade (EAB) command posts to control, or have access to, Army and joint assets that can generate and mass specific lethal and non-lethal effects anywhere within the assigned AO?

2. That IQL question formed the basis for the concept of the DWE08 experiment which became an examination of how the emerging Corps headquarters organizational design, employed as a Coalition/Joint Force Land Component Commander (C/JFLCC) headquarters, conducts information operations and enables joint and coalition interoperability during full spectrum operations. The specific issues were:

a. Information operations: Assess the effectiveness of two organizational models to integrate information operations into the operations process to provide the commander with an operational advantage in full spectrum operations.

b. Interoperability: Explore interoperability gaps that may exist when the C/JFLCC headquarters is conducting operations with joint and coalition units during full spectrum operations.

3. Information Operations

a. Background.

(1) In FM 3-13, Information Operations, November 2003, the design of Army Information Operations was described in this way:

> "Information operations (IO) bring together several previously separate functions as IO elements and related activities. To provide unity of effort, IO is placed under a special staff officer, the assistant chief of staff G-7. The G-7 has coordinating staff responsibility for IO. He does this by means of the G-7 section and IO cell. Placing responsibility for synchronizing the activities of the IO elements and related activities on one special staff officer helps commanders mass their effects to gain and maintain information superiority."[1]

(2) In 2006 the U.S. Army Information Operations Proponent (USAIOP) and the Combined Arms Doctrine Directorate (CADD) began work to design and document the division G7 as a separate element with direct responsibility for only one (information engagement) of the five IO tasks. The other four tasks, information protection, command and control warfare,

[1] FM 3-13, Information Operations, November 2003, pg 1-1.

military deception and operations security, would be assigned to other staff primaries in the division or corps organization. USAIOP and CADD also began to develop processes to synchronize all of the IO tasks and codify those practices in doctrine.

(3) In 2006 and 2007 the Combined Arms Doctrine Directorate (CADD) hosted a series of forums for TRADOC senior leaders. The purpose of these forums was to discuss and refine Army doctrine and future concepts and, ultimately, to build consensus within the operating force and other stakeholders on these new ideas. One of the areas examined in these forums was division level doctrine for planning, integrating, and coordinating Information Operations (IO) and a new IO task, information engagement.

(4) In 2007 the Battle Command Battle Lab at Fort Leavenworth (BCBL-L) conducted the Information Engagement Experiment. The experiment was designed as two workshops and an experiment (Phase I, 10-14 Sep 07; Phase II, 04-07 Dec 07; and Phase III as Part of Omni Fusion 2008) to examine the processes, procedures and effects of the information engagement (IE) task of the emerging IO construct and the distribution of IO tasks, functions and responsibilities across the modular division staff.

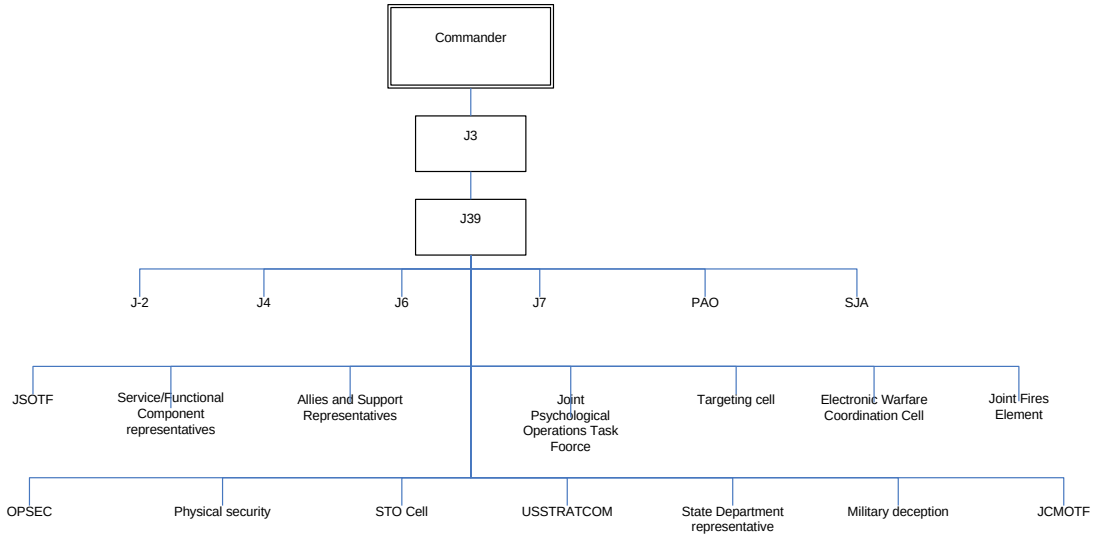
(5) The DWE08 experiment extends the investigation of the emerging concept for Army IO from an exclusive examination of the information engagement task to an examination of all five of the information tasks and the associated joint and IO core, support and related capabilities and how those tasks and capabilities are integrated and executed by the role players representing a division and corps staff.

b. Discussion

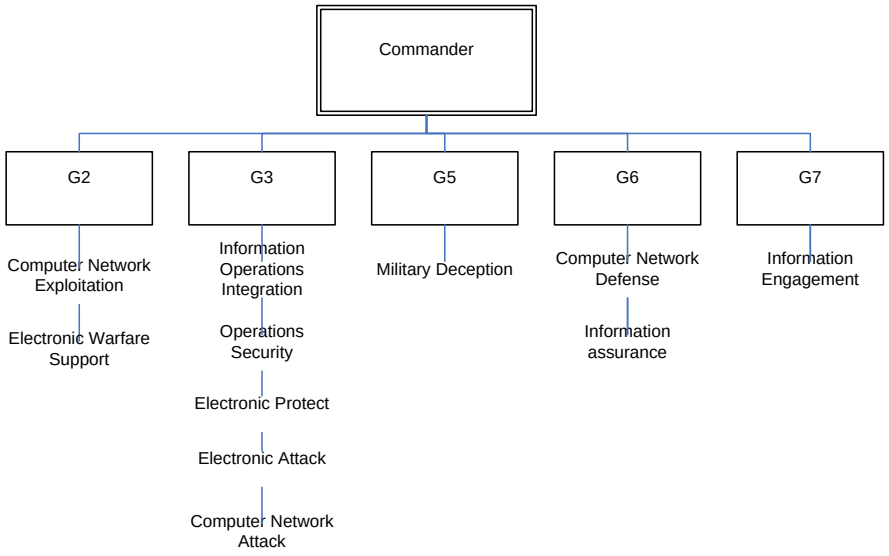
(1) The existing and emerging concepts of information operations leaves the Army with two current models for the execution of information operations. The two models are Army doctrine as described in FM 3-13, November 2003 and the similar joint doctrine as described in JP 3-13 Information Operations, 13 February 2006 and the emerging Army concept as described by the USAIOP and the draft version of FM 3-0, Operations.

(2) The joint IO model was chosen to represent current doctrine in the experiment for two reasons. The JP 3-13 is the most recently approved and published doctrine on IO and a corps headquarters could be assigned a mission with joint responsibilities. In that case it would have to be capable of executing joint doctrine for the mission.

(3) The joint model of information operations typically assigns responsibility for IO to the J-3. The J-3 normally designates an IO cell chief, typically referred to as the J39, who has the responsibility for supervision of the IO planners and coordination with the subject matter experts within the headquarters. The J39 has several responsibilities which include coordinating the overall IO portion of the plan for the commander and coordinating IO issues within the staff and between senior and subordinate headquarters. The exercise team came to refer to this staff organization as the centralized model of IO. A diagram of this organization is depicted below.



(4) To leverage information as an element of combat power, the emerging Army model of information operations distributes the responsibility for the five information tasks across eleven subtasks and five staff sections. Under this construct the G3 or Chief of Staff is responsible for the integration of information operations into the conduct of military operations. The expectation is that the operations process, as executed by the division staff, will coordinate and synchronize information operations designed to support the commander's intent. The exercise team came to refer to this staff organization as the de-centralized model of IO. A diagram of this construct is shown below.



(5) This gives rise to a question of which of the two models is most effective in providing information to the commander. The hypothesis we examined for the DWE 08

experiment was that a decentralized model of information operations was as effective as a centralized model of information operations in providing the commander with the information required to assess, and make adjustment decisions, regarding information operations as a part of full spectrum operations.

4. Interoperability.

a. Background. The United States Joint Forces Command envisions a future operational environment where "nation-states will find it increasingly difficult to act unilaterally and will have to be more adept at forming temporary alliances and multi-lateral arrangements... These future alliances and agreements will include a greater array of actors than at present. Uniting or disbanding based on common interests, these alliances and coalitions will use collaborative information sharing and database development as a primary means to unite."[2] These technical solutions offer great promise for mitigating coalition interoperability challenges. However, technical and material solutions alone will not solve every anticipated interoperability challenge. Other factors that contribute to interoperability challenges arise from the areas of national interests, treaty obligations and international agreements, language and culture differences, legal restrictions, and doctrine, training and resource considerations.

b. Discussion.

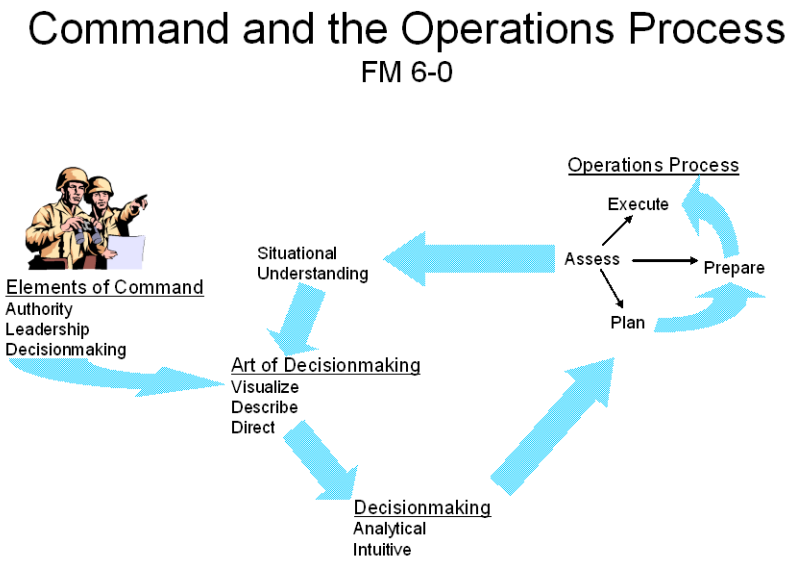
(1) The joint publication on multinational operations, JP 3-16, defines the basic challenge of multinational operations as the effective integration and synchronization of available assets toward the achievement of common objectives.[3] Integration and synchronization of assets takes place as part of the operations process and therefore, resides in the command and control warfighting function. It is from that perspective that the DWE 08 experiment looked for interoperability gaps that may exist in the area of information management.

(2) Information management is the provision of relevant information to the right person at the right time in a useable form to facilitate situational understanding and decisionmaking.[4] It consists of the information system in use, the procedures established by doctrine and SOPs and relevant information. Information management consists of two categories of information: Commander's Critical Information Requirements (CCIR) and Information Requirements (IR). Relevant information falls into four usage categories: Common Operational Picture (COP) related information – information used to create the common operational picture, execution information – information that directs, initiates, or regulates action, conduct, or procedure, exceptional information – information that would have answered a CCIR if the requirement for it had been foreseen, and Essential Elements of Friendly Information (EEFI) – critical aspects of a friendly operation that, if know by the enemy, would compromise, lead to failure, or limit the success of the operation.[5]

[2] The Joint Operational Environment – The World through 2030 and Beyond, September 2006, pg 24 and 25.
[3] JP 3-16 Multinational Operations, 7 March 2007, pg III-1.
[4] FM 6-0 Mission Command: Command and Control of Army Forces, August 2003, pg 3-10.
[5] FM 6-0 Mission Command: Command and Control of Army Forces, August 2003, pg B-12.

