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IN REPLY REFER TO:
J00
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30 Sep 99

MEMORANDUM FOR: Secretary of Defense
Chairman, Joint Chiefs of Staff

Subject: Joint Experimentation Campaign Plan 2000

1. Attached is U.S. Atlantic Command's Joint Experimentation Campaign Plan 2000 (CPLAN 00). It describes the concepts, activities and resources required to conduct Joint Experimentation in FYs 00-05. This plan focuses on developing a new concept for warfare, *Rapid Decisive Operations*, for the 21st Century. It reflects a fiscally responsible, but intellectually unconstrained program of experimentation that will provide the robust evaluation of ideas necessary to help us shape the transformation of the Department of Defense for the next century.

2. This is not USACOM's program alone. It involves the participation of the Unified Commanders, the Services, and the totality of DOD's intellectual capital and energy. It relies heavily on leveraging the experimentation activities of the CINCs, Services, Agencies, industry, and academia, to work together to discover the best path to the future. We will focus on capabilities and warfighting concepts at the operational level, with forays into the tactical and strategic levels, concentrating on the most compelling issues our warfighters face today, tomorrow, and into the future. My goal is to establish, in conjunction with our partners, a joint context that will synchronize, integrate, and mutually support our programs, reduce duplication, expand the flow of information, and accelerate our efforts to realize the full potential of the Revolution in Military Affairs (RMA).

3. The primary and enduring reasons to pursue Joint Experimentation are to prevent surprises by potential adversaries and to maintain our military advantage. USACOM and its partners must be able to experiment with innovative concepts that address the full range of potential operating environments through the first decades of the 21st Century. We must keep all our options open. Experimentation is a long-term enterprise, not a series of isolated events. It is not a demonstration or an exercise. It is a continuing and iterative process for developing and assessing concept-based hypotheses to identify and recommend the best value-added solutions for the future joint force.

4. Joint Experimentation is an aggressive, innovative process to propel the Armed Forces into the future. It is also timely, given our rapidly emerging understanding of the future's potentials and its dangers. CPLAN 00 is the next step in a dynamic and iterative process whose ultimate goal is key to changing doctrine, organization, and technology to meet the transformation of national defense.

H. W. Pehman Jr.
H. W. PEHMAN, JR.
Admiral, U.S. Navy

Attachment:
Campaign Plan 2000

U.S. Atlantic Command

Joint Experimentation Campaign Plan 2000

(CPLAN 00)

30 September 1999
UNCLAS

EXECUTIVE SUMMARY

United States Atlantic Command (USACOM) has designed Joint Experimentation Campaign Plan 2000 (CPLAN 00) to fulfill the Secretary of Defense's Joint Experimentation Charter. CPLAN 00 expands USACOM's Joint Experimentation (JE) Program to develop and assess innovative concepts and leap-ahead technologies that can generate significant improvements to joint doctrine, organizations, training and education, materiel, leadership, and personnel programs (DOTMLP). USACOM's JE Program is a major component of the Chairman, Joint Chiefs of Staff initiative to implement *Joint Vision 2010*, described in the Joint Vision Implementation Master Plan (JIMP), and designed to improve the operational capabilities of the future force to assure our ability to sustain Full Spectrum Dominance well into the 21st century.

The Joint Experimentation Program has two fundamental purposes. The first is to sustain and widen the qualitative superiority of our joint forces over all potential 21st Century rivals. The second is to prevent any adversary from surprising us by exploiting advanced technologies faster than we can. The JE Program will conduct objective, empirical evaluation not only to discover new technologies, but also to determine the best tactics, techniques, and procedures to meet these two purposes. In addition, an important early objective of the JE Program is to develop an extensive community of organizations involved in military transformation, including combatant commands, the Services, DOD and other agencies, military and civilian academia, and industry. In FY 00, USACOM will also explore ways to expand agency involvement and include our allies in the JE program.

