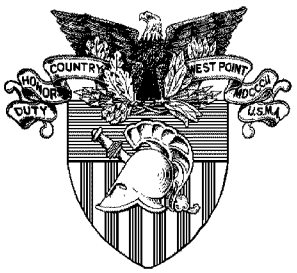

United States Military Academy
West Point, New York 10996

OPERATION STAVANGER: Standing Up a Deployable Joint Headquarters for the NATO Response Force

OPERATIONS RESEARCH CENTER OF EXCELLENCE
TECHNICAL REPORT DSE-TR-04-30
DTIC #: ADA424168

Senior Investigator
Colonel Mike McGinnis, Ph.D.
Professor and Head, Department of Systems Engineering

In Collaboration with
US Major General Rick Lynch
Joint Force Command Naples, Naples, Italy

Prepared For
US Admiral Gregory G. Johnson
Command in Chief
Joint Force Command Naples, Naples, Italy
and
UK Admiral Sir Ian Forbes
Deputy Supreme Allied Commander Transformation
Allied Command Transformation, Norfolk, Virigina

Final Report, June 2004

The Operations Research Center of Excellence is supported by the Assistant secretary of the Army (Financial Management & Comptroller)

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Abstract

In October, 2003, the North Atlantic Council stood up the NATO Response Force. When fully operational in the fall of 2006, the force will consist of 22,000 to 24,000 personnel from all services deployable within five days of alert and able to conduct "stand-alone" operations for 30 days. A deployable joint task force (DJTF) headquarters of approximately 90 personnel, commanded by a one or two star, will exercise operational-level command and control, and plan, coordinate and conduct effects-based operations. Lessons learned from training and experimentation with the new force from 2003 through certification in 2006 will serve as a catalyst for transforming NATO's Cold War-focused forces into a new force for accomplishing new missions ranging from humanitarian relief to forced entry into a hostile environment. This report discusses challenges encountered while simultaneously working through two systems and organizational engineering and design problems to stand up the DJTF headquarters: (1) transforming a traditional J-staff headquarters into a deployable joint headquarters capable of planning and assessing effects-based operations, and (2) putting effects-based operations concepts and theory into practice. The report begins with an overview of the new NATO Response Force concept, capabilities and missions, and NRF command and control (C2) relationships. Next, the report discusses the application of effects-based operations theory to the new headquarters during a deployment exercise to Stavanger, Norway. Observations and lessons learned from initial steps taken to stand up NATO's first deployable, operational-level, joint task force headquarters at Joint Forces Command Naples are provided. We conclude with the way ahead.

About the Authors

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Major General Rick Lynch, rlynch@afsouth.nato.int, is currently assigned as Assistant Chief of Staff for Operations, Joint Force Command Naples. A 1977 West Point graduate, General Lynch earned a masters degree in Engineering Robotics from the Massachusetts Institute of Technology (MIT). Past assignments include Assistant Chief of Staff, Operations, KFOR (Main), Assistant Division Commander (Support) 4th Infantry Division, Brigade Commander 1st Brigade, 4th Infantry Division, Battalion Commander 1/8 Cavalry Regiment, 1st Cavalry Division, US Joint Staff, US Army War College and the Army Chief of Staff Training and Leader Development Panel.

Acknowledgements

Credit for insights and lessons learned go to members of the deployable JTF Headquarters. Their professionalism and patience, as we collectively worked through the uncertain process of standing-up NATO's first deployable joint task force headquarters, made *Operation Stavanger* a most rewarding experience. Special thanks to the DJTF headquarters principle staff – Bill Chambers (UK), Pat Donohue (US), Maurizo Di Giorgi (IT), David James (UK), Rick Shrank (US), Les Sim (UK) and Tony Sparango (US); senior mentor USMC General (Ret.) 'Butch' Neal, MPRI, for his keen observations, feedback and well-timed sense of humor; and Dr. Gregory Parnell, Department of Systems Engineering, West Point, New York, Mr. Britt Bray, Dynamics Research Corporation, Leavenworth, Kansas and US Army Major Donovan Phillips, US Army TRADOC Analysis Command–Monterey, Monterey, California for their thoughts and comments.

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Chapter 1: Introduction

At the North Atlantic Treaty Organization (NATO) Summit held at Prague in November 2002, the central topic was how to deal with threats from international terrorism, hostile regimes and rogue states. Recognizing the need for a military force capable of quickly responding to crises outside NATO's traditional area of operations, the 19 member nations voted unanimously to create a standing, deployable joint task force.

In October, 2003, the North Atlantic Council stood up the NATO Response Force[1] (NRF) that will consist of 22,000 to 24,000 soldiers, sailors, airmen and special operations personnel when fully operational in the fall of 2006. The NRF will provide NATO with a credible joint task force capable of deploying within five days of a North Atlantic Council decision to commit forces and conduct "stand-alone" operations for 30 days. NRF training and experimentation from 2003 through certification in 2006 will serve as a catalyst for transforming NATO's Cold War-focused forces into an agile force capable of accomplishing new missions ranging from humanitarian relief to forced entry into a hostile environment.

- Opposed entry into a hostile environment as either a stand-alone force or in support of follow-on forces.
- Consequence management (CBRN, humanitarian relief).
- Non-combatant evacuation operations.
- Crisis response operations such as peacekeeping and peace enforcement.
- Embargo operations (maritime, land, no-fly zone).
- Demonstrative show of force.
- Counter Terrorism (CT).

NATO Response Force Missions

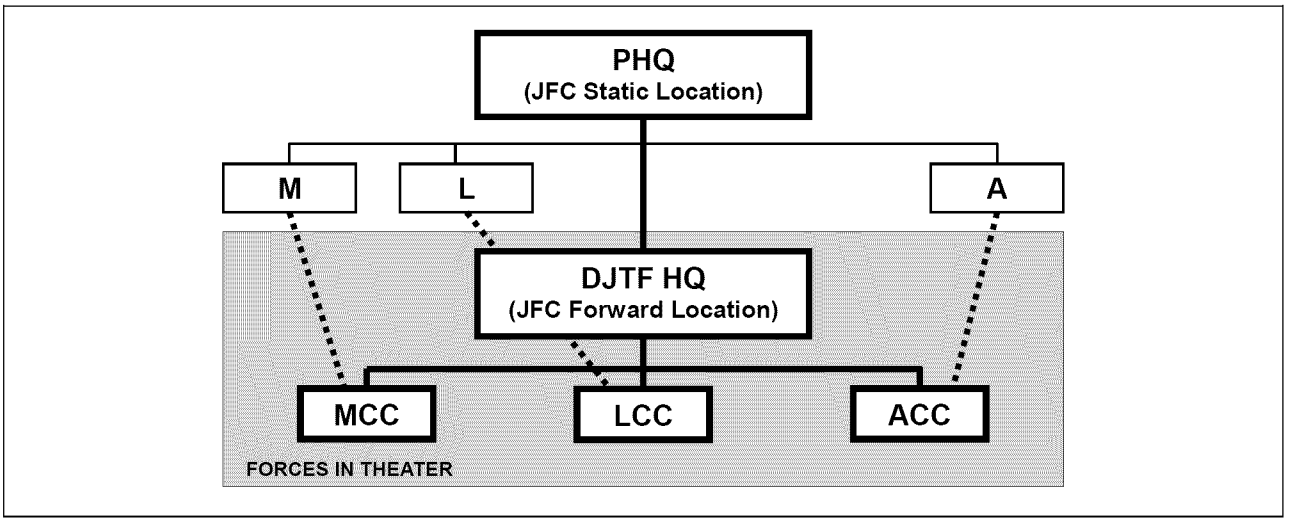
This report focuses on two major engineering and design problems, worked simultaneously, while standing up the DJTF headquarters. Namely, (1) transforming a traditional J-staff headquarters into a deployable joint headquarters capable of planning and assessing a relatively new application concept for conducting military operations called *effects based operations* (EBO); and (2) bridging the gap between concepts and practice in operationalizing EBO theory. We began with a discussion of the new NATO Response Force concept, capabilities and missions. Section 2 overviews NRF command and control (C2) relationships. Section 3 presents a three-phase approach to applying the theory of effects-based operations to a forward-deployed joint headquarters. Section 4 discusses efforts to stand up NATO's first deployable, operational-level joint task force headquarters during Operation Stavanger and to transform the headquarters from a traditional stove-piped staff into a robust, matrix team. The final section summarizes lessons learned from progress thus far and outlines the way ahead to operationalize the headquarters.

Chapter 2: NATO Response Force Command and Control

Command and control of the NRF will be accomplished through a small deployable joint task force (DJTF) headquarters, commanded by a one or two star (see NATO MC477, 2003) and be capable of planning and coordinating a relatively new application concept for conducting

[1] The Military Council's military decision and implementation guidance for standing up the NRF is published in "MC477, Military Concept for the NATO Response Force" dated 10 April 2003.

military operations called effects based operations (see UK, 2003). Command will rotate every year among three static parent headquarters (PHQ): Joint Force Command (JFC) Brunson in Brussels, Netherlands, JFC Naples, Naples, Italy, and a new three-star Joint Force Headquarters (JFH) near Lisbon Portugal.



Generic NATO Response Force Command and Control

The DJTF headquarters will serve as the Joint Force Commander's forward command post. As mandated by the NATO Military Council in MC477, the DJTF headquarters must meet the same deployment and sustainment standards as the NRF military forces, and must "cover" the core staff functions (J1-J9) of the parent headquarters. The generic NRF command structure, diagramed above, illustrates how the PHQ is supported by three, three-star advisory staffs representing each branch of service: Air (A), land (L) and maritime (M). The military forces for the NRF are generated from the two-star air component command (ACC), land component command (LCC) and maritime component command (MCC). The dashed lines depict the liaison relationships between the three-star advisory staffs and two-star component commands (see also NATO C2, 1998).

Chapter 3: Effects Based Operations

After 15 years of dynamic changes to the world's geographical-political-military landscape, a new set of threats to regional peace and stability has emerged in the form of asymmetric drug cartels, crime syndicates, and terrorist groups that are often either harbored or sponsored by rogue states. Operating outside societal norms, asymmetric threats attempt to destabilize, undermine or compromise legitimate governments through the use of terror, violence, brutality and intimidation. In operating against these elements, military forces have relearned the lesson that an elusive, less sophisticated adversary can function effectively, even when out numbered and over-matched, by circumventing and neutralizing the size and technological advantages of modern forces.

The challenges of unconventional asymmetric warfare have caused the military community to rethink the use of military force. This, in turn, has led to transformation of the military itself.

In adapting to asymmetric warfare, NATO has begun to pursue new methods of planning, coordinating, executing and assessing the success of military operations that go well beyond what was previously achievable by military means alone. One such approach to operations that takes a holistic *system-of-systems* view of the battlespace is effects-based operations.

Effects-based operations are not a new theory of warfare; its principles have been practiced for centuries. In the era of modern warfare, however, EBO represents a new application concept that pursues a higher order of effects beyond the physical effects achieved from applying military means to military targets and objectives.