B. Analytical Approach

1. One aspect of the art of command is decisionmaking.[6] Commanders use the visualize-describe-direct methodology to facilitate decisionmaking. The commander's visualization depends, in large part, on situational understanding which is the application of judgment and experience to the Common Operational Picture (COP) through the filter of the commander's knowledge of the friendly forces, threat and environment.[7] The commander's staff supports the visualization process by providing relevant information in the form of staff running estimates and assessments in their area of expertise. This process is described in the diagram below.



2. The experiment team exposed the staff and unit behaviors that informed the analytical objectives by introducing MSEL events at the "describe" and "direct" steps (top down) in the commander's decision making methodology. The objective was to influence the "plan" and "prepare" steps in the operations process at the C/JFLCC and Division level. The team also introduced MSEL events at the BCT and BDE level (bottom up) to create a more realistic operational environment in the "execute" portion of the operations process.

3. We compared the two organizational models of IO by measuring several variables. These variables are listed in the table at Annex B. The situational awareness of the staff and commander was also measured twice a day to determine the extent to which these MSEL events had circulated through the organization. The tool and technique for measuring the situational awareness of the staff and commanders was provided by the Army Research Lab and is described at Annex C.

[6] FM 6-0 Mission Command: Command and Control of Army Forces, August 2003, pg 2-14.
[7] FM 6-0 Mission Command: Command and Control of Army Forces, August 2003, pg 2-17.

4. The organizational model that displayed the ability to move information quickly through the staff and generate a higher general level of situation awareness within the organization and for the commander was defined as the more effective in providing the commander with an operational advantage. The Data Collection Management Plan (DCMP) is listed at Annex D.

C. Analytical Endstate.

1. Provide insights and recommendations to the United States Army Information Operations Proponent (USAIOP) on how best to integrate and synchronize IO processes to support full spectrum operations.

2. Provide information and recommendations to the Combined Arms Doctrine Directorate (CADD) to inform the continuing development of FM 3-0 Full Spectrum Operations, FM 3-13 Information Operations, and FM 3-92 Corps Operations.

3. Identify interoperability gaps that can be mitigated with actions in the doctrine, leadership and education, or training domains that may exist when an Army headquarters is conducting operations with joint or coalition units during full spectrum operations.

4. Provide findings and an experiment to action plan to TRADOC ARCIC and the experimentation Community of Practice (CoP) on IQL question 2006-II.B-0025 - What are the required capabilities of the echelon above brigade (EAB) command post to control, or have access to, Army and Joint assets that can generate and mass specific lethal and non-lethal effects anywhere within the assigned AO?

Section 3 Results and Recommendations

A. Results. The experiment resulted in several useful observations pertaining to information operations and multinational interoperability. Nevertheless, the insights gained on information operations were inconclusive. The measure of situational awareness used failed to disprove the hypothesis that a decentralized organization of information operations was as effective as a centralized organization of information operations in providing the commander with the information required for decisionmaking. However, the record of observations from the experiment suggests that a single coordinator of information operations improve the coordination and synchronization of information operations within the operations process. Adjudication of these competing insights is left to a future study or experiment. The limitations and constraints imposed on the DWE08 experiment, and the nature of the research, have an impact on the quality and quantity of data that was collected for analysis. The experimental design generated qualitative data through direst observation of the experimental audience. Where possible, observations where confirmed or reinforced by data from doctrinal manuals, previous BCBL experiments and study results from Center for Army Lessons Learned (CALL) products[8,9,10,11,12,13]. The results presented below were selected on the basis of credibility (results that are believable) and confirmability (the degree to which the results can be confirmed or corroborated by other observers). These criteria certainly leave room for other interpretation so, as stated in the recommendation, assessing the transferability (degree to which the data can be generalized or transferred to other situations) of the results is left to be determined in other venues. A summary of key observations made during the experiment is presented at Annex F.

B. Insights and Findings. This section of the document describes the insights and recommendation that have emerged from the experiment.

1. Issue 1. Assess the effectiveness of two organizational models to integrate information operations into the operations process to provide the commander with an operational advantage in full spectrum operations.

a. Our assessment of the effectiveness of the two organizational models for the conduct of information operations rested on two measures which are discussed below.

(1) The first measure is a comparison of the situational awareness of the two staffs represented. This measure did not establish any significant difference between the two models in the areas observed. The Army Research Laboratory (ARL) measured the situational awareness of each staff using true/false probes to test the ability of each staff officer to correctly distinguish statements made in a computer administered survey regarding simulated battlefield events. The findings of this research tool indicated that situational awareness improved throughout the event

[8] V Corps as Multi-National Corps – Iraq Initial Impressions Report, June 2007
[9] 82nd Airborne Division CJTF Headquarter Initial Impressions Report, November 2007
[10] 101st Airborne Division (AA) Initial Impressions Report, January 2007
[11] Division Commander's Guide to Information Operations in OIF and OEF Tactics, Techniques, and Procedures, December 2007
[12] Leader Challenges Operations Enduring Freedom & Operation Iraqi Freedom, December 2005
[13] Information Operations Initial Impressions Report, May 2005

but that there was no significant difference in situational awareness between the two staffs. A summary of the ARL findings are presented below. The complete ARL report is at Appendix 1 to Annex C.

Situational Awareness

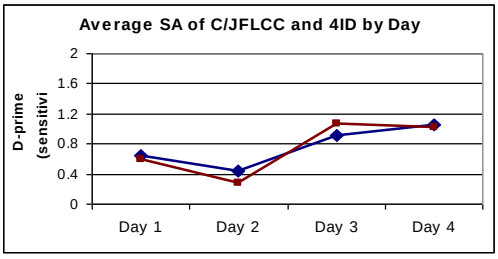
A main of effect of SA by experiment day exists, F(3,81) = 7.728, p-value = .001.

Observational data and comments during the AAR about occurrences of information overload, CPOF screen clutter, and emerging staff procedures for information management and exchange can explain why SA is significantly lower on Day 2 than Day 1.

SA rebound on Day 3 and remained relatively high on Day 4.

This effect can be explained by both staffs ability to quickly adapt their staff processes to maximize the technologies being used (CPOF, TAC WEB) and the artificial experimental battle rhythm imposed by the MSELs and the Decisive Action Simulation.

The figure below suggest that the C2 system architecture enabled role players performing separate tasks to gather, fuse, and synthesize information to continually and accurately adjust their mental models of current and ongoing battlefield events.



(2) The second measure was the relative speed that information moved through each of the staffs. This measure also failed to establish a difference between the division and the CFLCC staff. It was not possible to find a difference in the time a report regarding a MSEL arrived in a staff section since information was primarily transmitted through CPOF or the TACWEB portal. The result was that information was delivered everywhere in the staff at the same time.

b. Results for information operations.

(1) Finding 1: Information Operations needs a command emphasis and a single coordinator to be an effective tool for the commander. Several independent observations made during the experiment point to a requirement for a single coordinator for information operations. These observations are summarized below. This observation is also supported by insights from the recent Information Engagement workshops conducted at the Battle Command Battle Laboratory – Leavenworth. That experiment notes the need for a single coordinator of information operations as an insight. Finally, the experience of deployed units, as recorded by Center for Army Lessons Learned (CALL) Collection and Analysis Team (CAAT) Initial Impression Reports (IIRs), consistently note a requirement for a single coordinator of Information Operations. The observations recorded in this experiment suggest that:

(a) A decentralized model for the conduct of information operations may be inefficient. Rather than allowing a single representative from the division staff to attend the

CJFLCC IOWG an implication of the decentralized model was that representatives for each of the five IO tasks would have to attend every meeting concerning IO. The division Chief of Staff could appoint someone to represent the staff at this meeting but this begs the question of appointing a single coordinator on a permanent, rather than ad hoc, basis.

(b) Annex F of FM 3-13 lists the information operations-related responsibilities of staff sections at the ASCC, corps, division and brigade level. [14] The level of detail and broad range of synchronization required to integrate the IO effort within a large staff appears to require a single coordinator. Though pre-deployment training is beyond the scope of the DWE experiment, operational lessons learned also indicate that unit pre-deployment training requirements indicate the need for an IO coordinator with the authority and responsibility for coordinated staff actions. Staff training for information operations is an area not specifically covered in doctrine.

(c) The IO coordinator should have authority, and access to the commander, that is commensurate with the level of responsibility to be effective.[15] Operational lessons learned site several examples where the coordination of information operations has suffered or failed due to inappropriate assignment of rank or poor organization. Other observations in this experiment suggest that when a staff section or leader is faced with a choice between completing a primary activity and stopping to consider an Army IO task the staff will choose to complete the primary task. An IO coordinator with appropriate authority can serve to focus the staff on the IO requirements.

(2) Insight 1: Staff roles supporting the five IO tasks require clarification. The current organizational design of the corps headquarters (corps design version 3.3) does not appear to have any organizational gaps that would prevent that headquarters from executing either the existing doctrine, or emerging concept, for information operations. However, observations made during the experiment suggested that the role and placement of the Operations Security (OPSEC) office in the Protection cell might require additional consideration and also that current army IO doctrine doesn't address all of the staff capability available for the conduct of information operations.

(a) The OPSEC officer at the CFLCC staff was never integrated into the conduct of information operations. The CFLCC Protection analyst suggested that this may be a result of the placement of the OPSEC officer in the protection cell. At the division staff level the OPSEC officer worked aggressively to be included in the conduct of operations and planning. However, actions that were the responsibility of the OPSEC officer were sometimes assigned to other sections.

(b) The CFLCC sustainment observer noted that Army IO doctrine relegates the G4 to the role of supporting current operations with logistics support. Since the publication of FM 3-13 in 2003, the Army transition to modularity has had a large impact on doctrine and organization. The sustainment warfighting function includes logistics, personnel services health

[14] FM 3-13 Information Operations: Doctrine, Tactics, and Techniques, and Procedures, November 2003, Annex F.
[15] The 4th Infantry Division Initial Impressions Report, February 2007.

services, and internment, resettlement, and detainee operations. The broader capabilities of the sustainment warfighting function make it an ideal agent for influencing local populations and as such should be included proactively in all aspects of information operations.

(c) The changes in Army doctrine and organization engendered by the Army shift from the Napoleonic staff model to a functional staff model and from division-centric organizations to modular unit organizations potentially impacts much of the current doctrine on information operations and should also be considered in any emerging concept.

(3) Insight 2: Information operations, however organized, requires an additional effort in the area of education and training.

(a) The student staff was allowed to organize the Division headquarters using the modular division v8.0 organizational design and requirements of their mission as parameters for their decisions. In the initial student organization the Information Operations element was organized with the G7 assigned as a subordinate to the Fires Coordinator. An attempt to correct this situation by the IO proponent SME and the Division staff IO analyst led to a student attempt to organize and execute under the decentralized model of information operations. However, the students quickly reverted to an organization and execution model that was much closer to the centralized model of information operations. This suggests two implications for the implementation of a new IO model that would have to be addressed if the Army chooses to transition to a decentralized model of IO. The first is a problem of organizational inertia. The current group of officers and senior noncommissioned officers will rely on their operational experience to help them solve problems now and in the future. The second is the emphasis in Army doctrine on the importance of establishing clear areas of responsibility and defined relationships between staff sections and higher, lateral and subordinate organizations. A decentralized model of IO would have to address the well-established wisdom of this doctrine to inculcate the current generation of leaders in the new concept.

(b) In the division v8.0 organizational design the OPSEC officer requirement is for a Combat Arms immaterial Captain. In the Corps 3.3 design the OPSEC officer requirement is for a Combat Arms immaterial Major. At the corps level the OPSEC officer is responsible to; Identify and recommend the EEFI, Conduct analysis of adversaries as part of the Intelligence Preparation of the Battlefield (IPB) process, Conduct analysis of vulnerabilities as part of the IPB process, Conduct assessment of OPSEC risk, Develop, coordinate and apply OPSEC measures across the staff, Write the OPSEC estimate, Write the OPSEC appendix to the Protection annex, Monitors and assesses OPSEC measures in terms of their criteria of success and adjust as required, Reviews internal staff documents, information system logs, and news releases for sensitive information and potential compromise of EEFI, Search news sources, web logs (blogs), and other web sites for sensitive information and compromise of EEFI.[16] These are significant responsibilities for one officer with no specific training in OPSEC doctrine or operations.