The construct of USACOM's CPLAN 00 provides for experimentation on three axes. The first axis explores how off-the-shelf technologies can be used to enhance current platforms and concepts for operations. This axis supports maintaining our current qualitative edge over existing threats. The second axis focuses on the implementation of *Joint Vision 2010*. It explores how emerging concepts, technologies and advanced information systems can be used to support the evolution of today's joint force. It develops concepts that primarily use today's platforms (or their derivatives), in new ways to create greater synergy and effectiveness, enabling Full Spectrum Dominance over emerging threats. The third axis explores the revolutionary concepts and technologies that will result in the transformation of the force, enabling continued success against the challenges associated with the Revolution in Military Affairs (RMA). **Interoperability** of systems and functions is **key to the success** of all three efforts.

CPLAN 00 focuses on high-priority tasks assigned to USACOM in the April 1999 *Defense Planning Guidance* and the Chairman of the Joint Chiefs of Staff's Instructions on Joint Experimentation. USACOM's effort in FY 00 will emphasize developing and experimenting with the *Rapid Decisive Operations* "integrating" concept as a fundamentally new 21st Century approach to joint combat operations. The FY 00 experimentation program will also focus on four "functional" concepts that will provide critical capabilities for *Rapid Decisive Operations (RDO)*. These are: *Attack Operations Against Critical Mobile Targets; Common Relevant Operational Picture; Adaptive Joint Command and Control; and Joint Interactive Planning*. USACOM will continue CPLAN 99's conceptual work on *Focused Logistics: Enabling Early Decisive Operations* and begin early conceptual efforts in areas related to information operations, forcible entry, and strategic deployment.

CPLAN 00 provides the work plan to produce a variety of deliverables. Among the principal experimentation events to be conducted in FY 00 are:

- A major simulation-supported experiment exploring the *Rapid Decisive Operations* concept. This experiment will also provide an operational environment to continue and expand the work conducted on *Attack Operations Against Critical Mobile Targets* during the FY 99 Joint Experiment.

- Leveraging of the Army's Joint Contingency Force Advanced Warfighting Experiment, the Air Force's Joint Expeditionary Force Experiment, the Navy's Fleet Battle Experiment-Hotel, and the Marine Corps' Capable Warrior experiment.

- A wargaming program that will investigate force application, information superiority, and strategic deployment in FY 00. Annual wargaming efforts will continue to be conducted to explore other key areas.

- A comprehensive exploration of future technologies in support of the Joint Force After Next.

- A series of comprehensive baseline collective assessments and vulnerability assessments to support concept development.

- A Limited Objective Experiment on the application of non-kinetic engagement technologies.

CPLAN 00 explains the "spiral development" strategy that will ensure both complete concept development and rapid identification and application of the most promising findings.
This plan also outlines the level of experimentation operations USACOM can sustain once the JE Program is fully resourced (**Figure ES-1**). Major annual elements of the end-state program include:

- Two major simulation-supported experiments
- Five major *JV 2010* and two major Joint Force After Next wargames
- Multiple "leveraged" and Limited Objective Experiments
- An extensive technology and vulnerability assessment program.

In addition, USACOM will issue an annual data call message to all CINCs by 01 December requesting CINC priority issues and initiatives for Joint Experimentation. Input will be received by 01 January, and reviewed during annual CPLAN major planning conferences.

Beginning in FY 04, USACOM plans to conduct Major Joint Integrating Experiments (MJIE) involving significant live forces in the field. These major experiments will occur on a 12-24 month basis and will explore in a robust environment the integrating concepts developed to address the issues of the complex mission environments the future presents.

The CPLAN also outlines the mechanism to be used to increase the range of operational missions and environments that the JE program will explore over time, to include Major Theater War, Stability and Peace Operations, and the military dimensions of Homeland Defense.

Appendix A to the CPLAN summarizes the concepts under development and an initial strategy for experimentation events. Appendix B contains a list of CINC and Service-sponsored events that may be candidates for leveraging and mutual support between USACOM and the event sponsors. Estimates of resource requirements are available in Annex 1 (FOUO).