3.1 Background and Related Research

A review of the literature yielded a substantial body of research on the theory of effects-based operations.[2] Numerous books, papers, and annotated briefings discuss EBO concepts and potential benefits. The literature review also produced papers on related topics such as network-centric warfare and operational net assessment.[3] While helpful to understanding the *what* and *why* of effects-based operations, the mostly conceptual writings did not provide much in the way of lessons learned or insights into attacking the two problems explored in this report: Standing up a deployable joint, operational-level headquarters capable of effects-based operations; and putting EBO theory into practice.

Several military commands have begun to experiment with new headquarters organizations and new concepts for conducting military operations such as, EBO, rapid decisive operations, and ways to establish information and decision superiority. However, with the exception of effects-based joint targeting by the US Air Force, no papers were found on practical aspects of *how* to apply EBO or *how* to reorganize a military headquarters for effects-based planning (EBP) at the operational level.[4] Insights into applying EBO within the DJTF headquarters primarily came from four sources:

- Discussions with military strategists, analysts, and personnel who were either researching effects-based operations or have recent experience in warfighting headquarters at the joint, operational level.[5]
- Lessons learned from recent warfighting experiments such as the US Millennium Challenge 2002 and NATO Multi-National Exercise (MNE) 2004.
- Past personal experience with headquarters design.[6]
- General Lynch's recent experiences operating against asymmetric threats in his current position as Assistant Chief of Staff for Operations at JFC Naples and, previously, as the Assistant Chief of Staff, KFOR Main, Film City, Kosovo.

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[2] See, for example, Batschelet (2002), Davis (2001), Deptula (2001), Kwinn (2004), UK Joint Doctrine Center (2003), USJFCOM (Seeley, 2004).

[3] See, for example, Booze Allen Hamilton (1999), Sheehan (2004), Smith (2002), USJFCOM (Adamson, 2004), USJFCOM (Johnson, 2004), USJFCOM (McGonable, 2004), Yufik (2003).

[4] Military headquarters known to be experimenting with EBO include (but are not limited to): USCENTCOM, NATO JFC Naples, NATO JFC Bronson, CJTF-180 and CJTF-7.

[5] See Appendix B.

[6] See Ezell et.al. (2000), Lynch (2001), McGinnis et.al. (1995 and 2001), Phelan & McGinnis (1996).

Past professional experiences, and fundamental principles of effects-based operations distilled from background research, guided the process of standing up the DJTF headquarters and influenced nearly all aspects headquarters design. Previous analysis and design of military headquarters was especially helpful with process flow (information, work and products, and decision-making), organizing the headquarters, and manning the staff (e.g., identifying requisite skills and experience). Next, we present a three-phase methodology for applying effects-based operations within a deployable, joint, operational-level headquarters.

3.2 Three-Phase Methodology for Applying Effects Based Operations

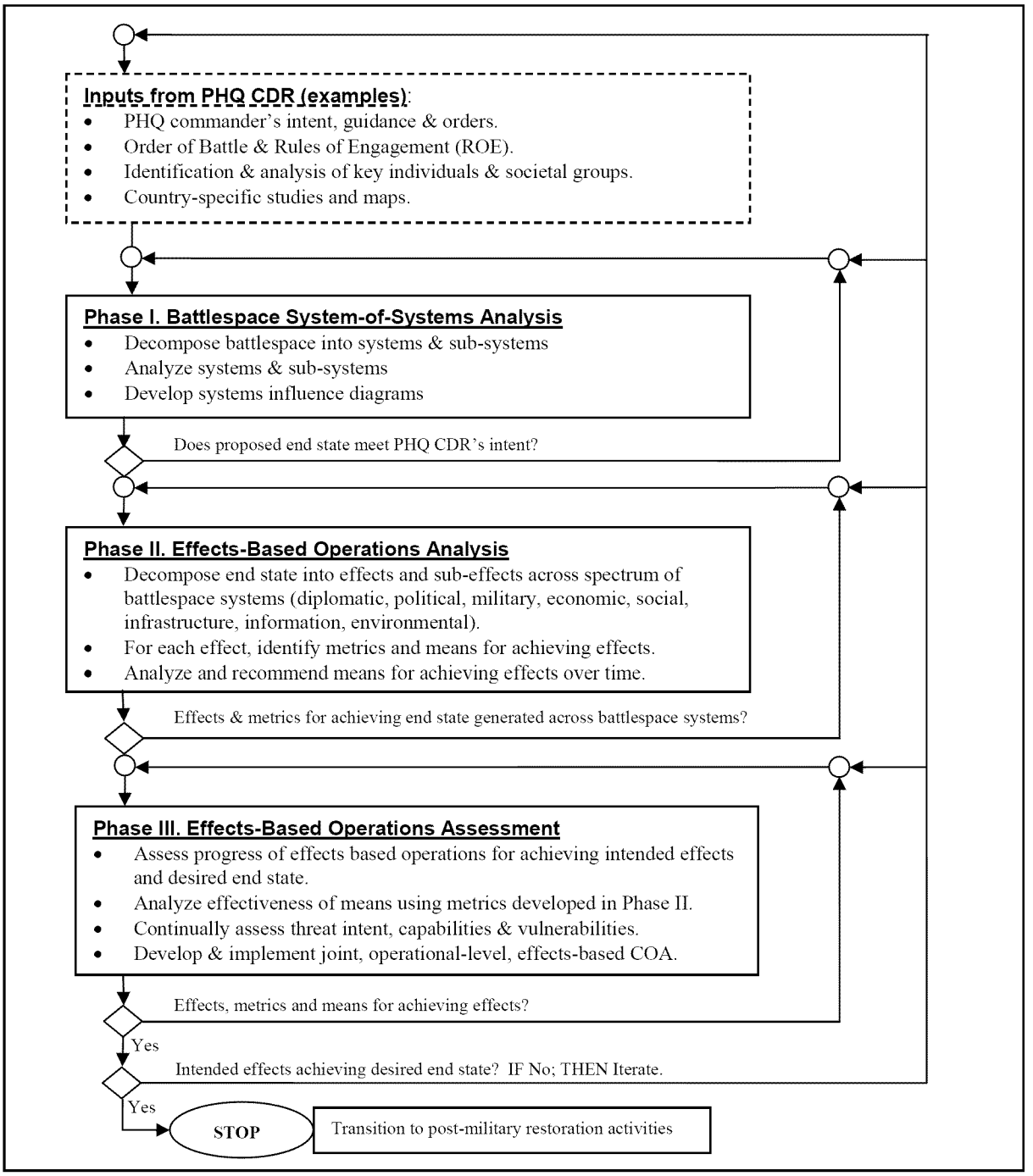
The driving concept of effects-based operations is to control, or influence, the *state* of the battlespace by actions that control (or influence) the behaviors of systems, key individuals and societal groups that (1) exist, live and function inside the battlespace; or (2) can decisively affect the state of the battlespace while operating outside it. Once a crisis occurs, the subtle, often misunderstood interactions between society, key persons and systems complicate our understanding of the battlespace, and make it difficult to correctly anticipate the effects and outcomes of actions as courses of action play out over time. The same is true of the complex relationships between *decisions*, *actions*, *means*, *effects*, and *outcomes* that form the taxonomy of EBO which are applied by military headquarters in pursuit of a desired *end state*. Of these six elements, only decisions and means are controllable. Decisions lead to military and non-military actions. Decision analysis leads to selecting military and non-military means for taking action. Actions can have intended and unintended physical and psychological effects on society and battlespace systems. Outcomes from actions can be either desirable or undesirable, but in either case they must be observed and understood to form outcome-based assessments for determining whether or not actions are progressing toward the desired end state.

Actions, no matter who initiates them, are intended to either maintain the current *state* of a nation or its social systems, or to change the current state to a different state. Desirable states typically reflect conditions that are important to a nation or society, such as safety, stability and security. Undesirable states generally result from either (1) extreme neglect by leaders who fail over time to properly govern or to serve as good stewards of a nation's resources; or (2) deliberate actions taken against a nation by another nation, rogue state, or criminal and terrorist groups to destabilize a nation or society through acts leading to anarchy and chaos.

Efforts by military organizations to reestablish a desirable end state require a deep understanding of how to exploit and leverage diplomatic, political, information, military and economic means to achieve intended physical and psychological outcomes for controlling, or decisively influencing, battlespace systems and individual and group behaviors. To this end, effects-based operations offer military planners a way to anticipate, trace and exploit both physical and psychological effects of military and non-military actions on all systems that make up the battlespace.

The three-phase methodology presented here to apply EBO is illustrated in the high-level diagram shown below. Phase I defines the battlespace and decomposes it into a system-of-systems. This significantly broadens the scope of how military planners see and understand the battlespace. Phase II lays out how to plan and apply effects-based operations across the full spectrum of all battlespace systems using military and non-military means to achieve higher order effects that go beyond what is achievable using military means alone. Phase III deals with

the effects-based assessment of actions to ensure operations progress towards the desired end state.



High Level View of Applying the Three-Phase Methodology for Effects-Based Operations

As depicted above, the three phases are directed toward understanding, analyzing, and controlling battlespace systems and key individuals and societal groups. The end result is to either restore the state of the system or to dictate the tempo of operations thereby denying threat forces the means, will, and opportunity to carry out actions in a coordinated, effective way.

3.2.1. Phase I: Analyze Battlespace as a System-of-Systems

What makes EBO well suited for working through complex problems is its holistic, conceptual framework of the battlespace. EBO provides military planners with a way to portray, see, analyze and understand the battlespace as a system-of-systems. [7] Battlespace systems encompass physical structures, societal infrastructures and intangible processes. The literature references a system-of-systems representation of the battlespace that consists of six major areas often referred to as PMESII:[8] Political, military, economic, social, infrastructure and information. This list of six systems was expanded during Operation Stavanger to eight that were incorporated into planning effects-based operations for the DJTF headquarters. The eight battlespace systems, shown in the table below, are: *diplomatic*, *political*, *military economic*, *social*, *infrastructure*, *information* and *environmental*.

Building upon previous work in this area by the US Joint Forces Command and others, the eight top-level systems were further decomposed into sub-systems one level down. As put into practice during Operation Stavanger, system decomposition continued to the lowest practicable level where it is possible to take action to achieve effects leading to a desired operational or campaign end state.

Diplomatic	**Political**	**Economic**	**Information**	**Military**	**Social**	**Infrastructure**	**Environment**
Heads of State	Government	Banks	Government	Leadership	Ethnic/ Cultural Groups	Transportation	Air
Ambassadorial	Executive	International Trade	Mass Media	Strategic Forces	Religious Organizations	Industry	Water
Ministerial	Political Parties	State and Private Companies	Public Tele-communications	Land Forces	Health Systems	Public Facilities	Sound
United Nations	Special Interest Groups	Informal Trade	Military Communication Systems	Air Forces	Education Systems	Utilities	Organic Resources
Red Cross	Legislative		Internet	Maritime Forces	Police & Fire	Manufacturing	Inorganic Resources
Foreign Aid	Judicial			Para-military		Medical	
						Government	

Decomposition of the Battlespace into a System-of-Systems

The battlespace was further broken into two distinct domains: a *sphere of control* essentially aligned with the physical boundaries of the joint area of operations, and a *sphere of influence*. Together, these two domains form a complete covering of the area of operations, and extend beyond to all areas of interest. Partitioning the battlespace lends itself to analyzing the feasibility and acceptability of military and non-military actions. In addition, key battlespace factors affecting analysis of effects-based operations were categorized as (1) internal or external to the sphere of control; and (2) controllable or uncontrollable. Factors so categorized included crisis events, battlespace systems and sub-systems, decision makers, stakeholders, and other key persons, societal groups, and military and non-military means for taking actions to control or influence the battlespace systems.