[16] Corps design v3.3, unpublished brief.

c. Recommendation for information operations. The findings identified above point to a need to review information operations from the perspective of doctrine, organization, training, leadership and education, and personnel. The accepted methodology for this type of review is embedded in the Army Concept Strategy. Under this strategy a concept of information operations that is nested in joint and Army concepts is formulated and approved. The concept is then developed through the Concept Based Assessment (CBA) process into a Functional Solution Analysis (FSA), Functional Needs Analysis (FNA), and Functional Area Analysis (FAA). This disciplined process, normally conducted by an integrated capabilities development team (ICDT) composed of IO stakeholders from across TRADOC ensures that all aspects of information operations are considered in any proposed solution for the future of information operations.

2. Issue 2: Explore interoperability gaps that may exist when the C/JFLCC headquarters is conducting operations with joint and coalition units during full spectrum operations.

a. Results for interoperability.

b. Insight 1: The role of the Corps headquarters has unique requirements for SOPs.

(1) This experiment revealed no significant interoperability problems between the traditional staff organization of the U.K. Brigade and the functional staff organization of the U.S. Headquarters. However, the U.K. brigade commander did note a requirement for multinational SOPs on sustainment, information operations, host nation support, and resource management.

(2) The U.K. brigade commander also identified a requirement for detailed SOP for Knowledge Management (KM). This issue was also identified by all of the other headquarters represented in the experiment. Multi-national partners may not be allowed to use U.S. networks and network resources. However, a KM SOP would allow any mission partners to quickly and easily take advantage of the information management systems in use by a U.S. headquarters and would assist U.S. units subordinate to the corps headquarters or any joint, interagency, intergovernmental, multinational (JIIM) elements that are given access to the information systems.

(3) Another observation made by a U.K. officer highlighted an interesting perspective on the use of the U.S. Army staff running estimate procedure. The observation does not represent a specific interoperability gap but does point to the possibility that a potential future mission partner may not prefer, or potentially will not initially understand, the U.S. concept of the Common Operational Picture (COP) or the importance of constantly updated situational awareness as it is commonly accepted by the U.S. Army.

c. Recommendation.

(1) Develop recommendations for automated information dissemination management services that would simplify knowledge management procedures for U.S. and coalition units. Changes to command and control systems recommended during the experiment include:

-Allowing links between Command Post of the Future (CPOF) and the TACWEB (SharePoint portal) that would allow file archiving and automatic updates between the two systems.

- Allowing the capability to insert hyperlinks in CPOF that would point to documents stored in other places on the network.

- Providing the ability to conduct a global search for available databases.

- Providing the ability to link information or files directly to the Commander's Critical Information Requirements (CCIR) elements.

- Providing the ability to set alerts on files posted in a TACWEB portal or CPOF effort.

- Allowing users to create links between related Requests for Information (RFIs) on the TACWEB.

(2) Include established multinational SOPs in future experimentation with multi-national units to determine the base requirements for an SOP that could be used by U.S. units operating in a multi-national environment. Possible multinational SOPs for use in future experimentation include the Coalition Operations Handbook published by the American-British-Canadian-Australian (ABCA) Program or the Multinational Force Standing Operating Procedures v 2.2 (MNF SOP) published by Headquarters, U.S. Pacific Command

Section 4 Administrative Data

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	IQL Questions	Insights / Findings	DOTMLPF Recommendations	OPR(s)	OPR Action Taken
1	What are the required capabilities of the echelons above brigade (EAB) command posts to control, or have access to, Army and joint assets that can generate and mass specific lethal and non-lethal effects anywhere within the assigned AO?	Finding 1: Information Operations needs a single coordinator to be an effective tool for the commander.	The findings identify to a need to review information operations from the perspective of doctrine, organization, training, leadership and education, and personnel. The information operations proponent should develop a Concept Capability Plan (CCP) under a TRADOC charter to ensure the developing concept of information operations that is nested in joint and Army concepts and includes input from all of the stakeholders in the CCP. The approved CCP is then developed through the Concept Based Assessment (CBA) process into the supporting documents, the Functional Area Asessment (FAA) this document describes how the force will operate, the timeframe and environment in which it must operate, its required capabilities (in terms of missions and effects), the Functional Needs Assessment (FNA) the FNA assesses whether or not an inability to achieve a desired effect (a capability gap) exists. and the Functional Solutions Assessment (FSA) which assesses potential DOTMLPF solutions and policy approaches to solving, or at least mitigating, one or more of the capability gaps identified in the FNA. This disciplined process, normally conducted by an integrated capabilities development team (ICDT) composed of stakeholder from across TRADOC ensures that all aspects of information operations are considered in any proposed solution for the future army.	TRADOC, USAIOP	
2		Insight 1: Staff roles supporting the five IO tasks require clarification.			
3		Insight 2: Information operations, however organized, require an additional effort for educational and training.			
4		Insight 1: The role of the Corps headquarters has unique requirements for SOPs.	Develop recommendations for automated information dissemination management services that would simple knowledge management procedures for U.S. and coalition units. Changes to command and control systems recommended during the experiment include: -Allowing links between Command Post of the Future (CPOF) and the TACWEB (SharePoint portal) that would allow file archiving and automatic updates between the two systems. - Allowing the capability to insert hyperlinks in CPOF that would point to documents stored in other places on the network. - Providing the ability to conduct a global search for available databases. - Providing the ability to link information or files directly to the Commander's Critical Information Requirements (CCIR) elements. - Providing the ability to set alerts on files posted in a TACWEB portal or CPOF effort. - Allowing user to create links between related Requests for Information (RFIs) on the TACWEB.	TCM-BC, SIGCEN	
5			Include established multinational SOPs in future experimentation with multi-national units to determine the base requirements for an SOP that could be used by U.S. units operating in a multi-national environment. Possible multinational SOPs for use in future experimentation include the Coalition Operations Handbook published by the American-British-Canadian-Australian (ABCA) Program or the Multinational Force Standing Operating Procedures v 2.2 (MNF SOP) published by Headquarters, U.S. Pacific Command	BCBL	

Name	Type	Definition	Metric
IO Model	Independent	The type of staff organization used to coordinate and synchronize information operations.	This variable as two states: centralized (joint model) or decentralized (Army model).
Service Model	Independent	The service background the organization comes from.	This variable has three states: Army, Joint, or Coalition.
JFLCC CCIR	Independent	Commander's critical information requirements (CCIR) are elements of information required by commanders that directly affect decision making and dictate the successful execution of military operations. CCIR consist of two components: Priority Intelligence Requirements (PIR) and Friendly Forces Information Requirements (FFIR).	CCIR have two necessary conditions to have a measurable effect: have CCIR been defined and have they been disseminated. The two states of each condition are either "true" or "false".
JFLCC guidance	Independent	Guidance ensures the staff understands the broad outline of the commander's visualization while still permitting the necessary latitude for the staff to explore different options. It should states in broad terms when, where, and how the commander intends to employ the warfighting functions in decisive operations to accomplish the mission within the higher commander's intent.	
Scenario events	Independent	Scripted events that are initiated by the experiment team and injected into an experiment to elicit a response in the experiment participants.	Scenario events must fall into at least five categories to elicit responses that will contribute to the analytical objectives of the experiment: CCIR related, IO related, joint related, coalition related, and unrelated (control) events.
MSEL event route	Dependent	The nodes in the staff organization the event moves through as it is evaluated by the staff.	Any staff section that notes the content of a MSEL event, passes the information to another staff section or headquarters, or briefs the event to a working group or the commander is considered a part of the MSEL route.
MSEL event velocity	Dependent	A measure of the time it takes an event to move from node to node through the organization as the event is evaluated by the staff.	The number of minutes a MSEL event takes to travel from the inject point to another staff organization or commander. Inject time and arrival time at any staff node is recorded in TRAC-ESS system time.
HQ interaction	Dependent	How information moves from one HQ staff to another headquarters staff. This is a measure of how the organizations adjust to the differences in roles and functions between a joint staff and an Army staff or coalition staff.	This is a subset of MSEL event route. The route is only recorded under this variable as it moves from one headquarters to another.
Information integration	Dependent	How each staff organizes itself to synchronize and coordinate information.	Analyst observation on who is assigned responsibility for information operations and what working groups formed or what actions are taken to conduct information operations.
Staff situational	Dependent	Extent to which staff is aware of the ongoing situation.	Measured with timed surveys requiring participants to correctly

awareness			identify ongoing situations as portrayed in the MSELs
Commander situational awareness	Dependent	Extent to which the commander is aware of the ongoing situation.	Measured with timed surveys requiring participants to correctly identify ongoing situations as portrayed in the MSELs
Experience of staff	Intervening	A description of how much and what kind of experience each member of the staff has.	A narrative summary of the demographic composition and professional experience of the personnel of which the staff is composed.

Objective: To assess how a JFLCC staff and subordinate units integrate Information Operations into the operations process to provide the commander an operational advantage in full spectrum operations

Introduction: Information superiority requires the careful coordination of people, processes, and technology to maintain situational awareness (SA). To facilitate this coordination, a model of information operations must exist. This model should lay a foundation where information is freely and accurately exchanged between the Commander and his staff and within the staff to supporting elements in a timely manner.

In the absence of a healthy and functional model of information operations, interactions between people using technologies carrying out processes and procedures are degraded. As a result, the Commander's decisions and situation awareness may be severely occluded by incomplete, inaccurate, and untimely information. Thus, this makes it substantially more difficult for the staff to fuse information into the required knowledge to answer the commander's critical information requirements. The effect is that false information about critical events about the situation are promulgated throughout the staff and subordinate units. This false information could also ruin an individuals SA and decision making capabilities and in severe cases, make that individual (or individuals) counter productive. False information can be present in at least three ways: information given to an individual is false, true information could be misinterpreted, and the situation may have changed. Therefore, SA is believed to be the combination of true *and* false information, and the premise that good SA is represented by the ability to tell true and false information apart (Edgar et al., 2003).

Probe Methodology: This approach to measuring SA is a development of the QUASA™ method (QUantitative Analysis of Situation Awareness; Edgar et al., 2000, 2003; McGuiness, 2004 and Leggatt, 2004). QUASA uses basic probe statements about the situation and requires participants to judge whether they are true or false. Their responses can be interpreted using the Signal Detection Theory (SDT) paradigm which allows hits, misses, false alarms, and correct rejections to be quickly calculated.

After the data is categorized, commonly used SDT statistics can be applied: sensitivity (d') and bias (β). These measures suggest that the greater the sensitivity, the better the individual is at identifying the signal (true probe) from the noise (false probe). It can be stated that good technologies and their effective use improve sensitivity.

Development of Probes: Probes typically consist of about eight to ten statements. They are usually a direct reflection of commander's intent, use simple language, a mixture of implicit and explicit issues to include roles and responsibilities, and operationally relevant. Therefore, each probe is directly traceable to experiment objectives.

Administration: Participants are instructed to answer T/F about a statement. Participants are also asked to provide a confidence rating about their answer using a 7 point Likert Scale (1 = Extremely Confident, 7 = Extremely Unconfident). Procedure only takes approximately 3 minutes.

Probes are ideally administered after critical incidents, but can also be given according to the schedule of experimentation (i.e. before lunch, at the end of day, or other scheduled breaks). For purposes of DWE, T/F probes should be administered at least 3-times a day (beginning, middle,

and end of day) to gather important data that will aid in making sense of how SA develops throughout the course of the experiment.

True – False Probes in DWE: This technique will add another layer of analytic rigor to testing whether a decentralized model of information operations is as effective as a centralized model in providing the commander with an operational advantage during full spectrum operations. In addition to the generating and administering the T/F Probes, we propose to four additional short-answer questions that will help determine the quality of the information relative to the information needs of that person (or Warfighter function).

Benefits: This approach allows analyst to *quickly* and *objectively* evaluate participant responses against known information that participants access directly from common operating pictures (COPs), knowledge management systems, collaborations within and among teams, and / or incoming information about events via e-mail or simulated news reports during experimentation. The confidence rating provides insight as to the level of assuredness a participant has about each probe statement.