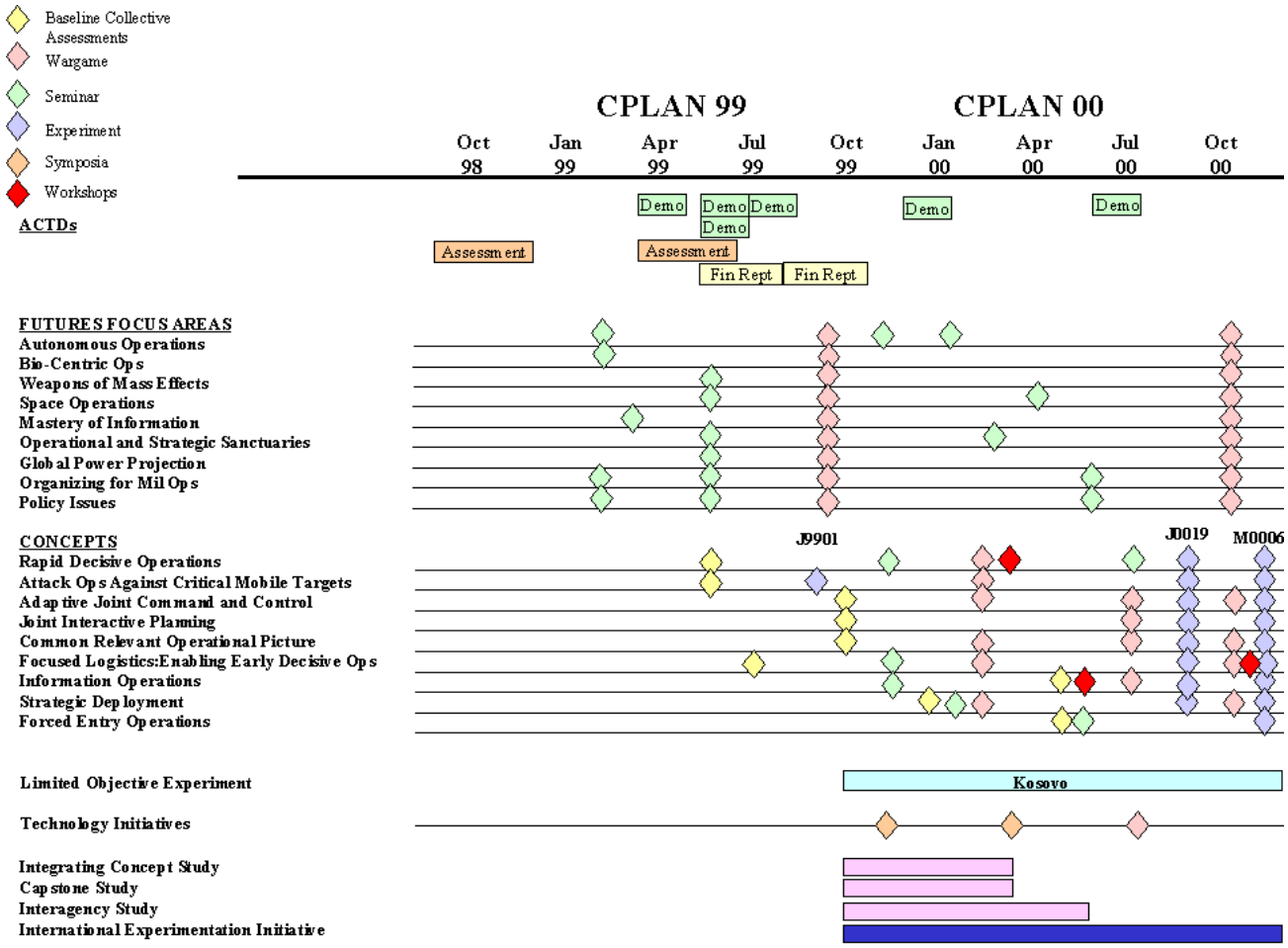

Figure ES-1 Level of Effort for FY 99& 00

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ANNEX 1: FOUO BUDGET ..... **SEPARATE COVER**

1 SITUATION

JOINT EXPERIMENTATION

Joint Experimentation (JE) is a critical path to the changes in strategy and force structure that are necessary to meet the challenges of transforming our military forces for the future.