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[7] The battlespace systems diagram presented here expands on one obtained from USJFCOM, Norfolk, VA. Mr. Cecil Johnson and Mr. Dave Adamson, USJFCOM, provided invaluable insights into *system-of-systems analysis* (SOSA) that are reflected in this section.

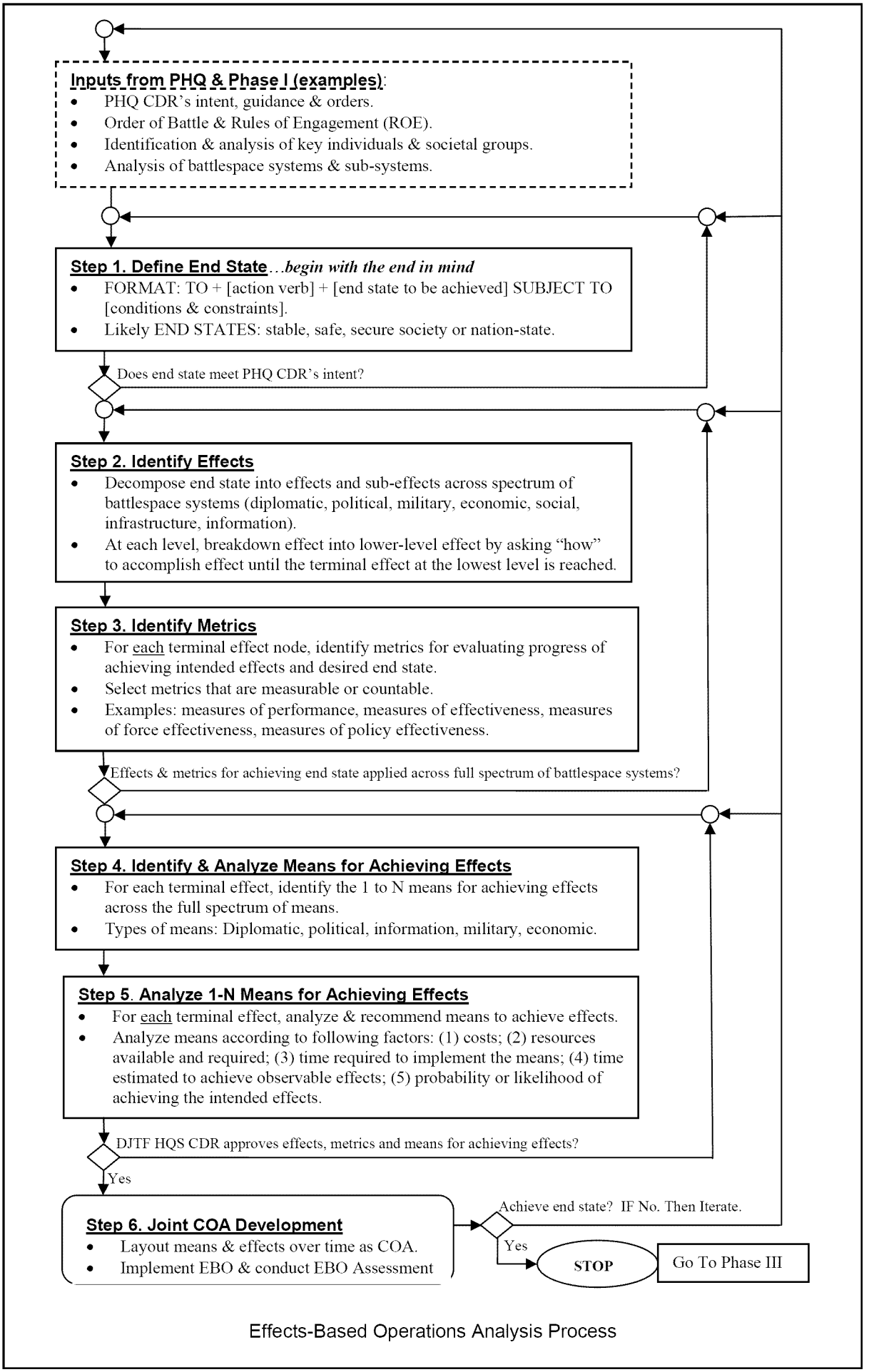
[8] Ibid.

3.2.2. Phase II: Effects-Based Operations Analysis

As shown in the figure below, implementation of the analysis of effects-based operations is accomplished iteratively and sequentially in six steps. Ideally, effects-based operations begin with the end in mind. Preferably either political leaders, or military commanders at the highest levels, provide the joint force commander with a clearly defined desired *end state*. In applying EBO to the vignettes, we categorized the end state in terms of safety, security and stability. A multi-disciplinary team of subject matter experts engage in *anticipatory planning* to decompose the end state into achievable and acceptable effects and sub-effects. The headquarters then analyzes the battlespace in terms of the desired end state, intended and unintended effects, actions to take, and the intentions, capabilities and vulnerabilities of symmetric and asymmetric forces.

At the joint and operational-level, command decisions and orders specify effects to be achieved and what actions to take subject to the availability of resources, conditions and constraints imposed by the parent headquarters, and a schedule of decisive points and campaign objectives laid out over time to achieve intended effects leading to the campaign end state. Means available to the forward deployed headquarters, including *diplomatic*, *political*, *information*, *military* and *economic*, may be internal or external, controllable or uncontrollable. As the staff methodically works through battlespace systems to determine the appropriate effects, metrics and means that will achieve the desired end state, war-gaming and analysis of actions helps to identify risks and consequences of actions. Effects analysis ultimately identifies the 'best' *means*, military and non-military, for achieving future desired effects from a list of feasible, available and acceptable candidates.

For each effect, *metrics* are identified for measuring the effects of actions taken to achieve the end state. Metrics are essential to evaluating the progress of operations, ultimately leading to 'success.'



Effects-Based Operations Analysis Process

Metrics also help calibrate a common, shared understanding of how to assess the effects of actions achieved through military and non-military means. Qualitative metrics may be appropriate, however, quantitative measures work best for benchmarking and assessing progress.

Criteria for evaluating military and non-military means include the quantity of means (resources) required to achieve effects, the cost of using the means (resources), time required to implement the means, the estimated time to achieve observable effects, the probability or likelihood of achieving the intended effects, the risk of achieving unintended effects and the consequences of doing so, along with the judgment of the decision-maker(s). For example, collateral damage may be an important consideration.

The application of means may be either phased over time or be triggered by events. In either case, joint, operational-level *course of action development* lays out the sequence of actions to take by phase of the operation or campaign. *Course of action analysis* war games the sequenced application of military and non-military means, and assesses risks associated with each course of action for achieving the desired end state using criteria similar to ones given above for evaluating means to achieve effects.

3.2.3. Phase III: Effects-Based Operations Assessment

As the operation unfolds, *effects assessment* evaluates the progress and success of the operation using metrics developed previously for estimating the likelihood of achieving desired effects. Effects assessment also identifies and analyzes unintended effects resulting from the application of means.

Chapter 4: Operation Stavanger: Peration Stavanger: Standing Up a Deployable Joint Task Force Headquarters

Prior to the deployment, General Lynch and his staff conducted several weeks of academic work at home station to draft a working document of staff responsibilities and standing operating procedures. Preliminary training culminated with plans for a week of team building and vignette-driven, effects-based staff training at Allied Command Transformation's Joint Warfighting Center in Ulsnes, Norway.

4.1 Key Assumptions for DJTF Headquarters Design

Key assumptions and operational factors important to the design and implementation the DJTF HQS were researched prior to the deployment exercise. They were obtained from NATO Military Committee documents such as MC477, and guidance from NATO leaders such as US Marine Corps General James L. Jones, Jr., Supreme Allied Commander, Europe (SACEUR) and US Navy Admiral Gregory G. Johnson, Commander in Chief, Joint Force Command Naples.

- The NRF will demonstrate initial operational capability (IOC) by October of 2004 and reach full operational capability (FOC) by October 2006.
- The NRF will be generated from NATO air, land and maritime component commands.
- The DJTF headquarters is limited to approximately 90 personnel assigned to Joint Force Command Naples.

- Operational capabilities: Deploy within five days of a decision by the North Atlantic Council; conduct self-sustained, continuous 24-hour-a-day operations for 30 days; "cover" the J1-9 staff functions of the parent headquarters.
- NATO provides the DJTF headquarters a complete C3I package, with enabling technologies and technical support, for communicating with higher, adjacent and component command headquarters.

4.2 The Deployment Exercise

On February 1, 2004, 90-plus military personnel from 11 nations assigned to Joint Force Headquarters Naples, members of NATO's first deployable joint task force headquarters, deployed from Naples to Stavanger, Norway under the command of US Army Major General Rick Lynch, Assistant Chief of Staff for Operations. Also participating in the deployment exercise were exercise senior mentor, US Marine Corps General (Ret.) Richard "Butch" Neal, and invited observer/advisor, US Army Colonel Mike McGinnis, Professor and Head of the Department of Systems Engineering at West Point.

The location for the JFC Naples DJTF headquarters deployment was NATO's new Joint Warfighting Center (JWC) at Ulsnes just outside Stavanger. According to British Army Major General James Short, Joint Warfighting Center Chief of Staff, the JFC Naples contingent was the first group to use the NATO training facility which was recently converted from a Norwegian naval station. Modernization of the JWC will continue for two to three years to network and digitize the training center giving it a full suite of capabilities for conducing NATO staff training. Norwegian Army Lieutenant General Thorstein Skiaker and US Air Force Major General Bill Lay II, JWC Director and Deputy Director, respectively, were on-hand to welcome the contingent from JFC Naples and observe training. Distinguished visitors who observed training during the deployment exercise included US Navy Admiral Gregory G. Johnson, Commander in Chief, Joint Force Command Naples, UK Admiral Sir Ian Forbes, Deputy Supreme Allied Commander Transformation (DSACT), Norfolk, Virginia, and flag officers from the JFC Naples Component Commands.

In addition to training the headquarters, the deployment exercise was intended to build team cohesion among DJTF HQS personnel and to engage the JFC Naples staff responsible for providing reach back to the forward deployed headquarters. General Lynch also intended to gain insights into reorganizing the headquarters for effects-based operations. The six major training objectives for the deployment exercise are listed in the table below.

• Deploy the DJTF HQS and build cohesion among the team.	• Establish DJTF HQS connectivity with JFC HQS and exercise reach-back.
• Identify, define, practice and refine cell functions.	• Write and refine DJTF HQS standard operating procedures and battle rhythm.
• Understand and apply effects-based operations.	• Develop DJTF HQS cell structure for conducting effects-based operations.