The T/F probe approach is not time consuming, minimally intrusive to primary task performance, and provides an objective measure of performance in command, control, communications, and computers (C4i) environments. This approach is not the SAGAT, but similar. Answers to probes are quick, T/F in nature, and do not require freezes in experiment play.

T/F probes also remove the need of having a large data collection team during the experiment to collect SA data. Probes can be administered through the computer. Data can then be downloaded by the onsite analyst. This would allow for onsite analysis and the potential to provide useful input to after action reviews (AARs).

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Situational Awareness in the Digital Warfighter Experiment II (DWE II)

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SA in the Digital Warfighter Experiment II (DWE II)

To Asses Situational Awareness impacts in conducting information operations in an emerging Corps headquarters organizational design, employed as a Coalition/Joint Force Land Component Commander (C/JFLCC) headquarters

BCBL-L ARL Research Objectives :

Issue 1: Assess the effectiveness of two organizational models to integrate information operations into the operations process to provide the commander with an operational advantage in full spectrum operations.

1.3 Assess the effectiveness of joint IO doctrine and the emerging Army model for IO in providing situational awareness to the commander and staff during the conduct of operations.

ARL Focus: **Situational Awareness using True / False Probe Methodology**

Situational Awareness

- Objective: Analyze the promulgation of SA/SU within staff structure, quantify SA/SU within select cells, and compare actual SA/SU against ground truth
- Method: Survey data (twice daily)
- Analyses: Signal Detection Theory Statistics
- Correlate SDT statistic to available network data

2

Insights - Situational Awareness Results

Average level of situational awareness (SA) **improved** throughout the event

This indicates that both staffs showed improvement in synchronizing their battle rhythms and command and control processes

Ability to distinguish true and false statements about battlefield events was **not significantly different** between the Division and CJFLCC staffs

This suggests that the information management technologies (i.e. CPOF, TAC WEB Portal) and individual organizational designs allowed both staffs to become and maintain an awareness of significant battlespace activities

Insights - Situational Awareness Results (continued)

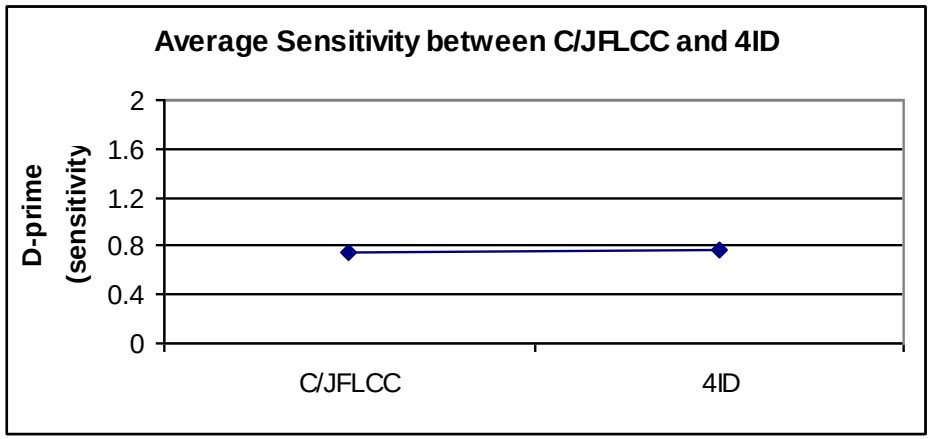
The Division and CJFLCC Staffs showed **similar trends** of being able to accurately detect statements about battlefield events over time

- As expected, awareness of battlefield events started relatively high and then decreased during the 2nd day of experimentation. This is largely due to the artificiality of the experiment where everyone is expected to have the same, or near same levels of understanding about current battlefield events (i.e. PMESII)
- As expected, the decline in the average awareness of battlefield events is partly due to both staffs developing internal standard operating procedures for technology use, information exchange, and responding to levels of information overload.
- The desired improvement in both staff's average awareness of battlefield events on the 3rd experiment day suggest they became more efficient in using the C2 technologies (CPOF) to self-synchronize their data collection and information sharing processes. Both staffs were able to integrate and update new information into older, pre-existing cognitive structures. This suggest that information fusion occurred and was sufficiently enabled through both the organizational design and C2 technologies.
- As intended, both staffs were able to sustain relatively high levels of awareness of battlefield events. This suggests that they were able to adjust and adapt their internal battle processes and were able to overcome information overload.

4

Evaluating an Army Model for IO in providing SA

- **Differences in average sensitivity and response criterion between C/JFLCC and 4ID was not significant at the .05 alpha level.**
- **Sensitivity analysis results suggest the Army model for IO was effective in providing situational awareness to both the C/JFLCC and 4ID Commander and staffs during their conduct of operations.**
- **The results also suggest that the technologies used in this experiment were equally effective in allowing role players performing separate tasks to gather, fuse, and synthesize information and make inferences about the validity of the information.**



Sample Sizes:
C/JFLCC, n = 18
4ID, n = 11

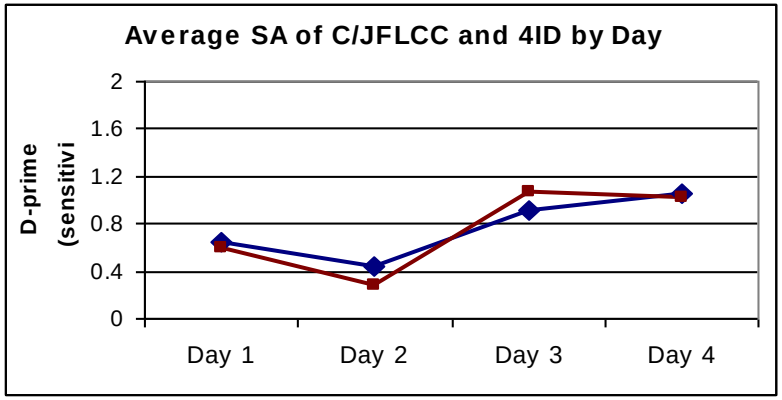
5

Development of Situational Awareness

- **A main of effect of SA by experiment day exists, F(3,81) = 7.728, p-value = .001.**
  - Observational data and comments during the AAR about occurrences of information overload, CPOF screen clutter, and emerging staff procedures for information management and exchange can explain why SA is significantly lower on Day 2 than Day 1.

- **SA rebound on Day 3 and remained relatively high on Day 4.**
  - This effect can be explained by both staffs ability to quickly adapt and self-synchronize their staff processes to maximize the technologies being used (CPOF, TAC WEB) and the artificial experimental battle rhythm imposed by the MSELs and the Decisive Action Simulation.

- **Overall, the figure below suggest that the networking architecture enabled role players performing separate tasks to gather, fuse, and synthesize information to continually and accurately adjust their mental models of current and ongoing battlefield events.**



Sample Sizes

C/JFLCC, n = 18

4ID, n = 11

6

Measuring Situational Awareness Using True / False Statements - Summary

- **47 True / False Probe statements were administered twice daily (pre-lunch and post-lunch) to participants role playing division staff, brigade, and response cell positions.**
- **Each T / F Probe was linked to scenario/vignette scripts and master scenario events list injects, and updated daily based on the Division Commander's Update Briefing (CUB) and other key events throughout the exercise.**
- **Each T / F Probe was developed in connection to the master scenario event list (MSEL) representing several different story boards about battlefield events. For example:**

MSEL Story Board	Total # of Probes
Information about Enemy Activity (AH, SAPA)	21
Information about Internally Displaced Persons (IDP)	6
Information about Threats to Infrastructure	6
Information about Enemy use of Propaganda through Media	6
Other	8

Key Terms or Concepts

- **Situational Awareness (SA) -** Knowledge of the immediate present environment (FMI 5-0.1, Chapter 1, p 1-19)
- **SA in a Digital Information-Rich Environment -** the integration of true and false information ()
- **False Information –** facts or assumptions about battlefield events that were once true but have become false or invalid as a result of human perception error and technology error over time. Information is classified as false when it is inaccurate, untimely, or incomplete (Thomas, 2008; Thomas et. al, 2007).
- **Good SA -** The end result of ones ability to distinguish between true and false information in an information-rich battlefield environment (Edgar et al., 2003)
- **Bad / Poor SA –** The inability to distinguish between true and false information due to information overload (human dimension) or inept networking technologies (technology dimension) (Thomas, 2008)
- **Sensitivity (d'prime) –** A signal detection theory statistics that measures the degree to which someone is able to distinguish between true and false information.

IQL 2006-II.B-0025 - What are the required capabilities of the echelon above brigade (EAB) command posts to control, or have access to, Army and joint assets that can generate and mass specific lethal and non-lethal effects anywhere within the assigned Area of Operation (AO)?

Problem - Examine how the emerging Corps headquarters organizational design, employed as a Coalition/Joint Forces Land Component Commander headquarters, conducts information operations and enables joint and coalition interoperability during full spectrum operations.

Issue – Assess the effectiveness of two organizational models in integrating information operations into the operations process to provide the commander with an operational advantage in full spectrum operations.

Sub-Issue 1 Examine how joint IO doctrine and the emerging Army model of IO enable the staffs' ability to integrate IO into military operations through the operations process.

1.1 (Essential Elements of Analysis (EEA)) What are the differences in joint and Army IO doctrine?

1.1.1 (Measures of Merit (MOM)) What are the differences in the roles, functions and tasks of information operations at a joint headquarters and an Army headquarters?

1.1.1.1 (Data element) What are the differences in the role of information operations between a joint and an Army headquarters?

1.1.1.2 (Data element) What are the differences in the function of information operations between a joint and an Army headquarters?

1.1.1.3 (Data element) What are the differences in the tasks of information operations between a joint and an Army headquarters?

1.2 (EEA) What are the differences in organizational design between a joint and an Army headquarters for the conduct of information operations?

1.2.1 (MOM) How does a joint headquarters organize to conduct information operations?

1.2.2 (MOM) How does an Army headquarters organize to conduct information operations?

1.3 (EEA) What changes to a Corps staff are required to execute information operations when it is directed to act as a joint headquarters?

1.3.1 (MOM) What potential IO related gaps in training are revealed when an Army headquarters performs as a joint headquarters?

1.3.2 (MOM) What are the potential IO related gaps in material capabilities are revealed when an Army headquarters performs as a joint headquarters?

1.3.3 (MOM) What are the potential IO related gaps in leadership and education are revealed when an Army headquarters performs as a joint headquarters?

1.3.4 (MOM) What are the potential IO related gaps in personnel are revealed when an Army headquarters performs as a joint headquarters?

1.3.5 (MOM) What are the potential IO related gaps in facilities are revealed when an Army headquarters performs as a joint headquarters?

Sub-issue 2 What are the differences in how the joint headquarters and the Army headquarters conduct information operations?

1.4 (EEA) How does the headquarters integrate IO into planning an operation?

1.4.1 (MOM) What role does the Special Staff play in incorporating IO into the planning process?

1.4.1.1 (Data element) How does the Special Staff integrate IO into the planning process?

1.4.1.2 (Data element) What inputs are required of the Special Staff to integrate IO into the planning process?

1.4.2 (MOM) What role does the Plans Cell play in incorporating IO into the planning process?

1.4.2.1 (Data element) How does the Plans Cell integrate IO into the planning process?

1.4.2.2 (Data element) What inputs are required of the Plans Cell to integrate IO into the planning process?

1.4.3 (MOM) What role does the Current Operations Cell play in incorporating IO into the planning process?

1.4.3.1 (Data element) How does the Current Operations Cell integrate IO into the planning process?

1.4.3.2 (Data element) What inputs are required of the Current Operations Cell to integrate IO into the planning process?

1.4.4 (MOM) What role does the Future Operations Cell play in incorporating IO into the planning process?

1.4.4.1 (Data element) How does the Future Operations Cell integrate IO into the planning process?

1.4.4.2 (Data element) What inputs are required of the Future Operations Cell integrate IO into the planning process?

1.4.5 (MOM) What role does the Intel Cell play in incorporating IO into the planning process?

1.4.5.1 (Data element) How does the Intel Cell integrate IO into the planning process?

1.4.5.2 (Data element) What inputs are required of the Intel Cell to integrate IO into the planning process?