H.W. Gehman, Jr., Admiral, U.S. Navy
Commander-in-Chief, U.S. Atlantic Command

1.1 Purpose

Campaign Plan 2000 (CPLAN 00) charts a course for implementing Joint Vision 2010 (JV 2010) and transforming the joint force to address the challenges of the Revolution in Military Affairs (RMA). It provides an integrated strategy that uses objective experimentation to identify the best value added solutions for the requirements of the future joint force. The second in a series of plans to be published annually by the United States Atlantic Command (USACOM), CPLAN 00 establishes a detailed workplan for FY 00 and an initial structure for FY 01-05 for USACOM's Joint Experimentation (JE) Program. It identifies the concepts that will be explored and the experimentation strategies to assess them. It provides the initial framework for subsequent CPLANs that will integrate lessons learned from current global military operations, provides support for international experimentation, expands existing concepts, introduce new ideas for experimentation, and provides an experimentation strategy for each concept.

The strategic objective of this program is to provide recommendations to the Chairman, Joint Chiefs of Staff (CJCS) and the Secretary of Defense (SECDEF) on how to improve the Doctrine, Organizational structures, Training, Materiel, Leadership, and Personnel programs (DOTMLP) to provide the future joint force the capabilities of Full Spectrum Dominance. Recommendations will be based on the empirical evidence generated by an objective and rigorous experimentation program that assesses potential new doctrinal concepts, organizational structures, and technologies. The end state is to recommend changes that generate new requirements to support the development of a future joint force that can meet the challenges of the RMA and ensure full spectrum dominance throughout the first decades of the 21st Century (**Figure 1-1**).

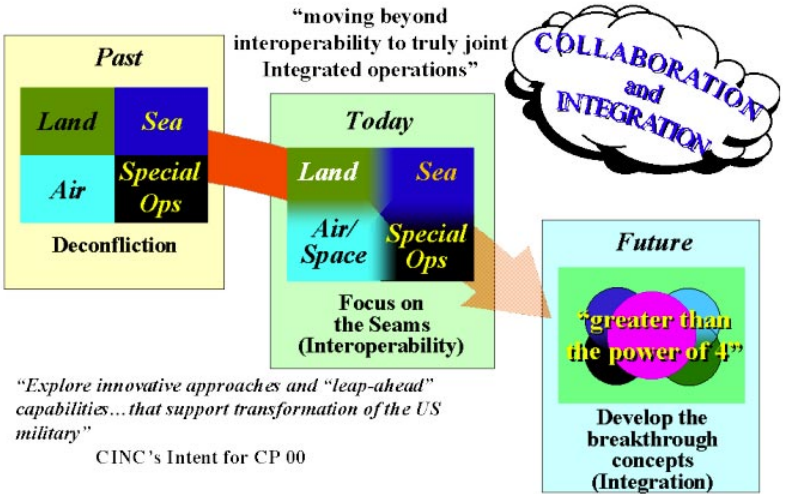


Figure 1-1 Where Joint Experimentation Is Going

1.2 Scope

CPLAN 00 provides a six-year (FY00-05) strategy for experimentation. It contains:

- the context for the experimentation program (Chapter 1, Situation)
- the guidance, goals and objectives (Chapter 2, Mission and Guidance)
- the execution plan (Chapter 3, Experimentation Strategy)
- FY 00 events activities, (Chapter 4, FY 00 Experimentation Activities)
- the plan for continued activities for FY 01 and beyond (Chapter 5, Sustained Experimentation Operations)

CPLAN 00 reflects a maturing of the JE process, with continued emphasis upon refinement and modernization, evolutionary improvements, and revolutionary changes in U.S. Military capabilities.

1.3 Accomplishments of the First Year

Since being chartered as the SECDEF's Executive Agency for JE, effective 1 October 1998, USACOM has completed several major accomplishments that have set the conditions for successfully executing this mission. Major accomplishments of this first year of operations include:

- Established a joint experimentation community that includes extensive, active, and collaborative partnership with the Combatant Commands, the Services, the Joint Staff and Office of the Secretary of Defense (OSD), and the numerous agencies involved in transforming the force including the Joint Test and Evaluation Program (JT&E) and the Defense Advanced Research Project Agency (DARPA) (**Figure 1-2**).