Operation Stavanger Deployment Objectives

4.3 Challenges to Standing Up a Deployable Joint Task Force Headquarters

NATO is in the midst of transforming its military forces – one that was previously focused on symmetric warfare against the former Warsaw Pact countries – into a deployable response force capable of dealing with asymmetric threats and a broader range of missions outside NATO nations. Undertaking transformation is challenging under any circumstances; doing so in a multi-national environment presents unique challenges to the process.

- Varying Language Skills. Although english is NATO's official language, many individuals assigned to multi-national NATO staffs have limited english language skills. Language differences present serious communications barriers to transformation and operational effectiveness.

- Disparity in Military Experience. Each nation in the Alliance has a unique leadership development program for its service members. In a multi-national headquarters, rank alone is no guarantee that an individual assigned to a position possesses the requisite education and experience to do the job.

- National Caveats. NATO operations require significant consensus building. All 26 NATO nations must be in general agreement on the scope of military operations before the North Atlantic Council will issue an *activation order* to take military action. Even after such an order is issued, nations may decline to conduct specific operations invoking *national caveats*. Claiming national caveats or other restrictions, individuals assigned to a NATO's multi-national headquarters may elect to forego exercises or deployments.

- Intelligence Sharing, Computers and Information Systems. Successful operations depend on sharing intelligence, good communications, and interoperability of computer and information systems across echelons headquarters and with multi-national, international and private non-governmental organizations. NATO has not yet resourced a full suite of interoperable communications, information systems, and support infrastructure for conducting such operations.

- Deployability Constraints. North Atlantic Council consent is required to plan contingency operations and to take preliminary actions such as coordinating logistics, lines of communications, sea and airlift, and host nation support. North Atlantic Council restrictions will constrain rapid deployment of the DJTF headquarters.

- Stove-piped Headquarters. On going operations in Kosovo, Bosnia, Afghanistan and Iraq have exposed serious gaps with traditional J-staff processes for planning and conducting military operations against asymmetric threats. Pursuing a broader range of lethal and non-lethal effects will drive changes to military headquarters, especially at the joint, operational level.

- Time-driven Planning Process. The DJTF headquarters is required to deploy within 5 days of alert. Mandated time horizons for DJTF HQS planning are: *Current operations*– 0 to 72 hours; *future operations*–3 to 10 days; and *future plans*–beyond 10 out to 30 days.

> Time-driven planning over a rolling horizon presents unique challenges that demand proficiency, speed, agility and flexibility across all aspects of headquarters operations.

These challenges, mandated operational requirements, plus past experience with headquarters design led General Lynch to break with a traditional 'stove-piped' organization and adopt a flexible modular, matrix architecture composed of loosely coupled cells able to work collaboratively to produce joint, operational-level fragmentary orders (FRAGOs).

4.4 Deployable Joint Task Force Headquarters Design

A standing, deployable joint command and control capability within NATO is the organizational lynchpin for quickly responding to crisis situations and conducting rapid, decisive operations. The DJTF HQS will support NATO and the parent headquarters with force employment decisions by providing timely, responsive command and control, situational awareness and liaison with host nations and other organizations.

Headquarters architectures currently under development include information flow, work (product) flow, decision flow, crisis action response, joint planning, effects analysis and assessment, and physical layout. Architectures depicting DJTF HQS information input-output flow for each cell developed during Operation Stavanger are provided at Appendix C.

DJTF HQS work to date was guided by the following headquarters engineering and design statement. This statement, developed by the authors, articulated system requirements and design specification for the DJTF headquarters:

> *Allied Forces Southern Europe will design and stand up a NATO headquarters capable of rapidly deploying, collecting and processing information, communicating with higher-adjacent-lower headquarters (and other elements as necessary), conducting effects-based planning (EPB) by analyzing desired effects and by assessing the intended and unintended outcomes of effects-based operations taken to accomplish assigned missions, while operating continuously for 30 days, 24 hours a day, until the mission is accomplished or control is passed to follow-on forces.*

On going operations in Kosovo, Bosnia, Afghanistan and Iraq have exposed serious gaps with traditional J-staff processes for planning and conducting military operations involving asymmetric threats that limit our ability to understand and control the battlespace. The nature of asymmetric operations has driven many military headquarters, especially at the joint, operational level, to pursue a broader range of lethal and non-lethal effects. The intent of this approach is to take actions that can influence and shape the dynamic, ubiquitous human dimension of network-centric operations with some predictable assurance of achieving desired effects. As discussed previously, effects-based operations is one such method for overcoming the shortfalls of traditional military-centric J-staff planning processes.

The DJTF headquarters is required to deploy within 5 days of alert. Its mandated planning horizons are: *current operations*–0 to 72 hours; *future operations*–3 to 10 days; and *future plans*–beyond 10 out to 30 days. These timelines demand the headquarters demonstrate proficiency, speed, agility and flexibility across all headquarters operations. In assessing these requirements, and based on past experience, the design of the DJTF headquarters broke with the traditional 'stove-piped' organization and adopted a modular, matrix-organized architecture

composed of loosely coupled cells that work collaboratively through product-oriented processes to produce joint, operational-level fragmentary orders (FRAGOs).

4.5 Maturing the DJTF Headquarters Concept

Operation Stavanger was carried out in four phases. A different aspect of headquarters functionality was evaluated during each phase of the deployment exercise. Metrics for evaluating progress and success of the deployment are listed below.

- Deployment Assessment. (1) Verify personnel assigned to the DJTF HQS have 12 months remaining at JFC Naples to be stabilized on the DJTF team; (2) manifest and process DJTF HQS personnel for deployment via military airlift from Naples to Stavanger with no discrepancies; and (3) conduct movement of the DJTF team to JWC Ulsnes without incident.
- DJTF HQS Staff Training Assessment. (1) Assess english speaking skills of assigned personnel; (2) through exercise events, stimulate the staff to work at least four of seven NRF missions; (3) put effects-based concepts into practice by conducting effects-based planning and assessment; (4) measure the time required to complete a crisis action cycle from crisis event to issuance of military orders; (5) publish a draft DJTF HQS staff standing operating procedure (SOP) by the end of the exercise.
- Redeployment Assessment. Redeploy the DJTF team from JWC Ulsnes without incident.

The phases were (1) alert and pre-deployment preparation; (2) deployment; (3) battle staff training and after action review including senior mentor feedback; and (4) redeployment. During the train phase, a series of three vignettes drove the evolution of the headquarters design, forced the maturation of the staff processes, and stimulated the DJTF staff to exercise reach-back with the PHQ. The vignettes gave the headquarters elements opportunities to establish and practice interoperability of command, control, communications and information systems, and to validate NATO transfer of authority (TOA) procedures.

In respondse to each vignette, the DJTF HQS staff planned contingency operations, and issued FRAGOs based on COMDJTF guidance. Staff training focused on the following areas: Track commander's critical information requirements (CCIR); work through crisis actions and joint planning processes to develop operational-level decisive points; plan operations to secure lines of communication (LOCs) and protect freedom of movement; deploy forces; develop plans and orders to deter and prevent the use of weapons of mass destruction (WMD); and plan and conduct operations such as stability and support operations (SASO), counter terrorism (CT), demilitarize local paramilitary groups, prevent criminal activities, conduct air, sea and port control, coordinate with higher and component commands, and exercise the reach-back capabilities of the parent headquarters. In between vignettes, each cell conducted after action reviews to refine routine and crisis action response procedures. DJTF HQS conducted after action reviews as a group after each vignette led jointly by General Lynch and General Short. Feedback from these sessions guided changes to the headquarters design and was very useful for refining standing operating procedures (SOPs) and information and work flow. A synopsis of major exercise events during the three exercise vignettes is provided below.

SYNOPSIS OF SIGNIFICANT EXERCISE EVENTS

POL-MIL Actions Leading to Deployment. Civil disturbances, mutiny of host nation soldiers; mass movements of rebel forces; neighboring forces establish arms and trade embargo, mobilize forces; intelligence confirms threat capability to use chemical weapons; cease fire agreement (CFA) signed and buffer zone established; North Atlantic Council (NAC) approved deployment of DJTF HQS.

Post-Deployment Crises Events. Pipe bomb and car bomb at embassy; suicide harbor attack using small boat damages transport ship; convoy ambushed; explosive device destroys key bridge on LOC; sniper kills UN Humanitarian Relief Commissioner; NRF convoy attacked; explosion within SPOD.

Vignette 1. C-130 downed by rebels crashes into refugee camp near major city killing and injuring refugees. Aircraft fuel leaks into refugee camp drinking water source. MCC tasked to conduct joint personnel recovery operation. LCC tasked to assist. Casualties extracted.

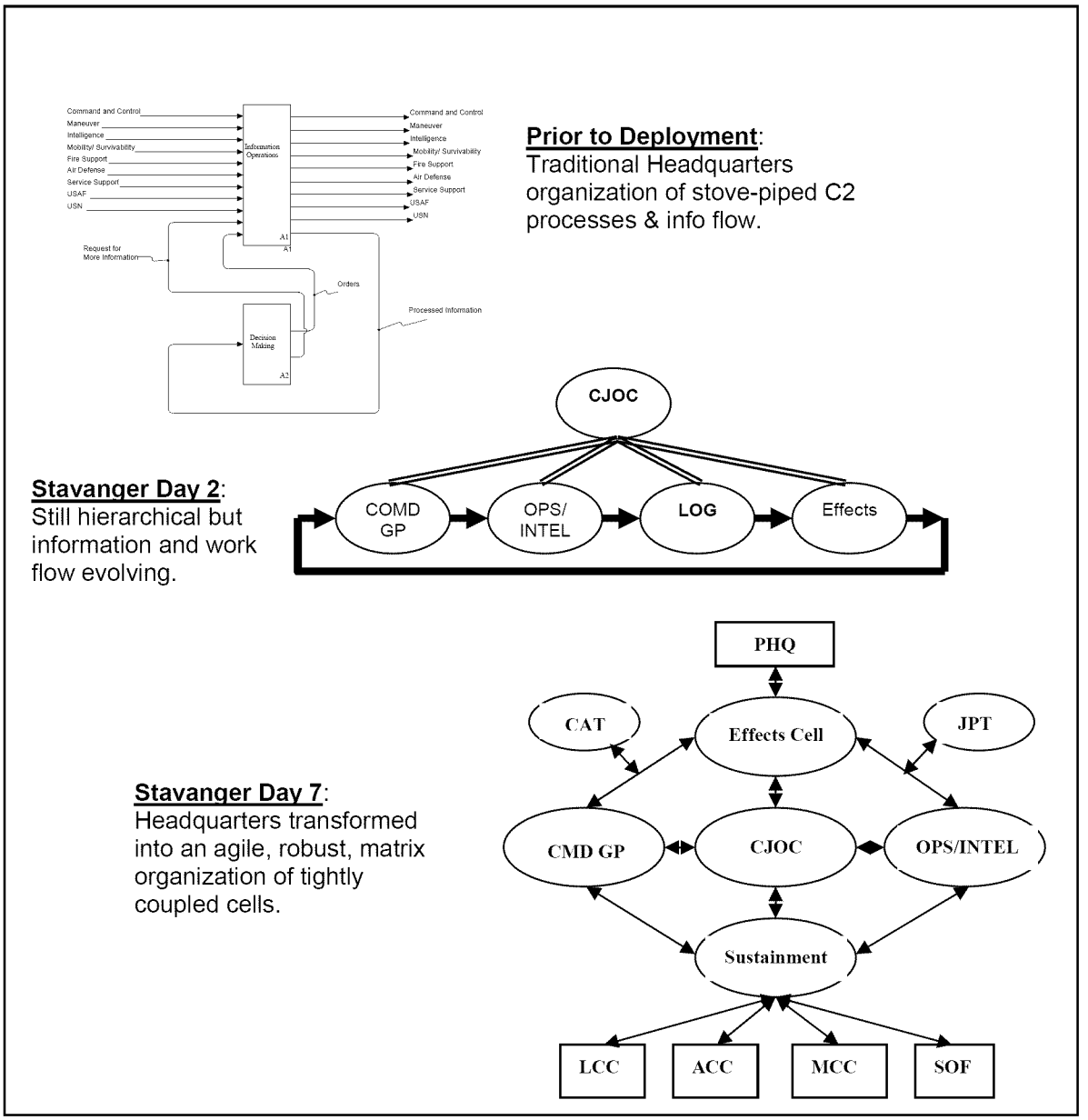
Vignette 2. International relief organizations report that refugee camp conditions deteriorating and recommends evacuation of 200 to 300 refugees. LCC tasked to conduct civil disturbance operations. ACC and MCC tasked to assist LCC.