1.4.6 (MOM) What role does the Fires Cell play in incorporating IO into the planning process?

1.4.6.1 (Data element) How does the Fires Cell integrate IO into the planning process?

1.4.6.2 (Data element) What inputs are required of the fires Cell to integrate IO into the planning process?

1.4.7 (MOM) What role does the Movement and Maneuver Cell play in incorporating IO into the planning process?

1.4.7.1 (Data element) How does the Maneuver Cell integrate IO into the planning process?

1.4.7.2 (Data element) What inputs are required of the fires Cell to integrate IO into the planning process?

1.4.8 (MOM) What role does the Protection Cell play in incorporating IO into the planning process?

1.4.8.1 (Data element) How does the Protection Cell integrate IO into the planning process?

1.4.8.2 (Data element) What inputs are required of the protection Cell to integrate IO into the planning process?

1.4.9 (MOM) What role does the Sustainment Cell play in incorporating IO into the planning process?

1.4.9.1 (Data element) How does the Sustainment Cell integrate IO into the planning process?

1.4.9.2 (Data element) What inputs are required of the fires Cell to integrate IO into the planning process?

1.4.10 (MOM) What role does the C4 Cell play in incorporating IO into the planning process?

1.4.10.1 (Data element) How does the C4 Cell integrated IO into the planning process?

1.4.10.2 (Data element) What inputs are required of the C4 Cell to integrate IO into the planning process?

1.5 (EEA) How does the headquarters integrate IO into preparing an operation?

1.5.1 (MOM) What role does the Special Staff play in incorporating IO into the preparation process?

1.5.1.1 (Data element) How does the Special Staff integrate IO into the preparation process?

1.5.1.2 (Data element) What inputs are required of the Special Staff to integrate IO into the preparation process?

1.5.2 (MOM) What role does the Plans Cell play in incorporating IO into the preparation process?

1.5.2.1 (Data element) How does the Plans Cell integrate IO into the preparation process?

1.5.2.2 (Data element) What inputs are required of the Plans Cell to integrate IO into the preparation process?

1.5.3 (MOM) What role does the Current Operations Cell play in incorporating IO into the preparation process?

1.5.3.1 (Data element) How does the Current Operations Cell integrate IO into the preparation process?

1.5.3.2 (Data element) What inputs are required of the Current Operations Cell to integrate IO into the preparation process?

1.5.4 (MOM) What role does the Future Operations Cell play in incorporating IO into the preparation process?

1.5.4.1 (Data element) How does the Future Operations Cell integrate IO into the preparation process?

1.5.4.2 (Data element) What inputs are required of the Future Operations Cell to integrate IO into the preparation process?

1.5.5 (MOM) What role does the Intel Cell play in incorporating IO into the preparation process?

1.5.5.1 (Data element) How does the Intel Cell integrate IO into the preparation process?

1.5.5.2 (Data element) What inputs are required of the Intel Cell to integrate IO into the preparation process?

1.5.6 (MOM) What role does the Fires Cell play in incorporating IO into the preparation process?

1.7.6.1 (Data element) How does the Fires Cell integrate IO into the preparation process?

1.5.6.2 (Data element) What inputs are required of the fires Cell to integrate IO into the preparation process?

1.5.7 (MOM) What role does the Movement and Maneuver Cell play in incorporating IO into the preparation process?

1.5.7.1 (Data element) How does the Maneuver Cell integrate IO into the preparation process?

1.5.7.2 (Data element) What inputs are required of the fires Cell to integrate IO into the preparation process?

1.5.8 (MOM) What role does the Protection Cell play in incorporating IO into the preparation process?

1.5.8.1 (Data element) How does the Protection Cell integrate IO into the preparation process?

1.5.8.2 (Data element) What inputs are required of the protection Cell to integrate IO into the preparation process?

1.5.9 (MOM) What role does the Sustainment Cell play in incorporating IO into the preparation process?

1.5.9.1 (Data element) How does the Sustainment Cell integrate IO into the preparation process?

1.5.9.2 (Data element) What inputs are required of the fires Cell to integrate IO into the preparation process?

1.5.10 (MOM) What role does the C4 Cell play in incorporating IO into the preparation process?

1.5.10.1 (Data element) How does the C4 Cell integrate IO into the preparation process?

1.5.10.2 (Data element) What inputs are required of the C4 Cell to integrate IO into the preparation process?

1.6 (EEA) How does the headquarters integrate IO into executing an operation?

1.6.1 (MOM) What role does the Special Staff play in incorporating IO into the execution process?

1.6.1.1 (Data element) How does the Special Staff integrate IO into the execution process?

1.6.1.2 (Data element) What inputs are required of the Special Staff to integrate IO into the execution process?

1.6.2 (MOM) What role does the Plans Cell play in incorporating IO into the execution process?

1.6.2.1 (Data element) How does the Plans Cell integrate IO into the execution process?

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1.7 (EEA) How does the headquarters integrate IO into the continuous assessment of an operation?

1.7.1 (MOM) What role does the Special Staff play in incorporating IO into the assessment process?

1.7.1.1 (Data element) How does the Special Staff integrate IO into the assessment process?

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1.7.10.1 (Data element) How does the C4 Cell integrated IO into the assessment process?

1.7.10.2 (Data element) What inputs are required of the C4 Cell to integrate IO into the assessment process?

1.8 (EEA) How does a joint headquarters integrate joint, interagency, intergovernmental, media, and multinational elements into information operations?

1.8.1 (MOM) How does the C/JFLCC headquarters integrate subordinate units from the joint force into information operations?

1.8.2 (MOM) How does the C/JFLCC headquarters integrate interagency elements into information operations?

1.8.3 (MOM) How does the C/JFLCC headquarters integrate intergovernmental elements into information operations?

1.8.4 (MOM) How does the C/JFLCC headquarters integrate media elements into information operations?

1.8.5 (MOM) How does the C/JFLCC headquarters integrate subordinate units from a multinational force into information operations?

1.9 (EEA) How does a division headquarters integrate joint, interagency, intergovernmental, media, and multinational elements into information operations?

1.9.1 (MOM) How does the division headquarters integrate subordinate units from the joint force into information operations?

1.9.2 (MOM) How does the division headquarters integrate interagency elements into information operations?

1.9.3 (MOM) How does the division headquarters integrate intergovernmental elements into information operations?

1.9.4 (MOM) How does the division headquarters integrate media elements into information operations?

Sub-issue 3 Assess the effectiveness of joint IO doctrine and the emerging Army model for IO in providing situational awareness to the commander and staff during the conduct of operations.

1.10 (EEA) Which model of IO provided situational awareness information most quickly and accurately?

1.10.1 (MOM) Which model provided situational awareness information of IO most quickly?

1.10.2 (MOM) Which model provided situational awareness information of IO most accurately?

1.10.3 (MOM) Which model provided IO situational awareness information of IO to the largest percentage of the staff?

Issue 2. Explore interoperability gaps that may exist when the C/JFLCC headquarters is conducting operations with joint and coalition units during full spectrum operations.

Sub Issue 1 What information management procedures does the corps headquarters require to command and control a multinational force?

2.1 (EEA) What SOPs are used when an Army unit is assigned to perform as a joint headquarters with joint and multinational subordinate units?

2.1.1 (MOM) What gaps or misunderstandings are observed in the reporting related to the two categories of information management between the C/JFLCC headquarters and the coalition unit?

2.1.1.1 (Data element) What misunderstandings were noted Commander's Critical Information Requirement (CCIR) related information?

2.1.1.2 (Data element) What misunderstandings were noted in information requirement (IR) related information?

2.1.2 (MOM) What gaps or misunderstandings are observed in the reporting of relevant information between the C/JFLCC headquarters and the coalition unit?

2.1.2.1 (Data element) What misunderstandings were noted in COP related information?

2.1.2.2 (Data element) What misunderstandings were noted in execution information?

2.1.2.3 (Data element) What misunderstandings were noted in exceptional information?

2.1.2.4 (Data element) What misunderstandings were noted in Essential Elements of Friendly Information (EEFI)?

2.1.3 (MOM) What misunderstandings are observed in the use of doctrinal terms or definitions?

2.1.3.1 (Data element) How does a coalition unit interpret the concept of unassigned areas?

2.1.3.2 (Data element) How does the coalition unit commander interpret the responsibilities of an assign area of operations?

2.1.3.3 (Data element) How does a coalition unit interpret the concept Operation Security (OPSEC)?

2.1.3.4 (Data element) How does a coalition unit interpret the concept Military deception (MILDEC)?

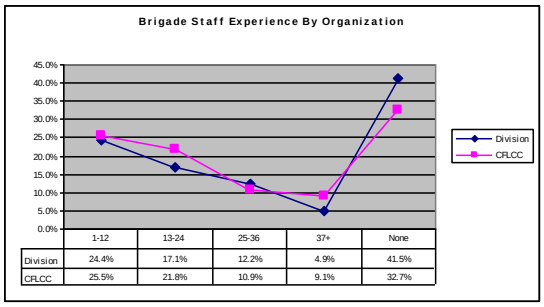
2.1.3.5 (Data element) How does a coalition unit interpret the concept Command and Control Warfare?

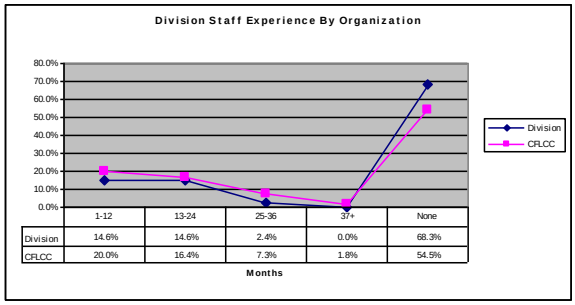
2.1.3.6 (Data element) How does a coalition unit interpret the concept Information Protection?

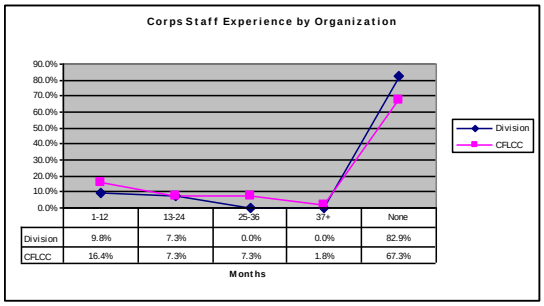
2.1.3.7 (Data element) How does a coalition unit interpret the concept Information Engagement?

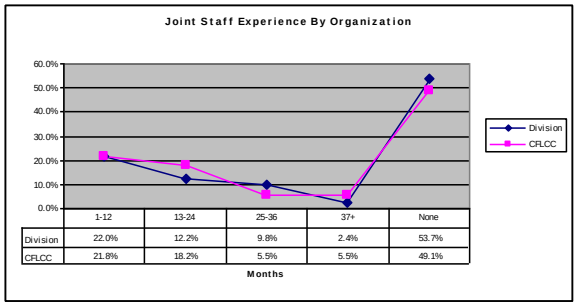
2.2 (EEA) What information management systems enhance collaboration in a multinational force?

1. Demographics. Prior to the start of the experiment it was thought that the CFLCC staff, composed of Subject Matter Experts from across the Army schools and centers, would have more experience on higher level staffs then the division staff composed of CGSS students. The demographic data collected from the role player at the start of the experiment proved this assumption incorrect.