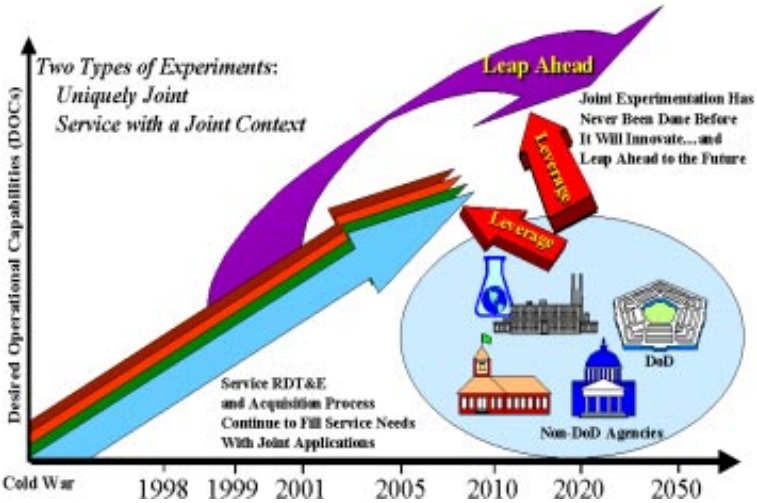


Figure 1-2 JE & CINC/Service/Agency Collaborative Experimentation Efforts

- Designed an initial conceptual structure for operationalizing JV 2010, with focus on addressing the operational issues prioritized by the SECDEF in his Defense Planning Guidance (DPG) and the CJCS in his instructions on Joint Experimentation.
- Designed and conducted, in cooperation with the Institute for Defense Analysis Joint Advanced Warfighting Program, the first joint experiment, which concentrated on future concepts for conducting attacks against critical mobile targets.
- Activated the USACOM J9 Joint Experimentation Directorate and the Joint Battle Laboratory (JBL); obtained and occupied new facilities to support experimentation operations.

- Initiated the Joint Experimentation Futures Program to provide the Services a common joint context for their Service After Next programs. Identified key focus areas that can support the transformation of the joint force for operations to meet the challenges of the RMA:
  Mastery of Information, Bio-Centric Operations & Counters, Space Operations, Organizing for Military Operations, Weapons of Mass Effect (WME), Operational & Strategic Sanctuaries, Global Power Projection, and Policy Issues.
- Through a rigorous proof of process assessment, refined the JE process to streamline operations, effectively meet mission requirements, and expedite operational results.
- Completed three Baseline Collective Assessments (BCA), with two more scheduled by 1 October.
- Began work on synchronizing the efforts of the Service Experimentation Programs by establishing an Alliance of all Service Battlelabs.
- Completed major leveraging of first service experiment in M9902 (JEFX-99), and completed execution and assessment of ISX 1.1.
- Assumed sponsorship with the Air Force of the former Joint Test & Evaluation, Joint Theater Missile Defense - Attack Operations (JTMD-AO). The activity, renamed Joint Theater Attack Analysis Center (JTAAC), is to continue experiment efforts in Attack Operations Against Critical Mobile Targets.

1.4 Expanding the Program

Aggressive work is underway to increase the opportunities to further enlarge this initial JE community. In FY 00, USACOM will pursue additional ways to cooperate with, and mutually support, the experimentation efforts of the Services and Combat Support Agencies; to expand the participation of the CINCs of the Combatant Commands, leverage the lessons learned from their current operations, and better address their warfighting requirements; and to include coalition partners in appropriate experimentation activities. Additionally, USACOM will seek to expand its growing partnership with industry to ensure that industry is fully aware of the direction of future concept development to help focus Research and Development efforts, and to ensure that concept developers are kept abreast of future technologies and technological trends.