Vignette 3. Terrorists attack port city. Freighter hit by suicide squad using inflatable dingy that pulled along side and blew a massive hole in the ship's hull. Ship leaks oil into the port which pollutes surface water. Attack kills and injures ship's crew and closes half of the SPOD.

Initially, efforts to evolve the headquarters design focused on tracking information and work (product) flow within and between the headquarters cells using input-output diagrams (see Appendix C). Next, the staff mapped information exchanges that crossed the DJTF HQS boundaries with higher, adjacent and component commands. Linking together the input-output models helped to identify and delineate the channels for both information and workflow. This information greatly helped to overcome friction and impediments to workflow which, in turn, accelerated the maturation of processes for generating products in support of decision making to generate military orders.

The process of evolving the headquarters described above proved to be a challenge. It forced the DJTF HQS staff to work outside their 'comfort zone' based on previous headquarters staff experience. At the beginning of the exercise, people predictably worked exclusively within their cells as they struggled through the first few days of the exercise. As the exercise progressed, however, cell members learned to work across cell boundaries to accomplish tasks. By the final vignette, members of each cell were observed working collaboratively with other cells to develop an integrated and synchronized plan for applying military and non-military means to achieve the commander's intended effects.

As the exercises ran their course, the headquarters evolved through five major revisions to cell structure based on adjustments to information and work flow for conducting EBO. Two of the five major revisions during the course of the exercise are illustrated in the figure below. The figure shows the transformation process from a 'stove-piped' headquarters shown in the upper left figure to a flat cell-based structure in the center diagram to a matrix, information-centric structure of loosely coupled cells in the lower right.



Conceptual Evolution of DJTF Headquarters & Information Flow during Operation Stavanger

4.6 Headquarters Cells

Command Group. The Command Group (COMGP) supports the commander and manages DJTF staff operations. The COMGP ensures that the commander's intent and guidance from the Commander Joint Task Force (COMJTF) and Commander Deployable Joint Task Force (COMDJTF) are clearly communicated and understood throughout the DJTF. The Command Group follows up command directives, orders and guidance to ensure that staff actions are translated into desired effects and actions leading to the operational end state. Command Group members include the Commander DJTF, Chief of Staff, Information Operations (IO) Officer, Political Advisor (POLAD), Legal Advisor (LEGAD), Public Information Officer (PIO) and

medical advisor. Key responsibilities include planning and managing political and public affairs, information operations, and providing COMDJTF with advice on legal issues and rules of engagement (ROE).

Combined Joint Operations Center. The Combined Joint Operations Center (CJOC) serves as the DJTF HQS' central point of communications. The CJOC coordinates and manages information, and submits and responds to requests for information (RFI). Component Command Liaisons co-locate with the CJOC. Other members include Psychological Operations (PSYOPS) Officer, Civil and Military Cooperation (CIMIC) Officer, and Nuclear, Biological, Chemical Officer who coordinates actions in response to nuclear, biological and chemical attack.

Operations and Intelligence Cell. The Operations and Intelligence (OPS/INTEL) Cell combines into a single cell functions performed by J3 Operations and J2 Intelligence sections of a traditional J-staff headquarters. The OPS/INTEL Cell synchronizes all military and non-military means available to the commander to accomplish intended effects leading to the desired end state. Major responsibilities include:

- Manage the joint battlespace at the operational level;
- Develop effects-based situational awareness of the battlespace for the supported component command;
- Maintain a common operating picture of the battlespace;
- Synchronize and coordinate effects-based operations with JFC and component commands;
- Analyze friendly and enemy intentions, capabilities and vulnerabilities;
- Identify effects and operational-level means (assets and capabilities) available for accomplishing EBO;
- Establish intelligence and information priorities according to commanders intent (COMJFC and COMDJTF);
- Formulate and track commanders critical information requirements (CCIR);
- Establish oversight of the intelligence and surveillance assets required to support effects-based operations;
- Coordinate and plan deception, psychological (PSYOPS), and effects-based operations.

Effects Cell. The Effects Cell develops and analyzes effects-based plans, conducts and assesses effects-based operations and coordinates EBO with the JFC and component commands via the CJOC and component command liaison officers. Other responsibilities include identification of effects and sub-effects for achieving the desired end state and metrics for measuring the operational progress and success based on actions to achieve intended effects. Additionally, the effects cell analyzes and recommends to COMDJTF the operational level means (i.e., diplomatic, political, information, military and economic) to achieve intended effects. Further responsibilities include:

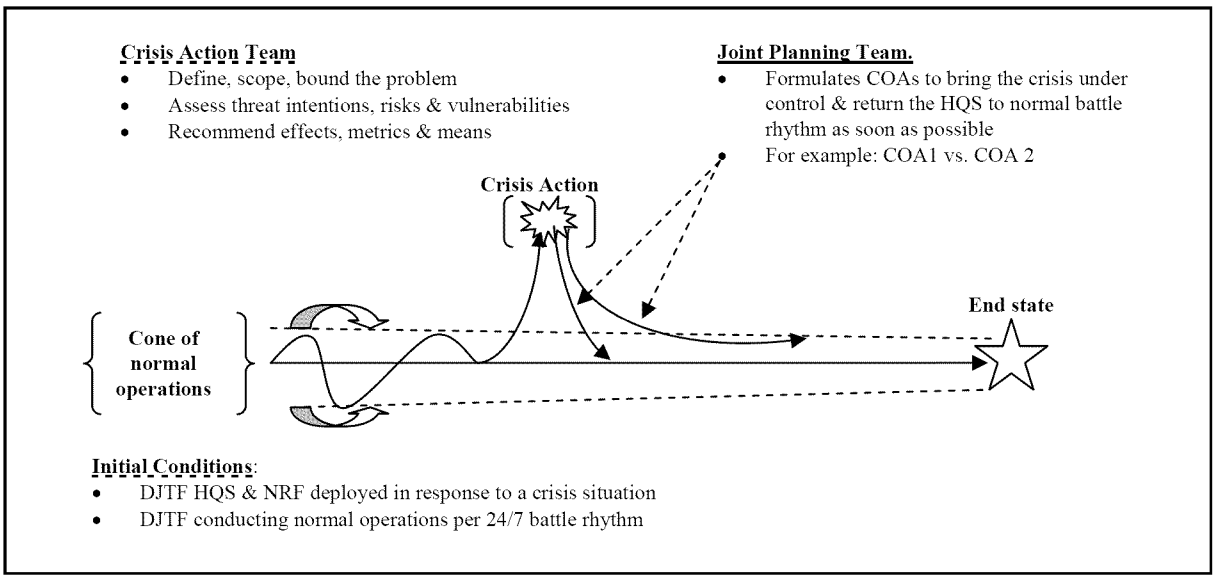
- Analyze and prioritize the application of military and non-military means capabilities at the operational level;
- Coordinate military and non-military means with PHQ Joint Operations Board (JOB) to achieve physical and psychological effects;

- Obtain clearance of lethal and non-lethal effects from PHQ;
- Maintain oversight of, and coordinate, civil-military operations with the host nation, NGOs and PVOs for support operations;
- Review and assess joint target lists for intended and unintended effects.

Sustainment Cell. The sustainment cell coordinates, schedules and integrates DJTF mission and life support activities (J4), and communicates (through the CJOC) all DJTF sustainment actions that require PHQ support including engineer support and nation-level requests for operational and life support from the host nation. Other key responsibilities include personnel (J1), computer and technical support (J6), resources and contracting (J8), and medical. Other responsibilities include:

- Coordinate sustainment operations and movement support for sustainment operations including host nation support, local life support services, intra-theater lift, and logistic support for component command forces;
- Assess mobility operations in support of component command forces;
- Conduct terrain and weather analysis;
- Recommend and assess sustainment effects for operations;
- Synchronize sustainment support for military and non-military operations;
- Conduct sustainment support risk assessment;
- Plan movement control and protection of main supply routes (MSR), air (APOD) and sea (SPOD) ports of debarkation.

Crisis Action Team (CAT) and Joint Planning Team (JPT). The Crisis and Joint Planning Teams were formed following Vignette 2 in response to the need to rapidly react to and deal with unanticipated crises that cause a break down in the DJTF HQS normal battle rhythm. The teams form as necessary on an ad-hoc basis. Membership is tailored to deal with the crisis situation. When a crisis event occurs that requires an immediate response, the CJOC transmits a net call to form the crisis action team. The CAT defines, scopes and bounds the problem, and briefs the commander on whether or not it can be handled internally by the DJTF HQS and NATO Response Forces or needs to be passed to the Parent Headquarters. If it can be handled internally, the CAT disbands and a Joint Planning Team forms to work through the crisis by applying the EBO process show in the figure above (see Section 3.4). The JPT defines a desirable end state for the crisis and, based on that, identifies effects, metrics and means for dealing with the crisis. Once the JPT produces a FRAGO that is approved during a decision brief to the DJTF HQS Commander, it stands down. As illustrated in the figure below, the goal of the CAT–JPT crisis action response is to restore normal operations to the battlespace as quickly as possible and to resume normal headquarters operations.



DJTF HQS Crisis Action and Joint Planning Concepts

Observation, Liaison, Reconnaissance Team (OLRT). Provide initial information gathering, situational awareness, and intelligence, and establish liaison and conduct initial coordination of support with the host nation, non-government organizations (NGO) and private volunteer organizations (PVO) prior to arrival of DJTF headquarters.

Component Command Liaison. The component command liaison teams are critical to the effective operation of the NATO Response Force. The component command liaison teams communicate and coordinate orders, actions and effects with their respective headquarters.