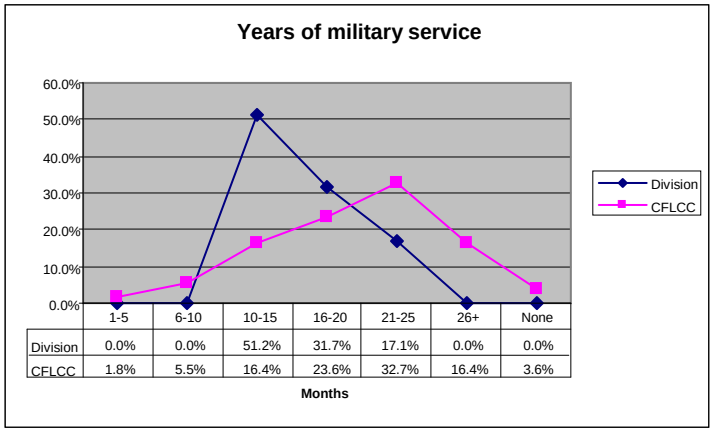




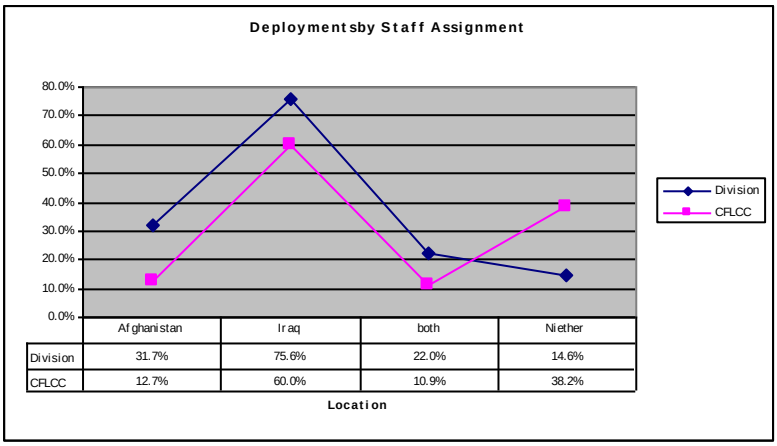




a. The experience of the staffs of both headquarters was very similar at each echelon of command and for joint experience. This similarity of experience was especially striking when the years of military service of each staff are compared.



b. As shown in the graph above, 49.1% of the CFLCC staff had twenty-one or more years of military service. In the division staff, 51.2% of the students had fifteen or fewer years of service. The disparity between similar levels of staff experience and the large difference in years of service is probably explained by deployments in which the student officers have participated.



c. The students show a higher percentage of deployment experience than does the CFLCC staff and the CFLCC staff had a much larger number of people who had never deployed to Iraq or Afghanistan.

2. A more detailed presentation of the demographic information is presented below.

Results of demographic survey

1. Responded to survey

Element	Responded		# Possible	Percentage
All	96	75.0%	128	75.0%
Division role players	41	66.1%	62	66.1%
CFLCC role players	55	83.3%	66	83.3%

2. Had experience in their assigned warfighting function.

Element	Responded	Possible	Percentage
All	73	96	76.0%
Division role players	27	41	65.9%
CFLCC role players	46	55	83.6%

3. Battalion staff experience

Months	All		Division		CFLCC	
	n=	%	n=	%	n=	%
1-12	19	19.8%	8	19.5%	11	20.0%
13-24	22	22.9%	9	22.0%	13	23.6%
25-36	20	20.8%	10	24.4%	10	18.2%
37+	18	18.8%	6	14.6%	12	21.8%
None	17	17.7%	8	19.5%	9	16.4%
	96		41		55	

4. Brigade staff experience.

Months	All		Division		CFLCC	
	n=	%	n=	%	n=	%
1-12	24	25.0%	10	24.4%	14	25.5%
13-24	19	19.8%	7	17.1%	12	21.8%
25-36	11	11.5%	5	12.2%	6	10.9%
37+	7	7.3%	2	4.9%	5	9.1%
None	35	36.5%	17	41.5%	18	32.7%
	96		41		55	

5. Division staff experience

Months	All		Division		CFLCC	
	n=	%	n=	%	n=	%
1-12	17	17.7%	6	14.6%	11	20.0%
13-24	15	15.6%	6	14.6%	9	16.4%
25-36	5	5.2%	1	2.4%	4	7.3%
37+	1	1.0%	0	0.0%	1	1.8%
None	58	60.4%	28	68.3%	30	54.5%
	96		41		55	

6. Corps staff experience

Months	All		Division		CFLCC	
	n=	%	n=	%	n=	%
1-12	13	13.5%	4	9.8%	9	16.4%
13-24	7	7.3%	3	7.3%	4	7.3%
25-36	4	4.2%	0	0.0%	4	7.3%
37+	1	1.0%	0	0.0%	1	1.8%
None	71	74.0%	34	82.9%	37	67.3%
	96		41		55	

7. Joint Experience

Months	All		Division		CFLCC	
	n=	%	n=	%	n=	%
1-12	21	21.9%	9	22.0%	12	21.8%
13-24	15	15.6%	5	12.2%	10	18.2%
25-36	7	7.3%	4	9.8%	3	5.5%
37+	4	4.2%	1	2.4%	3	5.5%
None	49	51.0%	22	53.7%	27	49.1%
	96		41		55	

8. Military experience

Years	All		Division		CFLCC	
	n=	%	n=	%	n=	%
1-5	1	1.0%	0	0.0%	1	1.8%
6-10	3	3.1%	0	0.0%	3	5.5%
10-15	30	31.3%	21	51.2%	9	16.4%
16-20	26	27.1%	13	31.7%	13	23.6%
21-25	25	26.0%	7	17.1%	18	32.7%

9. Deployments

Location	All		Division		CFLCC	
	n=	%	n=	%	n=	%
Afghanistan	20	20.8%	13	31.7%	7	12.7%
Iraq	64	66.7%	31	75.6%	33	60.0%
both	15	15.6%	9	22.0%	6	10.9%
Niether	27	28.1%	6	14.6%	21	38.2%

10. Experience with automation systems.

System	All		Division		CFLCC	
	n=	%	n=	%	n=	%
CPOF	54	56.3%	22	53.7%	32	58.2%
IWS	37	38.5%	8	19.5%	29	52.7%
Both	26	27.1%	5	12.2%	21	38.2%
Niether	31	32.3%	16	39.0%	15	27.3%

Key Observations. This section is a summary of the key observations that led to the insights, findings and recommendations found in section 3. These observations are associated with the appropriate DCMP element and contain the original comments made by the analysts during the experiment or in post experiment SME summaries.

1. Observation 1-1.

a. 1.2 EEA What are the differences in organizational design between a joint and an Army headquarters for the conduct of information operations?

b. Background. The USAIOP provided three Subject Matter Experts who started teaching, coaching, and mentoring the CGSC DWE G7 Staff two weeks prior to the SIMEX focusing on leveraging information as element of combat power, sharing their combat experiences, TTPs, and the integration of the information tasks per FM 3-0 because AOWC Block I/II curriculum is not chartered to teach the emerging concepts on the integration of information tasks as part of battle command. The student staff was then allowed to organize the Division headquarters using the modular division v8.0 organizational design and requirements of their mission as parameters for their decisions. In the initial student organization the Information Operations element was organized with the G7 assigned as a subordinate to the Fires Coordinator. An attempt to correct this situation by the IO proponent SME and the Division staff IO analyst lead to a student attempt to organize and execute under the decentralized model. However, the students quickly reverted to an organization and execution model that was closer to the centralized model. This situation is summarized in the following observation:

> "The student division [Commander] Cdr and [Chief of Staff] CoS relying on their operational experience organized their staff with a centralized IO Coordinator located in the Fires Functional Cell and responsible for integrating the IO capabilities, supporting capabilities, and related activities. During the mini-ex a discrepancy in the staff organization for the planning, preparation, execution, and assessment of Information Operations was discovered. Due to the USAIOP's work with the student division staff elements during the weeks leading up to the DWE, there developed a misunderstanding within the staff regarding how IO would be coordinated, synchronized, de-conflicted and integrated. Some members of the student division staff believed they were working under the decentralized approach as outlined in the emerging IO Construction while other members of the staff, notably the Div Cdr, the Div CoS, and the Div Chief of Plans, thought they were organized to conduct IO by employing an IO Coordinator located in the Fires Cell. When this discrepancy was brought to the attention of the Div Cdr and Div CoS, both indicated no knowledge of the new IO Construct and had decided to employ a centralized IO Coordinator located in the Fires Cell to integrate IO with lethal fires. Both indicated they believed IO to be non-lethal and the Effects Coordinator was responsible for the overall integration of lethal and non-lethal effects. This is based on their experience with successful staff practices in the operational theaters. When presented with the new construct, both the Div Cdr and Div CoS expressed strong misgivings about it based on their experience, with emphasis on the lack of a centralized authority to direct and manage the integration of the five Information Tasks. Both indicated the CoS and the Div G3 are far to busy to provide the necessary attention and

direction to ensure the successful integration of the five Information Tasks in support of the over arching operation. Both indicated their willingness to shift the staff to encompass the emerging IO Construct but were uneasy given their lack of knowledge and understanding of how the five Information Tasks would be integrated employing the operations process."

c. Discussion. This observation suggests two implications of a new IO model that would have to be addressed if the Army chooses to transition to a decentralized model of IO. The first is the that the current group of officer and senior noncommissioned officers will rely on their operational experience to help them solve problems now and in the future. The second is the emphasis in Army doctrine on the importance of establishing clear areas of responsibility and defined relationships between staff sections and higher, lateral and subordinate organizations. A decentralized model of IO will have to address the well-established wisdom of this doctrine to inculcate the current generation of leaders in the new concept.

2. Observation 1-2.

a. 1.4 (EEA) How does the headquarters integrate IO into planning an operation?

b. Background. In the actual execution of the experiment the students quickly shifted the emphasis of IO operations to the G7 who played that role as a special staff officer. Early in the experiment the CFLCC staff conducted an information Operations Working Groups (IOWG). Following this first IOWG the following observation was made:

"I just attended an IOWG between CFLCC and Division (beginning at 120900FEB08). The only division players that were present were the G-7 and the IO Planner (should really be called the IE planner by the way). For purposes of the meeting, the G-7 seems to have assumed the role of DIVISION IO COORDINATOR AT LARGE... The point I'm trying to make is that the Division participation at the CJFLCC IOWG at a minimum, should include representatives from all of the staff sections that have a stake in one or more of the 5 functions of IO... That would ensure that the all 5 of the IO tasks are incorporated into planning and operations throughout the staff... With the G-7 being the only one in attendance, I think it is way out of his lane (and beyond the scope of his authority) to represent all of IO at the meeting."

c. Discussion. This observation suggests that a decentralized model for the conduct of information operations may be inefficient. Rather than a single representative from the division staff attending the CJFLCC IOWG an implication of the decentralized model is that representatives for each of the five IO tasks would have to attend the meeting. The division Chief of Staff could obviously appoint someone to represent the staff, but this begs the question of appointing a centralized coordinator on a permanent, rather than ad hoc, basis.

3. Observation 1-3.

a. 1.5 (EEA) How does the headquarters integrate IO into preparing an operation?

b. Background. The Division staff conducted an IOWG that was led by the Chief of Staff. This meeting was considered a huge success by the students and the experiment observers and resulted in this observation:

> "Koom-bah-yah [*sic*] and good will is not an effective means of ensuring issues discussed in a coordinating meeting actually are executed. The fact that the Chief was running the IOWG and that had the power to DIRECT that things actually take place instead of SUGGEST that they take place was why it was so effective. This is important with ideas such as the "distributed IO construct". There needs to be a central person with the authority to ensure that things really get done. Trusting that everybody will come to a consensus and then do it on there own is highly suspect."

c. Discussion. Responsibility has to be supported by a commensurate level of authority. A matrix organization requires clear lines of responsibility and authority - otherwise it is just a committee meeting. Operational lessons learned have also made observations that point to a similar conclusion.[17,18]

4. Observation 1-4.

a. 1.7 (EEA) How does the headquarters integrate IO into the continuous assessment of an operation?

b. Background. The Division IOWG was chaired by the Chief of staff. The emerging IO construct further suggests that the Chief of Staff could serve as the staff agent to synchronize and integrate the IO effort. Following the successful Division IOWG the Division Chief of Staff was asked about that possibility. The reaction to the question was captured in this observation.

> "The division CoS indicated, through discussion with the analysts, after the IOWG, that he goes from one meeting to another so when would he have time to coordinate IO. The division CoS indicated that he is relying on the division G7 to coordinate IO."

c. Discussion. Appendix F of FM 3-13 lists information-operations-related responsibilities of staff sections at Army service component command, corps, division, and brigade levels. The amount of work and level of detail required to coordinate and synchronize the IO effort within the division staff as described in the appendix suggests a requirement for a centralized coordinator, who is not assigned other significant responsibilities, to ensure the work is done to standard. Other observations from this experiment suggest that maintaining focus on IO related tasks within individual staff sections is also difficult. A staff agent with overall responsibility for information operations would also serve to mitigate this challenge.