1.4.1 JE Interaction with the CINCs

The JE Charter mandates coordination and synchronization with Service, and DOD experimentation. CINCUSACOM believes it is vital to include the geographical and functional CINC's in this effort. Valuable lessons learned during current operations conducted by the CINCs in their Areas of Responsibilities provide baseline assessment of our current capabilities, identify emerging joint requirements, and provide feedback on new approaches to operations developed and implemented by forces in the field. This partnership between current operations and future

JE / CINC's Synchronization

- Partnership/Dialogue
- Lessons Learned on Current Operations
- Collaboration on Concepts and Technology Development
- Leveraging Each Other's Events/Initiatives
- Support on Joint Issues
- Focus on Enhancing Joint Operations
- Establish Formal Collaborative Process
- Synchronize Joint Experimentation/ACTD Efforts:
  Reduces Redundancy which Saves Scarce Resources
  Reduces TAD/TDY Requirements
  Reduces Materiel Requirements
  Reduces OPTEMPO
  Expands Potential Experimentation Environments
  Potential to Synchronize Requirements Generation Process
- Protect CINC Equities

experimentation will expedite modernization of the joint force and support the transformation of the U.S. military.

By 1 December 1999, USACOM J9 will provide a survey to the CINCs to solicit their views on priority issues and initiatives for inclusion in the JE campaign. Following receipt of the CINC inputs by 15 January 00, J9 will release a message explaining how CINC priorities will be integrated into CPLAN 01. This message, on or about 30 January 00, will announce the date and location of *CPLAN 01 Major Planing Conference* for representatives of the CINCs and the Services'. CINCUSACOM will send an after-conference message, which lays out the collaborative strategy for addressing priority issues and mutual leveraging experimentation opportunities.

1.4.2 Coalition Cooperation

USACOM has begun developing a program for integrating coalition experimentation into the USACOM JE Program. The DPG states:

> *"…the nature of the challenges the nation faces demands cooperative, multinational approaches that distribute the burden of responsibility among like-minded states. Therefore, it is imperative that the United States strive to build close, cooperative relations with the world's most influential countries."*

USACOM will:

- *Conduct peace operations in concert with coalition partners, interagency components, and non-governmental organizations*
- *Ensure that concept development considers significant changes in the conduct of operations, including the roles of both interagency and coalition partners*
- *Recommend additional efforts that should be undertaken by DOD and coalition partners to address current and projected mission needs*

An emerging assumption of U.S. military planning is that the U.S. will likely operate as part of a Multi-National Coalition whenever possible. The development and assessment, through experimentation, of concepts for combined operations is an implied task in the joint experimentation charter. Cooperative efforts with our allied and coalition partners to mutually support our national and international Joint Experimentation Programs are essential for developing concepts for combined operations. USACOM will continue to prioritize these initiatives as resources become available for this expanded mission. USACOM will work the collaboration with the geographical Unified Commands to leverage existing engagement programs as a means of establishing international experimentation opportunities.

1.4.3 Interagency Initiatives

A key element of future concept development is exploration of ways by which total national asset integration can occur to ensure all elements of national power are synchronized and focused to present a unified and coherent approach to national security requirements. USACOM will continue and expand initiatives to validate the full range of national capabilities in concept development and experimentation.

1.4.4 Industry Initiatives

USACOM will seek to expand its growing partnership with industry. In FY 99, USACOM J9 conducted its initial *Briefing to Industry Conference* at which over 200 leaders of industry received updates on concepts under development. In FY 00, USACOM will build on this forum by inviting industry to a follow-on Fall Technology symposium for identification by industry of promising new technologies; a Spring Briefing to Industry at which the technology community (including industry, academia, and the R&D agencies) will be updated on concepts under development in FY 00; and an Annual Technology wargame that assesses the applicability of industry proposals to joint concepts under development; ultimately leading to detailed presentations on proposed technological solutions to future operational requirements. These initiatives are key to continuing the initial work and growing partnership begun with industry.

1.5 Summary

The USACOM Joint Experimentation Program has rapidly become a major force in the effort to transform the joint force for the challenges of the RMA. The accomplishments of FY 99 have successfully set the conditions for continuing, accelerating, and expanding this effort. The positive impacts of the JE program's first year are becoming visible in greater cooperation among the Service experimentation programs, valuable lessons learned from initial experimentation, greater synergy of effort, and more precise focus on the emerging needs of the warfighting CINCs. CPLAN 00 provides an effective construct for building on the accomplishments of the increasingly successful effort.