- Represent the component command force commander;
- Communicate situational understanding to the supported force;
- Conduct continuous communications to facilitate nearly-simultaneous collaborative planning between the DJTF HQS and the component command headquarters;
- Provide liaison between the DJTF HQS and the component command headquarters during training and operations;
- Provide advice and expertise on component command standard operating procedures, tactics and procedures and make recommendations on operational effects-based operations to the DJTF staff;
- Monitor and report on the local situation to the DJTF HQS.

Other Liaison. In addition to the component command liaison, the DJTF may be required to host liaisons from other coalition forces depending on the mission and the DJTF's role as dictated by the contingency operation.

Parent Headquarters and Reach-back. Standing up a 90-man deployable joint task force headquarters gives NATO a new expeditionary command and control capability. This is critical to making the NRF an agile, adaptable, and effective force. The small operational footprint of the DJTF HQS simplifies force protection and life support requirements for the headquarters. The DJTF headquarters composition reflects the essential functions and capabilities of the

forward command post for the COMJTF. The size of the DJTF HQS limits the headquarters to deploying only the systems and functions that are mission essential. The table below illustrates the types of information and products the parent headquarters provides to the DJTF headquarters.

- Paper and digital maps.
- Analysis of lines of communications.
- Orders and plans for conducting operations and contingency operations.
- Joint Target Lists and prioritized effects lists for effects-based operations.
- Identification of infrastructure, power, water, sewer, roads, etc.
- Country-specific studies: Specialized reports on culture, customs, population demographics, economic conditions, political parties, etc.
- Profiles and background information on leaders/key players.
- Responses to requests for information and reports.
- Coordination of sustainment.

Examples of Parent Headquarters Reach-back Support

The small size also makes the DJTF HQS very dependent on reach back support from the parent headquarters. The parent headquarters supports the DJTF HQS by developing operational plans, coordinating support, providing information and intelligence and negotiating with diplomatic and political leaders for host nation and Allied support for operations. The parent JFC headquarters also supports the deployed JTF with analysis of people, systems and influences that falls outside the Joint Operations Area (JOA). The JFC parent headquarters also provides the COMDJTF with access to Ministers of Defense, and critical information from NATO and other international sources that it can 'push' to the DJTF and component commands in a timely manner. The PHQ also serves as a fixed communications base for the DJTF HQS during deployment and transition to a CJTF follow-on force if required.

The table below lists the standing and ad-hoc boards, centers, cells and working groups that could be appointed by the parent headquarters at home station for supporting the DJTF HQS planning, analysis, and informational requirements. The differences across headquarters illustrate the challenges in the months and years ahead that will confront NATO and the Joint Force Commands as the headquarters staffs work through training and exercises in preparing for real operations. The table below identifies the functional staffs of the headquarters across echelons from the JFC to the component command.

Joint Force Command (PHQ)	Reorganization of Joint Force HQS for 2004 Multi-National Experiment 3	DJTF HQS Organization for Operation Stavanger	Component Command Headquarters
J1 (personnel)	**Boards**[A]	Command Group	J1 (personnel)
	Joint Coordination		
J2 (intelligence)	Effects/Actions/COA/ Synchronization	Combined Joint Operations Cell	J2 (intelligence)
J3 (operations)	Logistics Coordination		J3 (operations)
	Joint Knowledge Mgt.	Operations &	
J4 (logistics)	**Centers**[B]	Intelligence Cell	J4 (logistics)
	Effects/Actions Assessment		
J5 (plans & policy)	COA / Synchronization	Effects Cell	J5 (plans & policy)
	Joint Info. Superiority		
J6 (CIS)	Logistics Coordination	Sustainment Cell	J6 (CIS)

	Joint Logistics Management		
J7 (joint exercise & training)	**Cells**[C] Effects Assessment	Crisis Action Team	J7 (joint exercise & training)
	Actions Assessment	Joint Planning Team	
J8 (resources)	Course of Action		J8 (resources)
	Synchronization		
J9 (CIMIC)	BLUE / RED		J9 (CIMIC)
	System-of-systems Analysis		
	Working Groups[D]		

A. Formal, non-standing organizations with designated membership that meet as required. Boards provide input to centers and the Joint Tactical Force Command.
B. Formal, standing organizations that conduct major planning for the JTF Headquarters to plan and conduct current and future operations. Centers normally operate on a 24-hour basis.
C. Formal, non-standing functionally oriented organizations that meet on a regular basis to provide input to boards and centers.
D. Informal, non-standing organizations tailored for a specific event or action. Working groups provide input to boards, centers and cells. Formed on an ad-hoc basis.

Collaborative planning and exchange of information and staff products is complicated by the realignment of parent headquarters J-staff into standing and ad-hoc PHQ boards, centers, cells, working groups and the redesign of the DJTF headquarters into cells for EBO and the component command traditional J-staff headquarters. These differences make it essential that each headquarters write and refine clear, understandable SOPs and engage in regular training that involves all echelons.

Chapter 5: Conclusions

The deployment to the JWC at Stavanger, Norway, resulted in several 'firsts' for the DJTF Headquarters:

- First major training exercise to be conducted at NATO's new Joint Warfighting Center in Stavanger, Norway.
- First deployable NATO headquarters stood up to deploy within five days of alert and conduct 24-hour-a-day operations for 30 days.
- First NATO headquarters to be reorganized from a traditional stove-piped military headquarters into a new organization for effects-based operations.

Perhaps the most important accomplishment of Operation Stavanger, however, was the high cohesion that the DJTF achieved in the first 48 hours of the exercise. Upon arriving at Stavanger, General Lynch immediately set the tone for the week by delaying the start of training so he could clearly communicate the goals of the exercise to all DJTF members and JWC observers/trainers. Next, General Lynch set aside time the first evening at Ulsnes for the DJTF team time to socialize and get to know one another. The next morning, the first order of business was a group meeting where all 90 members of the DJTF team, from 11 nations, were given an opportunity to stand up in front of the entire group to introduce themselves, in English, and to say where they were from and give a bit of their military background. As inconsequential as this may seem, it was not. Members of the DJTF team related afterwards that this was the first time many of them had ever spoken in front of a large group and it made them feel more 'connected' to each other.

For General Lynch and the senior members of his staff, the socialization and introductions were instrumental to setting conditions for the team to bond. This, in turn, led to the formation of trust relationships. By the end of the week, there was no doubt that the DJTF team had become a highly cohesive unit. The camaraderie and enthusiasm was never more evident than at the end of the flight back from Stavanger when General Lynch stood at the bottom of the stairs and shook hands with everyone as they de-planed. The enthusiastic handshakes and back-slapping goodbyes on the tarmac demonstrated the collective spirit of the DJTF team and reflected their sense of pride and accomplishment; a feeling that they 'belonged' to a special organization.

5.1 Observations, Results and Lessons Learned

- Information Bottlenecks not Eliminated. Although the headquarters made only modest progress at reducing information queues and technology related bottlenecks, the flat, modular cell structure demonstrated superb agility throughout the exercise in responding to both routine and crisis actions.

- Improved Information Flow. Restructuring the headquarters cell structure around the flow of information improved information flow which improved decision making efficiency. By exercise end, decision cycle time from crisis to communication of orders was improved by over 25%; reducing the time from over 12 to between 8 to 10 hours.

- Transformation Takes Time. Maturing staff processes and liaisons with parent and component commands will require time and training. A significant break-through in efficiency will require headquarters at all levels to fully integrate modern information, computer and communications technologies and to adopt an enterprise approach to information and work flow processes.

- Value-added Products and Services. As an intermediate headquarters, the DJTF HQS adds value by delivering timely, useful products and services to component commands. Examples include analysis that 'connects the dots' providing insights into and to anticipate threat forces intents, capabilities and vulnerabilities, developing a complete and accurate effects-based picture of the battlespace; and producing orders that coordinate and synchronize the efficient, effective use of joint assets to accomplish effects-based operations.
- Keys to Success: Selecting the Right People and Stabilizing the Team. Progress made during Operation Stavanger confirms that creating a deployable, multi-national joint task force headquarters is an attainable goal. However, sustaining the headquarters will be a challenge. NATO nations must acknowledge that that NRF missions place unique demands on personnel assigned to the DJTF team and take steps to:
    - Assign personnel to the DJTF HQS who possess the knowledge, experience and communication skills to conduct effects-based operations;
    - Conduct regular training to develop and maintain expertise required of a combined, joint, operational-level headquarters;

- Synchronizing personnel assignments with operational requirements and stabilize personnel for a full tour so that once trained, the team remains together for the duration of the operational phase.

- A Learning Organization needs Adaptive, Innovative Leadership. Operation Stavanger helped transform the DJTF team into an adaptive, innovative, learning organization. NATO must develop new strategies for educating, developing and conducting individual and collective staff training necessary for *adaptive, innovative leaders* to form *learning organizations*.

- Models, Simulations and Information Technology Expertise. Headquarters staff at all levels must become technically competent at using information technologies, data management mining techniques, computer simulation models, communications technologies to assist and support planning, analyzing and assessing effects-based operations.

5.2 The Way Ahead

The initial efforts to stand up a new deployable headquarters during the week at Stavanger simultaneously transformed the headquarters on two fronts. The conventional J-staff headquarters was converted into a flat, efficient team organized for 24/7 operations. Conventional staff processes for generating decisions and orders were reengineered around the flow of information making it possible to quickly and efficiently prepare decision briefings and produce joint, operational-level orders. The combination of strong leadership by senior members of the DJTF team, an aggressive training agenda, and feedback from the JWC observers/trainers, took the headquarters proficiency beyond what was initially anticipated. The series of realistic vignettes used during Operation Stavanger set conditions for the DJTF team to bridge the gap between EBO theory and application. This work also contributed to the system-of-systems body of knowledge by expanding the number of battlefield systems used by USJFCOM from six to eight with the addition of diplomatic and environmental systems. Similarly, we added political means to the five referred to as DIME (diplomatic, information, military and economic), and proposed a set of five criteria for evaluating and analyzing means.

Although the DJTF headquarters is by no means fully trained at effects-based operations, or yet able to conduct the full range of such operations, the headquarters clearly demonstrated a baseline capability of EBO. During the weeks and months ahead, the DJTF team will mature information and work (product) flow, and refine staff responsibilities and battle rhythm. Observations from Operation Stavanger will be analyzed and incorporated into future DJTF headquarters designs as JFC Naples readies itself for NRF 3 and 4 missions. Lessons learned will also be provided to Allied Command Transformation in Norfolk, Virginia as the Headquarters develops new NRF doctrine.

The upcoming training schedule for the DJTF HQS includes staff training at JFC Naples twice monthly. The next major exercise is Dynamic Action '04, scheduled for March 2004 at JFC Naples. The major objective of the exercise will be to refine SOPs, exercise reach back with the parent headquarters, and liaison with component commands. In April, the DJTF headquarters will conduct a no-notice deployment exercise to an undisclosed location to test deployment procedures and verify deployability of personnel assigned to the DJTF HQS. Allied Action '04 in late May and early June will forward deploy the DJTF HQS to Persona, Italy to

conduct a major exercise leading to initial operating capability in October 2004. Building on progress made thus far will ensure that NATO fields a capable operational force for meeting its broader goals of fostering military cooperation between member nations and strengthening joint, international planning for the common defense of the Alliance.