5. Observation 1-5.

a. 1.4 (EEA) How does the headquarters integrate IO into planning an operation?

[17] Center for Army Lessons Learned Initial Impressions Report Information Operations, May 2005, pg 3.
[18] Center for Army Lessons Learned Initial Impressions Report V Corps as Multi-National Corps – Iraq, June 2007, pg 96.

b. Background. The Division staff was given a planning mission for the transition to stability operations as part of the experiment. Several observations were made regarding the planning process.

> "The MDMP for Phase IV does not address C2W, IP, or OPSEC. There was some discussion yesterday about including some MILDEC activities into the Phase IV plan, but nothing on this document seems to reflect a MILDEC plan yet. The implication that I get from looking at the MDMP document is that for the most part, IO is largely being marginalized by G-5 in their planning process.
> COA Development process: the COA Development process during the MDMP broke the planning staff down into 3 separate elements. Because of limitations on personnel, there was not full representation from all of the [Warfighting Functions] WFFs to fully plan all of the 5 IO tasks. The IO Planner was assigned to one of the COA groups. The G-7 was assigned to another of the groups. Late in the COA Development process, the IO Planner suggested what may have become a developed MILDEC plan, but his idea was "voted down" by the G-5 "too busy developing the maneuver plan, too late to introduce new ideas" and by the Chief of Staff "that's a good idea, we'll take a look at that in a minute" they then went on into wargaming and never came back to the idea."

c. Discussion. When faced with a choice between completing a primary activity or stopping consider an Army IO task the G5 chose to complete the primary task. The officer was not alone in selecting that task priority.

6. Observation 1-6.

a. 1.6 (EEA) How does the headquarters integrate IO into executing an operation?

b. Background. The fires cell observer made the following observation on the second day of the experiment.

> "The Fires Cell at the JFLCC Staff has many tactical responsibilities during the Phase III, Decisive Combat Actions. These responsibilities include actively identifying enemy targets and engaging them with EW, AI, and Indirect Fires from Corps assets which are directly under his control. The FSCOORD must also coordinate with the JTF for additional assets and stay abreast of the tactical situation of subordinate units. The tactical considerations are tremendous to the point where operational considerations are not given sufficient priority. These tactical responsibilities took precedence over everything else during the experiment. This activity consumes the staff to the point where most of the activity includes finding units, targeting, firing, and assessing BDA. During this process, little coordination is done to integrate IO. The Staff works a stove pipe. Activity not related to the targeting process is 'background noise' to paraphrase the staff leader. The operational picture and the overall integration of all IO takes a back seat."

c. Discussion. As in the previous example, a choice between a primary task and an IO task results in a focus on the primary task.

7. Observation 1-7.

a. 1.4 (EEA) How does the headquarters integrate IO into planning an operation?

b. Background. The protection analyst noted the same lack of focus on IO tasks in the protection cell.

> "In a perfect world, the concept of everyone is networked and therefore it doesn't matter where you sit, is a fine concept. Good concept, poor execution...
> The rule of "out of sight, out of mind" raises its head. Away from the IO cell, the OPSEC becomes part of protection and tend to be excluded from the stream of events. If it were still in the IO cell, it would be included in more IO activity by virtue of being in proximity. As an example of the separation problem, the agenda for the 14 Feb IOWG agenda did not mention the OPSEC function."

c. Discussion. Other examples of the focus on primary tasks were observed during the experiment, but these serve to make the point. The Protection Cell analyst also felt the OPSEC function was out of place in the protection cell.

8. Observation 1-8.

a. 1.4 (EEA) How does the headquarters integrate IO into planning an operation?

b. Background. The CJFLCC Protection Cell Analyst discussed how the Protection Cell was employing OPSEC with the OPSEC role player.

> "[The] OPSEC player indicates that the Protection Cell is not fully integrating OPSEC into the protection cell planning process. It may stem from a general lack of understanding about OPSEC in general or how OPSEC supports the overall protection mission. As of this point, the JFLCC J39 has not had much contact with the OPSEC officer in the Protection Cell."

c. Discussion. This comment points to a potential education/training issue with the specific elements of Army IO. A similar observation from the Division IO analyst expands on this theme.

9. Observation 1-9.

a. 1.6 (EEA) How does the headquarters integrate IO into executing an operation?

b. Background. The Division IO analyst reported that the Protection cell was including OPSEC in their activities but noted other problems with the OPSEC functions.

> "[The] Protect Cell at the division is actively pursuing its OPSEC requirements. Collaboration is primarily face to face and in meetings as the Div does not have IWS or

other collaborative tools. There is a misconception within the staff as to who has responsibility for OPSEC. This is due I think partially to the CoS directing the G6 to develop OPSEC issues pertinent to all the Cell Phone and Computer Network issues involving leakage of info to the internet. The Protect Cell steps up and takes it back, but it is still a persistent misconception. Staff, particularly EWO, G6 and Protect are experiencing discovery learning as they realize the linkages between planned EA attacks to interdict cell networks vice the Div, AZ, and NGO use of these networks, vice OPSEC requirements on the type of information flowing over these networks."

c. Discussion. The observation suggests that the rolls and tasks of the OPSEC function require additional education/training.

10. Observation 1-10.

a. 1.5 (EEA) How does the headquarters integrate IO into preparing an operation?

b. Background. A possible gap in IO doctrine was observed in the roles and functions of the sustainment section. The sustainment analyst made the following observation about the CJFLCC Sustainment cell.

"The de-centralized IO model does not identify a specific sustainment representative. Although sustainment is not represented in the decentralized model, IAW FM 3-13, the G-4 still has the responsibility to resource the IO units to accomplish their mission. Also, the G-4 has a responsibility to assess the IO vulnerabilities of the sustainment plan before execution. It appears that FM 3-13 suggests that Sustainment responsibilities are an internal function of the U.S. Army to execute IO and not a function to achieve IO effects. That FM 3-13 identifies the G-4 relationship or coordination relationship towards the J-4 (as the J4 has responsibilities in the Centralized IO model); whether this is to say that there is no relationship. If both IO models, centralized and decentralized will exist doctrinally or operationally, then a link must be established between all warfighting functions of both models in the event that both models operated simultaneously (i.e. J-4 to G-3 or G-2)."

c. Discussion. Use of U.S. sustainment capability to create positive effects in the area of operation is an effective tactic. Any emerging IO doctrine should consider the full capability of the sustainment warfighting function and its application in the conduct of information operations.

11. Observation 1-11.

a. 1.6 (EEA) How does the headquarters integrate IO into executing an operation?

b. Background. The Division IO analyst noted another example of a misunderstanding in staff roles in IO tasks.

"[The] Div G7 is asking Div G6 if there is anything the G6 can do about the AH internet sites broadcasting propaganda. What he is really asking about is CNA and that belongs to the G3/FSE/C2W"

c. Discussion. In the post experiment feedback survey about 25% of the students indicated that additional class work on IO would have been useful as preparation for the experiment.

12. Observation 2-1

a. 2.1 (EEA) What SOPs are used when an Army unit is assigned to perform as a joint headquarters with joint and multinational subordinate units?

b. Background. A very good summation of the interoperability issue in DWE 08 was delivered by the UK Brigade Commander during the experiment outbrief presented on 15 February.

> "The UK Commander indicated that interoperability between the UK "traditional" staff organization and the US functional staff was good and didn't create any interoperability problems. He also noted that the UK didn't have an analog for the Red Team and no staff element responsible for the protection function and that might bear further study."

c. Discussion. This comment seems to suggest that both the traditional staff organization and the U.S functional staff organization are flexible enough to interface with another staff organization that might be represented some member nation of a future multinational force.

13. Observation 2-2

a. 2.1 (EEA) What SOPs are used when an Army unit is assigned to perform as a joint headquarters with joint and multinational subordinate units?

b. Background. Another comment by the UK Brigade Commander captured a developing insight in the data.

> "During the experiment out brief the UK commander mentioned several other issues regarding coalition sustainment: sustainment reporting between the UK and US headquarters, host nation support, resource management issues, etc. and related these things back to SOP issues (along with IO, KM, Red teaming, and protection.) These issues are covered in more detail in other observations later in this section of the report."

c. Discussion.

14. Observation 2-3

a. 2.1.2.1 (Data element) What misunderstandings were noted in COP related information?

b. Background. Another interesting comment on staff procedures was revealed during the experiment and recorded by the 12 UK brigade analyst.

"The 12 UK Brigade used the US 'rolling estimate' practice and template to minimize potential confusion between procedures and formats. This is continuously updated as operations evolve. The estimate was to be left open for updates, and it is up to 'editors' to inform other staff of 'significant' updates to any of the seven questions, e.g. Blue losses, changes to Red capabilities. This was noted as being potentially harder to achieve than a phased estimate system. The following potential problems were discussed:

- could encourage less rigorous staff thinking;
- lack of hard deadlines leads to parts being unfinished;
- temptation to update rather than to decide;
- encourages 'wait and see' rather than making alternative plans for 'branches';
- subordinates may not be given time to do their planning."

Recommendation. An SOP for how the separate brigade should interact with the CJFLCC would have been helpful. The UK should develop an SOP as well for operating in this environment. In the case of the UK, if they intend to leave the commander free to operate independent of C2 systems then they need to increase their manpower within the brigade TOC to provide the discussed level of freedom."

c. Discussion. It is interesting to note that other cultures may not prefer, or initially understand, the concept of a continuously updated Common Operational Picture (COP) or the importance of situational awareness as it is commonly accepted in the U.S. Army.

15. Observation 2-4

a. 2.1.2 (MOM) What gaps or misunderstandings are observed in the reporting of relevant information between the C/JFLCC headquarters and the coalition unit?

b. Background. Cultural differences between the U.K. and U.S. Army reveal themselves in unusual ways.

"There was potential confusion between UK battlegroup names – 1 Blankshires etc. – which is a cultural UK-US issue. If we [the UK Brigade] re-named our units in-theatre to be consistent with the US naming conventions, this could cause confusion elsewhere, e.g. to PJHQ, with reach-back to MoD.
No SOPs were made available for examination by analysts to determine what, if any changes should be made to how the UK operates vs the US CJFLCC. Processes and procedures developed over the course of the event in a more adhoc way rather than in a deliberate documented fashion.

Recommendation: In the real world, sharing of SOPs and doctrinal terms and concepts would probably occur long before an actual event. For exercise purposes, terminology would best be cross leveled prior to the beginning of the event."

c. Discussion. The nature of future conflicts and the quickly evolving partnerships and multinational actions in a trouble spot somewhere in the world presents the possibility that the

"sharing of SOPs and doctrinal terms and concepts" may not occur at a time that is convenient to the multinational force.

16. Observation 2-5

a. 2.2 (EEA) What information management systems enhance collaboration in a multinational force?

b. Background. The U.K. Brigade was supported by U.S. automation system for the conduct of the DWE exercise. The U.K. BDE staff noted that new equipment can also introduce new problem.

"Information Management.
Discussion: CPoF is designed to function by information 'pull', where staff who need information can access centralized servers, as opposed to the knowledge generators 'pushing' information round, for example by e-mail. To operate information pull requires that a knowledge structure is established, and discipline is maintained. This knowledge structure must allow US users to access UK information, and vice versa. In the US, this discipline is maintained by dedicated 'knowledge managers'. Since there is no equivalent in the UK, the CoS nominated S6 (comms) to assume this responsibility... The need for information management discipline recurred through the exercise.
Recommendation: IM processes and procedures should be established early on in the event. Although IM SOPs were not provided, the UK needs to be given realistic requirements for personnel and be encouraged to fill those requirements as soon as possible. This requires prior analysis based on the scenario and the MSEL in order to better describe the required players and expertise required."

c. Discussion. The need for SOPs to allow mission partners to quickly and easily make use of the information management system was noted by all of the participants in the experiment. Multi-national partners may not be allowed to use U.S. networks and network resources. However, this observation, made by a U.K. officer, applies to U.S. units that would be working for the corps and any multi-national or JIIM elements that are given access to U.S. Army information systems.