2 MISSION AND GUIDANCE

2.1 Mission

The mission of JE is to collect, develop and objectively assess potential high-value concepts for future joint operations to enable future joint force commanders to succeed across the full spectrum of operations throughout the first decades of the 21st century. It will generate opportunities to dramatically advance the capabilities of the joint force, and will identify the means for preventing adversarial surprise. In executing this mission, CINCUSACOM:

- Creates, solicits, develops and explores warfighting concepts for Joint Experimentation, to include concepts provided by CINCs/Services/Agencies (C/S/A), Coalition partners, the private sector, current global military operations, and other sources with potential for contributing valuable ideas on future operations.
- In coordination with Services and CINCs, refines, assesses, and recommends to CJCS the most promising (in demonstrating significant joint warfighting improvements), joint concepts and capabilities for future experimentation and further assessment.
- Coordinates, integrates, and leverages to the maximum extent possible C/S/A experiments.
- Plans, designs, prepares, conducts, and assesses rigorous joint experiments to explore, demonstrate, and evaluate joint warfighting concepts to identify:
  - Innovative changes and off-the-shelf technologies to enhance current force capabilities.
  - Emerging technologies and evolutionary concepts necessary to achieve the realization of Joint Vision 2010 (JV2010).
  - Breakthrough technologies and radically innovative concepts needed to achieve a revolutionary Joint Force After Next (JFAN).
- Conducts rigorous Red-Team vulnerability assessments to challenge proposed concepts and to prevent adversarial surprises.
- Assesses experimentation results to provide recommendations to improve joint operations in terms of Doctrine, Organization, Training and Education, Materiel, Leadership, and Personnel (DOTMLP).

Figure 2-1 represents the essence of these bullets.

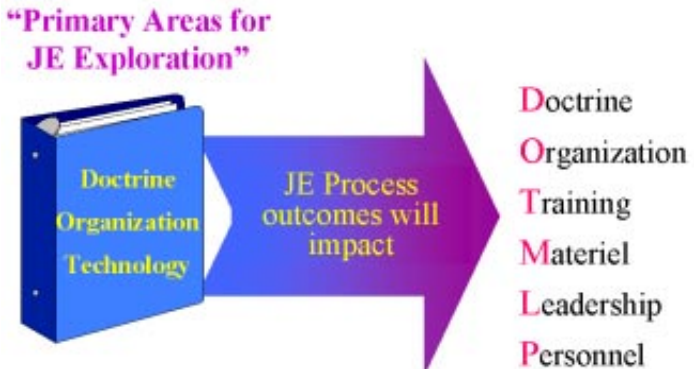


Figure 2-1 From Focus To Recommendations

2.2 JE Program Guidance

USACOM's primary guidance for the direction of the JE program comes from the SECDEF's Charter, Defense Planning Guidance and the CJCS's instruction for Joint Experimentation. In developing this CPLAN, USACOM also considers additional policy direction including the National Security Strategy and the National Military Strategy. Additionally, USACOM reviewed the DOD's Joint Warfighting Science and Technology Plan to synchronize concept development with the Department's technology initiatives. Real-time global military operations may also provide more accurate baseline information with regards to current performance of technology and insight to improving it.

2.2.1 Directional Guidance

By SECDEF Charter, CINCUSACOM is the Executive Agent for the DOD JE Program. Assistant SECDEF for Strategy & Threat Reduction monitors the CINCUSACOM's exploration of joint warfighting concepts and capabilities. At the same time, the CJCS retains responsibility for implementing JV 2010 through the JE Program. Through the *Joint Vision 2010 Implementation Master Plan* (JIMP), the CJCS has provided guidance on objectives and the capabilities needed by the force. This, in turn, provides guidelines for the selection of concepts for experimentation in the evolutionary axis. The Joint Staff Coordinating Authorities serve as CJCS agents of Joint Vision implementation, making direct inputs into the concept selection process.