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Appendix A: Table of Acronyms

ACT – Allied Command Transformation

JFC Naples – Allied Forces Southern Europe

JFC Stutgart – Allied Forces Northern Europe

APOD – Arial Port of Debarkation

C2 – Command & Control

C3I – Command, Control, Communications and Intelligence

CAT – Crisis Action Team

CC – Component Command (A-Air, L-Land, M-Maritime)

CCIR – Commander's Critical Information Requirements

CBRN – Chemical, Biological, Radiological, Nuclear

CFA – Cease Fire Agreement

CIMIC – Civilian-Military Cooperation

CIS – Computers and Information Systems

CJOC – Combined Joint Operations Center

CJTF – Combined Joint Task Force

COMDJTF – Commander, Deployable Joint Task Force

COMJTF – Commander, Joint Task Force

COMGP – Command Group

CT – Counter Terrorism

DJTF – Deployable Joint Task Force

EBO – Effects-based Operations

EBP – Effects-based Planning

FOC – Final Operational Capability

FRAGO – Fragmentary Order

HQS – Headquarters IO – Information Operations

IOC – Initial Operational Capability

J-Staff – Headquarters Staff Sections.

J1 – Personnel

J2 – Intelligence

J3 – Operations

J4 – Logistics/Sustainment

J5 – Plans and Policy

J6 – Computer and Information Systems

J7 – Joint Exercises and Training

J8 – Resources

J9 – Civil-Military Cooperation (CIMIC)

JFC – Joint Force Command (Brunson and Naples formerly known as Allied Force Headquarters North and South Regions, respectively)

JFH – Joint Force Headquarters (Lisbon, Portugal)

JOB – Joint Operations Board

JOC – Joint Operations Center

JPT – Joint Planning Team

JWC – Joint Warfighting Center

JTF – Joint Task Force

LEGAD – Legal Advisor

LOC – Lines of Communications

MC – Military Committee

MNE – Multi-National Experiment

MOE – Measures of Effectiveness

MOP – Measures of Performance

MSR – Main Supply Route

NAC – North Atlantic Council

NATO – North Atlantic Treaty Organization

NGO – Non-governmental Organization

NRF – NATO Response Force

OLRT – Observation, Liaison, Reconnaissance Team

OPS/INTEL – Operations/Intelligence

PHQ – Parent Headquarters

POLAD – Political Advisor

POL-MIL – Political-Military

PSYOPS – Psychological Operations

PIO – Public Information Officer

PVO – Private Volunteer Organization

RFI – Request for Information

ROE – Rules of Engagement

SASO – Stability and Support Operations

SACEUR – Supreme Allied Commander, Europe

SOP – Standing Operating Procedures

SPOD – Sea Port of Debarkation

TOA – Transfer of Authority

WMD – Weapons of Mass Destruction

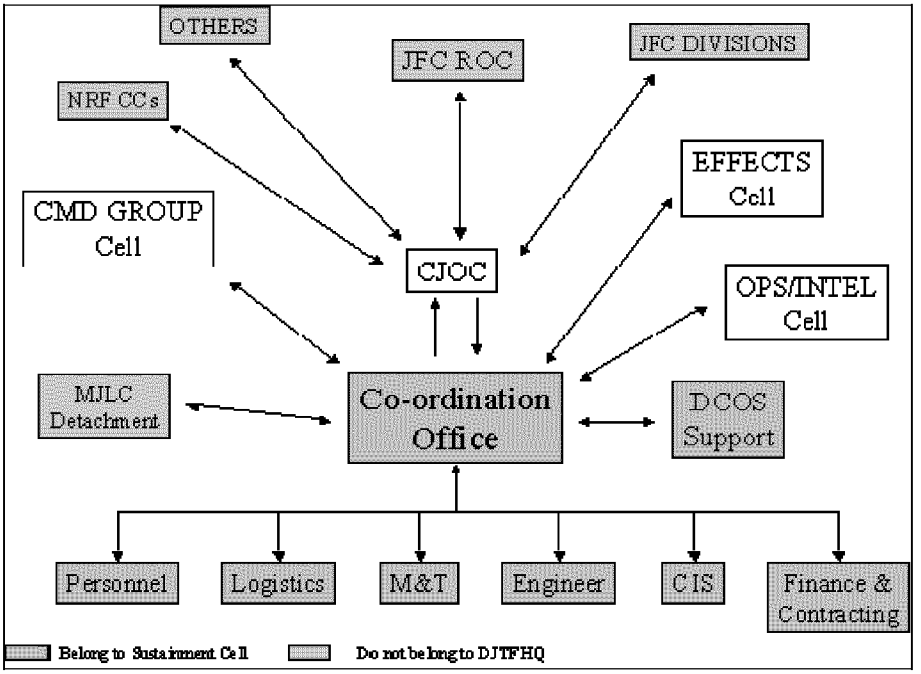
Appendix B: Subject Matter Experts

NAME	Address or Duty Assignment	Areas of Expertise
Mr. Dave R. Adamson	US Joint Forces Command Joint Experimentation, Norfolk, VA	Operational Net Assessment
LTC Bill Balkovetz, US Army	101st Air Assault Division, Division Staff, Military Operation Analyst	Military operations analysis and information operations
LTC (Ret.) Britt E. Bray	Dynamics Research Corporation, Leavenworth, KS	Military strategist and analyst.[9]
Dr. Don Brown	Professor and Head, Dept. of Systems and Information Engineering, Un. of VA and VA Institute for Justice Information Systems	Counter-Crime Expert
MAJ Neil Fitzpatrick, US Army	Operation Iraqi Freedom (OIF), US CENTCOM, Tampa, FL, Military Operation Analyst	Military operations planning and effects analysis
LTC Keith Hauk, US Army	Operation Enduring Freedom (OEF), Afghanistan 82d ABN Division and CJTF180, Military Operation Analyst	Military operations analysis and information operations
Mr. Cecil Johnson	US Joint Forces Command Joint Experimentation, Norfolk, VA	Effects Based Operations
MAJ Rob Kewely, US Army	Operation Iraqi Freedom (OIF),CJTF-7, Military Operations Analyst	Military operations analysis, information operations, complexity theory
LTC Michael J. Kwinn, Jr., US Army	Associate Professor and Director of the Operations Research Center, Dept. of Systems Engineering, USMA, West Point, NY	Methods for Assessing Military Operations
MAJ Scott McCulloch, US Army	10th Mtn. Div, Afghanistan, Military Operation Analyst	Military operations analysis and information operations
Mr. Michael J. McGonable	US Joint Forces Command Joint Experimentation, Norfolk, VA	Joint Force Headquarters: Knowledge Management and the Collaborative Environment
Dr. Greg Parnell	Professor and Class of 1950 Chair of Advanced Technology, Dept. of Systems Engineering, USMA, West Point, NY	Expert in National Security Risk Analysis
Dr. Ed Pohl	Associate Professor, Department of Industrial Engineering, University of Arkansas	Methods for Assessing Military Operations
CPT Allison Stewart, US Army	Operation Iraqi Freedom (OIF),CJTF-7, Military Operations Analyst	Military operations analysis and information operations
Dr. Yakov Haimes	Professor and Director of Center for Risk Management of Engineering Systems, Dept. of Systems and Information Engineering, Un. of VA	Counter-Terrorism and Risk Analysis Expert

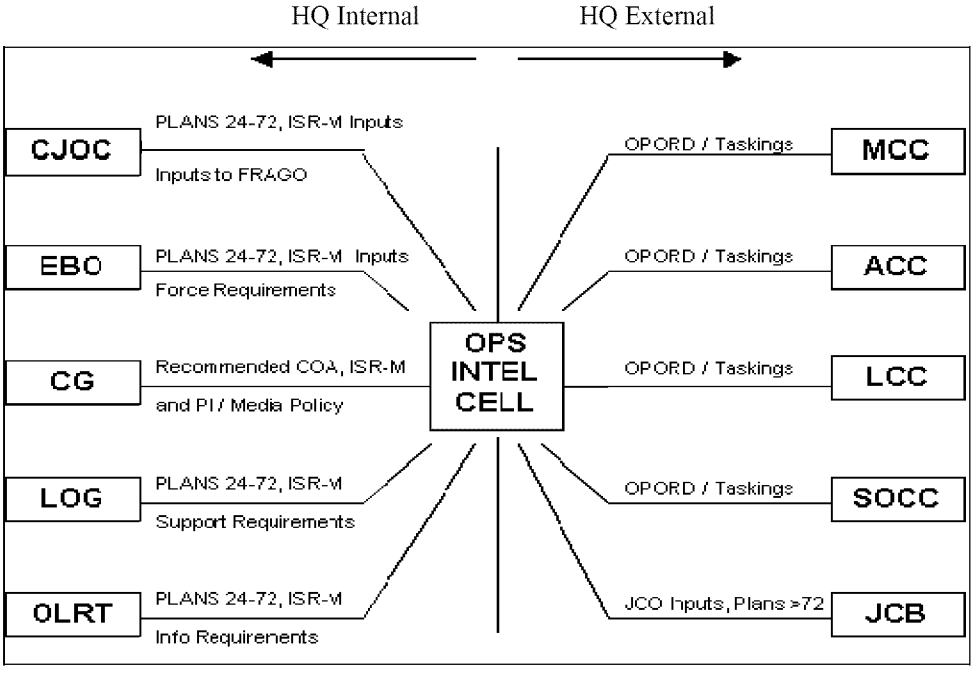
[9] Co-author of seminal paper on an EBO-related topic: "Missions and Means Framework" (2003).

Appendix C: Headquarters Information Flow Diagrams

DJTF HQS Internal Information Flow.



OPS/INTEL Cell (Push Information).



OPS/INTEL Cell (Pull Information).