17. Observation 2-6.

a. 2.1 (EEA) What SOPs are used when an Army unit is assigned to perform as a joint headquarters with joint and multinational subordinate units?

b. Background. The U.K. Brigade was not the only element in the experiment to have trouble with information management procedures.

(1) "Although CPOF is fairly intuitive, the KM answered numerous staff questions during the experiment. Is this his role/responsibility? The KM stated that a simple "How To" Handbook would be useful for all staff members if CPOF is the Army's future decision-making tool. The KM roleplayer also recommended that whatever decision-

making tool (e.g., CPOF) the Army uses in the field should be used in garrison also to ensure familiarity and reduce the learning curve when deployed."

(2) "The Division and CJFLCC have a massive amount of technological assets available to them to disseminate information, produce and share products, and gain and maintain a "Common Operational Picture". Amazingly enough, the fact that there are so many different and redundant ways to share information between each other seems to be actually be a hindrance rather than a help. Observations that support this include:

- Only 1 out of 11 accounts had actually been used (the IE Planner). All of the accounts had multiple unread messages from various CJFLCC sections.
- I overheard someone from the CSB complain that figuring out where a particular FRAGO was located was 'an Easter egg hunt'.
- A planner in the G-5 was listening to the Joint Planning Conference where they referenced a CJFLCC FRAGO 8. His question was "which FRAGO 8? the one here....or the completely different one here...or the one over here", so apparently there were multiple editions of the same document posted in multiple locations between CPOF and TACWEB.
- SIGACTS were brought up today at the Division IOWG at 121100FEB08 that occurred yesterday (as MSEL injects) the day prior. There were multiple members of the Division staff that were hearing some of the issues for the first time."

c. Discussion. The concept of modularity places a premium on the ability of units to deploy to an area of operation and rapidly integrate into the military operation. Understanding the information management procedures used in the area of operations will be a skill the modular headquarters has on arrival in the theater of operation.

adjustment decision during preparation and execution, the selection of a course of action that modifies the order to respond to unanticipated opportunities or threats.

art of command the conscious and skillful exercise of the authority to fulfill command responsibilities through visualizing, deciding, directing, and leading. Art, as opposed to science, requires expert performance of a specific skill using intuitive faculties that cannot be solely learned by study or education.

assessment (Army) continuous monitoring—throughout planning, preparation, and execution—of the current situation and progress of an operation, and the evaluation of it against criteria of success to make decisions and adjustments. (FM 3-0)

branch 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 current operation, based on anticipated events, opportunities, or disruptions caused by enemy actions. Army forces prepare branches to exploit success and opportunities, or to counter disruptions caused by enemy actions. (FM 3-0)

C2 command and control.

Capability The ability to achieve a desired effect under specified standards and conditions through a combination of ways and means to perform a set of tasks. (CJCSI 3170.1E)

CCIR commander's critical information requirements.

civil considerations the influence of manmade infrastructure, civilian institutions, and attitudes and activities of the civilian leaders, populations, and organizations within an area of operations on the conduct of military operations.

CMO civil-military operations.

combat information (joint) unevaluated data, gathered by or provided directly to the tactical commander which, due to its highly perishable nature or the criticality of the situation, cannot be processed into tactical intelligence in time to satisfy the user's tactical intelligence requirements. (JP 1-02)

command (joint) the authority that a commander in the armed forces lawfully exercises over subordinates by virtue of rank or assignment. Command includes the authority and responsibility for effectively using available resources and for planning the employment of, organizing, directing, coordinating, and controlling military forces for the accomplishment of assigned missions. It also includes responsibility for health, welfare, morale, and discipline of assigned personnel. (JP 0-2)

command and control (Army) the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of a mission. Commanders perform command and control functions through a command and control system.

commander's critical information requirements (Army) elements of information required by commanders that directly affect decisionmaking and dictate the successful execution of military operations. (FM 3-0)

commander's intent a clear, concise statement of what the force must do and the conditions the force must meet to succeed with respect to the enemy, terrain, and the desired end state. (FM 3-0)

commander's visualization the mental process of achieving a clear understanding of the force's current state with relation to the enemy and environment (situational understanding), and developing a desired end state that represents mission accomplishment and the key tasks that move the force from its current state to the end state (commander's intent).

command post (Army) a unit headquarters where the commander and staff perform their activities.

common operational picture (Army) an operational picture tailored to the user's requirements, based on common data and information shared by more than one command. (FM 3-0)

conduct to perform the activities of the operations process: planning, preparing, executing, and continuously assessing. (FM 6-0)

control In the context of command and control, the regulation of forces and warfighting functions to accomplish the mission in accordance with the commander's intent. (FM 3-0).

coordination (Army-Marine Corps) the action necessary to ensure adequately integrated relationships between separate organizations located in the same area. Coordination may include such matters as fire support, emergency defense measures, area intelligence, and other situations in which coordination is considered necessary.

COP common operational picture.

COP related information relevant information used to create the Common Operational Picture (COP).

data (Army) the lowest level of information on the cognitive hierarchy. Data consist of unprocessed signals communicated between any nodes in an information system, or sensings from the environment detected by a collector of any kind (human, mechanical, or electronic).

decisionmaking selecting a course of action as the one most favorable to accomplish the mission.

describe to relate operations to time and space in terms of accomplishing the purpose of the overall operation.

direct to communicate execution information.

disseminate an information management activity: to communicate relevant information of any kind from one person or place to another in a usable form by any means to improve understanding or to initiate or govern action.

EEFI essential elements of friendly information.

essential elements of friendly information (Army) the critical aspects of a friendly operation that, if known by the enemy, would subsequently compromise, lead to failure, or limit success of the operation and therefore must be protected from enemy detection. (FM 3-13)

estimate (Army) an analysis of a situation, development, or trend that identifies its major factors from the perspective of the decisionmaker for whom prepared, interprets their significance, assesses the future possibilities and prospective results of possible COAs, and recommends a COA. (This definition is being staffed with draft FM 5-0. If approved, it will become an Army definition.) *See also* running estimate.

evaluate an element of assessment: to compare relevant information on the situation or operation against criteria of success to determine success or progress.

EW electronic warfare.

execute to put a plan into action by applying combat power to accomplish the mission and using situational understanding to assess progress and make execution and adjustment decisions.

execution decision the selection, during preparation and execution, of a course of action anticipated by the order.

execution information information that communicates a decision and directs, initiates, or governs action, conduct, or procedure.

exceptional information information that would have answered one of the CCIR if the requirement for it had been forseen and stated as one of the commander's critical information requirements.

FFIR friendly forces information requirements.

FRAGO fragmentary order.

friendly forces information requirements information the commander and staff need about the forces available for the operation.

Full Spectrum Operations Army forces combine offensive, defensive, and stability or civil support operations simultaneously as part of an interdependent joint force to seize, retain, and exploit the initiative to achieve decisive results. They employ synchronized action—lethal and nonlethal—proportional to the mission and informed by a thorough understanding of all

dimensions of the operational environment. Mission command that conveys intent and an appreciation of all aspects of the situation guides the adaptive use of Army forces.

Global Information Grid (joint) The globally interconnected, end-to-end set of information capabilities, associated processes and personnel for collecting, processing, storing, disseminating and managing information on demand to warfighters, policymakers, and support personnel. The Global Information Grid (GIG) includes all owned and leased communications and computing systems and services, software (including applications), data, security services and other associated services necessary to achieve information superiority. It also includes National Security Systems as defined in section 5142 of the Clinger-Cohen Act of 1996. The GIG supports all Department of Defense (DOD), National Security, and related intelligence community missions and functions (strategic, operational, tactical, and business), in war and in peace. The GIG provides capabilities from all operating locations (bases, posts, camps, stations, facilities, mobile platforms and deployed sites). The GIG provides interfaces to coalition, allied, and non-DOD users and systems. (JP 1-02)

information (Army) (1) in the general sense, the meaning humans assign to data. (2) in the context of the cognitive hierarchy, data that have been processed to provide further meaning.

information requirements (Army) all information elements the commander and staff require to successfully conduct operations; that is, all elements necessary to address the factors of METT-TC.

IO information operations.

IPB intelligence preparation of the battlefield.

IR information requirement.

ISR intelligence, surveillance, and reconnaissance.

JFLCC joint force land component commander.

JFACC joint force air component commander.

knowledge in the context of the cognitive hierarchy, information analyzed to provide meaning and value or evaluated as to implications for the operation.

leadership influencing people—by providing purpose, direction, and motivation—while operating to accomplish the mission and improving the organization. (FM 22-100)

liaison (joint) that contact or intercommunication maintained between elements of military forces or other agencies to ensure mutual understanding and unity of purpose and action. (JP 3-08)

mission (joint) the task, together with the purpose, that clearly indicates the action to be taken and the reason therefore. (JP 1-02)

mission command the conduct of military operations through decentralized execution based upon mission orders for effective mission accomplishment. Successful mission command results from subordinate leaders at all echelons exercising disciplined initiative within the commander's intent to accomplish missions. It requires an environment of trust and mutual understanding.

monitoring (Army) an element of assessment: continuous observation of the common operational picture to identify indicators of opportunities for success, threats to the force, and gaps in information.

NGO nongovernmental organization.

OPCON operational control.

operations process the activities performed during operations: plan, prepare, and execute with continuous assessment.

OPSEC operations security.

order (joint, NATO) a communication, written, oral, or by signal, which conveys instructions from a superior to a subordinate. In a broad sense, the terms "order" and "command" are synonymous. However, an order implies discretion as to the details of execution whereas a command does not. (JP 1-02)

PAO public affairs officer.

PIR priority intelligence requirement.

plan a design for a future or anticipated operation. (FM 5-0)

planning the means by which the commander envisions a desired outcome, lays out effective ways of achieving it, and communicates to his subordinates his vision, intent, and decisions, focusing on the results he expects to achieve. (FM 3-0)

preparation activities by the unit before execution to improve its ability to conduct the operation including, but not limited to, the following: plan refinement, rehearsals, reconnaissance, coordination, inspections, and movement. (FM 3-0)

priority intelligence requirements (joint) those intelligence requirements for which a commander has an anticipated and stated priority in the task of planning and decisionmaking. (JP 1-02)

procedures standard and detailed courses of action that describe how to perform a task. (FM 3-90)

process an information management activity: to raise the meaning of information from data to knowledge.

PSYOP psychological operations.

RI relevant information

relevant information all information of importance to the commander and staff in the exercise of command and control. (FM 3-0)

running estimate a staff estimate, continuously updated based on new information, as the operation proceeds.

sequel an operation that follows the current operation. It is a future operation that anticipates the possible outcomes—success, failure, or stalemate of the current operation. (FM 3-0)

situational awareness knowledge of the immediate present environment. (This is an interim definition. When revised, FM 3-0 will establish the Army definition.) (FM 5-0.1)

situational understanding (Army) the product of applying analysis and judgment to the common operational picture to determine the relationships among the factors of METT-TC. (FM 3-0)

SJA staff judge advocate.

SOP standing operating procedures.

standing operating procedure (joint, NATO) a set of instructions covering those features of operations which lend themselves to a definite or standardized procedure without loss of effectiveness. The procedure is applicable unless ordered otherwise. (JP 1-02)

store an information management activity: to retain relevant information in any form, usually for orderly, timely retrieval and documentation, until it is needed for exercising command and control.

structure an element of control: a defined organization that establishes relationships among its elements or a procedure that establishes relationships among its activities.

TACON tactical control.

task organizing the process of allocating available assets to subordinate commanders and establishing their command and support relationships. (FM 3-0)

techniques the general and detailed methods used by troops and commanders to perform assigned missions and functions, specifically, the methods of using equipment and personnel. (FM 3-90)

understanding in the context of the cognitive hierarchy, knowledge that has been synthesized and had judgment applied to it in a specific situation to comprehend the situation's inner relationships.

variances differences between the actual situation during an operation and what the plan forecasted the situation would be at that time or event.

visualize to create and think in mental image