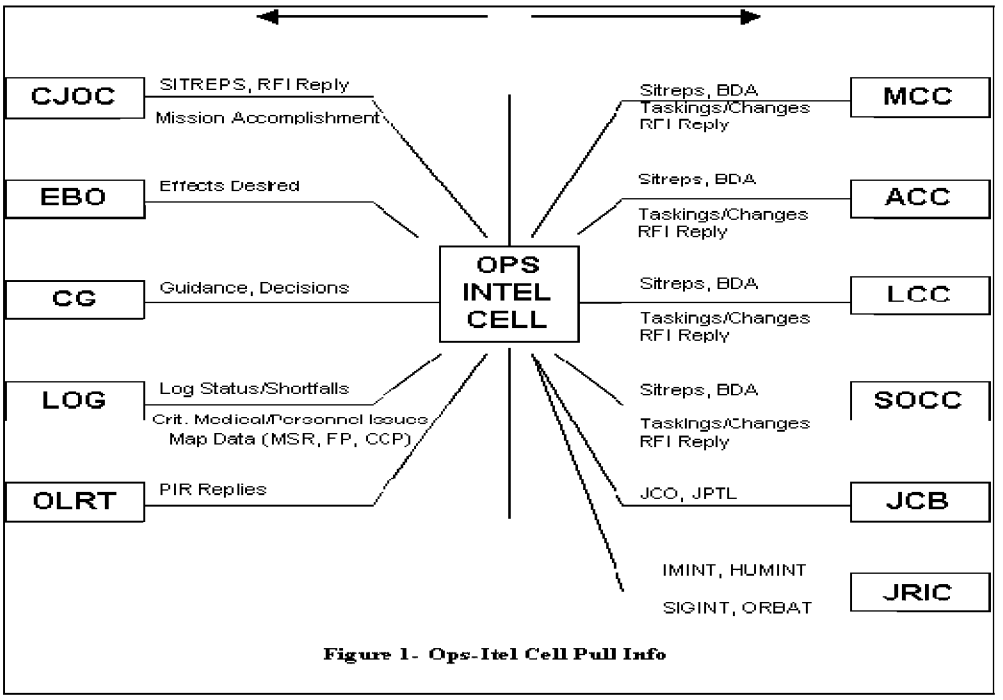
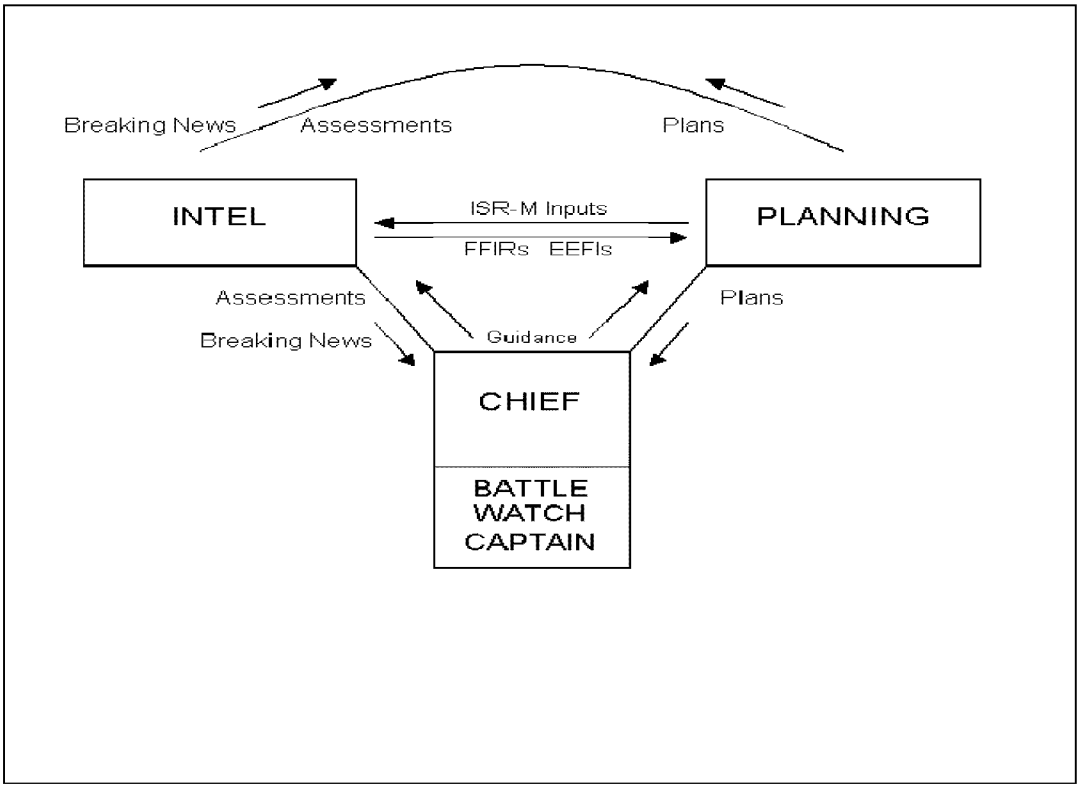
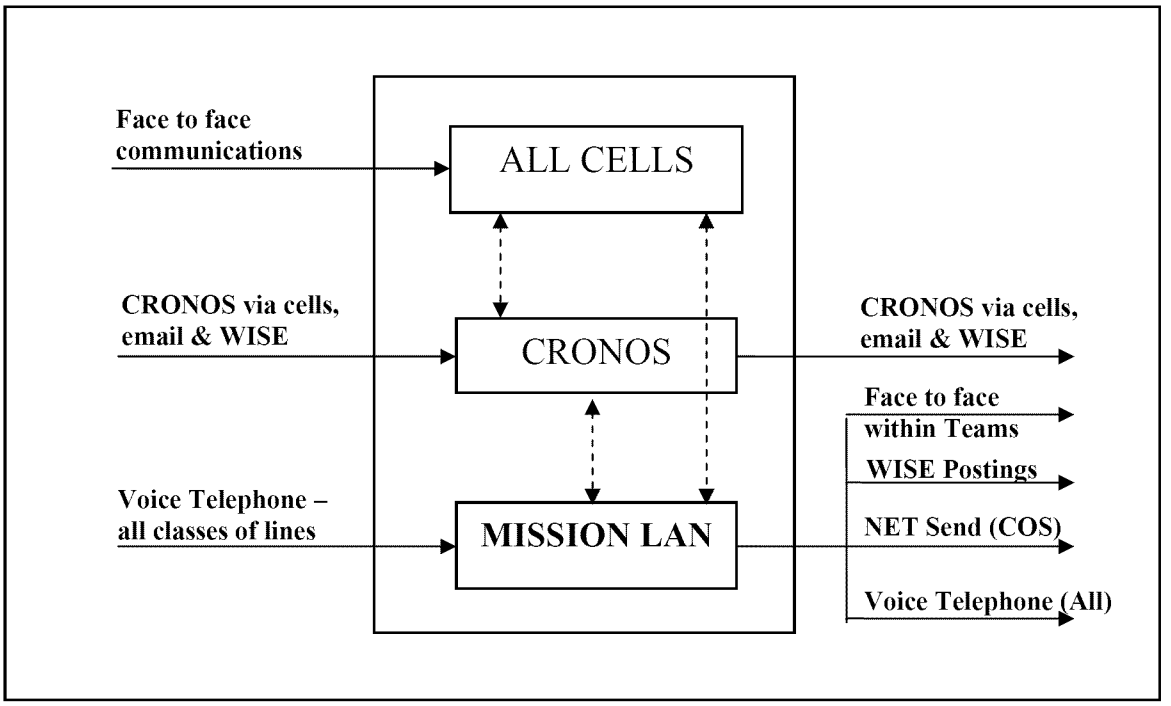


Figure 1- Ops-Itel Cell Pull Info

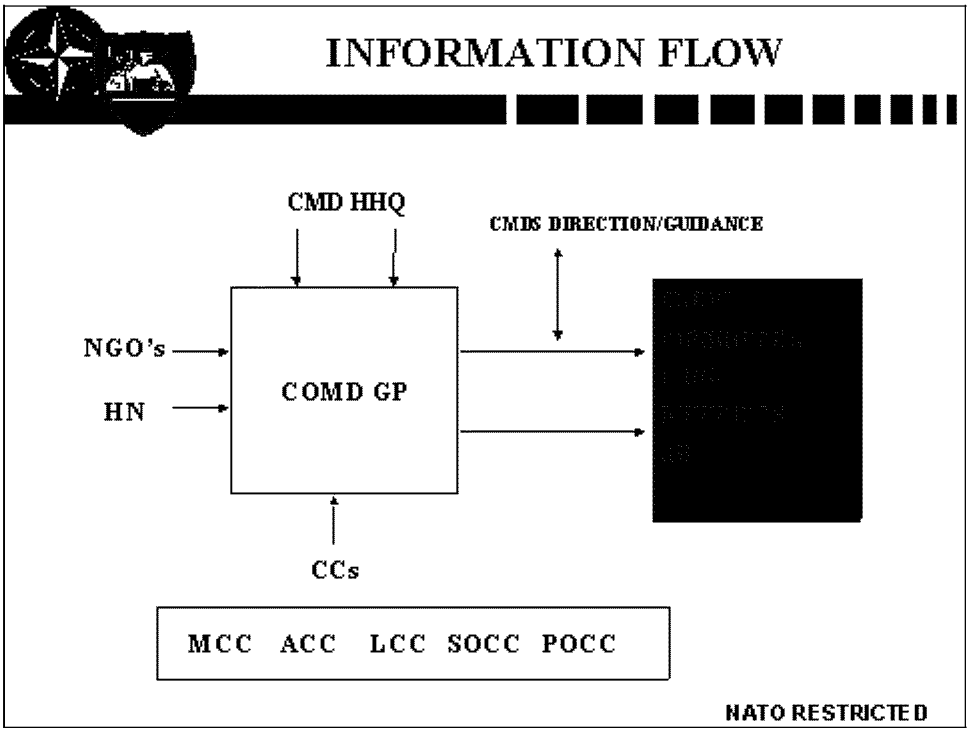
OPS/INTEL Cell (Internal Information Flow).



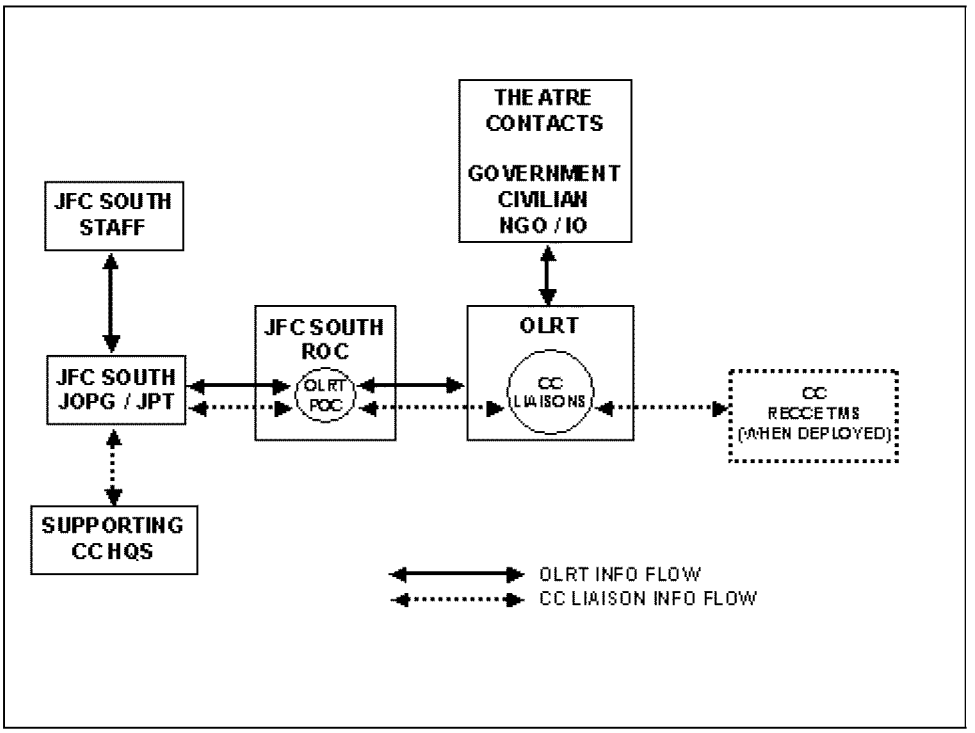
Chief of Staff (COS) Partial Information Flow Diagram (IO Manager).



Command Group Information Flow.



Observation, Liaison & Reconnaissance Team (OLRT).



Sustainment Cell Information Flow.