> *Conduct aggressive joint experimentation through the secretary of Defense-designated Joint Experimentation Agent, USACOM, to explore the full potential of emerging operational concepts and technology.*
>
> Joint Vision Implementation Master Plan (JIMP)
> 9 December 1998

Defense Planning Guidance

The Defense Planning Guidance (DPG) Update FY 2001 – 2005 provides specific guidance from the SECDEF to the JE Program. Under the section "Concept Development and Exploration," the DPG calls for the aggressive development, assessment, and integration of new operational concepts with experimentation activities:

> *As DOD's executive agent for joint experimentation, USACOM will investigate new operational concepts with the potential to produce significant increases in near-, mid-, and far-term joint capability. USACOM will develop and explore advanced concepts for meeting joint mission needs related to the critical challenges identified in the Modernization section of this guidance, integrating red-teaming into all phases of concept development and exploration. USACOM will leverage the activities of the Services and CINCs, and integrate experimentation events ranging from joint assessments through joint warfighting experiments. The Services, CINCs, and defense agencies will support the USACOM joint experimentation campaign plan by providing emerging concepts with the potential to improve joint force capabilities. USACOM's annual Joint Experimentation Campaign Plan will outline activities that address the critical challenges published in the DPG, validated JV 2010-related Mission Need Statements (MNS), and other areas selected as a focus of joint experimentation activities.*

The plan will identify major concepts for development and exploration, methodologies to be employed, Service events, and applicable ACTDs, including ACTDs sponsored by other CINCs, that will be leveraged. Additionally, USACOM is responsible for synchronizing DOD joint experimentation efforts with non-DOD elements, including industry, academia, allies, and other U.S. government agencies.

The DPG further identifies specific operational missions for concept development and exploration:

Develop and explore, through experimentation, new joint warfighting concepts and capabilities to improve the ability of future Joint Force Commanders to rapidly and decisively conduct particularly challenging and important operational missions, such as: (a) conducting forcible entry operations against adversaries intent on denying access to U.S. forces; (b) coercing an adversary to undertake certain actions or deny the adversary the ability to coerce or attack its neighbors; and (c) conducting peace operations in concert with coalition partners, interagency components, and non-governmental organizations.

Under the section, "Prepare: A Transformation Strategy", the DPG provides guidance dealing with the RMA Transformation Process:

USACOM will use the Joint Warfighting Science and Technology Plan as a primary source for identifying technological capabilities to be incorporated into joint concept development and experimentation activities, and will report to the CJCS and the Director of Defense Research and Engineering on desired technology objectives that emerge as a result of joint experimentation efforts, including technology shortfalls and opportunities for leap-ahead technologies.

2.2.1.1 CJCS Guidance

The CJCS provided the following guidance dealing with joint concept development and experimentation in a memorandum to [CINCUSACOM].

The USACOM JE Program is, potentially, the engine that will transform our armed forces and Defense agencies to meet the security challenges of the next century. It is essential that the program develop the integrating concepts that describe how U.S. forces will conduct joint operations across the range of military operations demanded in the future, and then put those concepts through rigorous exploration and assessment. USACOM will retain the necessary freedom of action to "go where exploration leads." The following broad guidance is offered for developing future joint integrating concepts and joint experimentation:

<u>Concept Development</u>

- *Develop integrating concepts describing how the future joint force will conduct operational level campaigns in accordance with JV 2010 enabling and operational concepts. Address the essential aspects of the PREPARE NOW element of U.S. National Military Strategy.*

- *Strive to establish a baseline of joint operational capabilities "within the realm of the possible" that lead to developing the 2010 force. Explore emerging technologies that will impact CJTF actions, joint doctrine, materiel needs and organizational structures, and improve U.S. Armed Forces ability to conduct the full range of military operations.*
- *Ensure all concepts and capability assessments incorporate vulnerability analyses.*

Joint Warfighting Experimentation (JWE) Program

- *Develop an aggressive joint experimentation program that explores the integrating concepts across the range of military operations.*
- *Conduct of Major Joint Integrating Experiments: Conduct one Major Joint Integrating Experiment (MJIE) in 2004 and begin experimentation activities on a second joint integrating concept culminating with a MJIE after 2005. The joint integrating concepts explored in these experiments should address key operational missions (such as those identified in the current DPG) across the range of military operations.*
- *The scenarios that will provide the operational context for the MJIEs will be consistent with the experimentation needs for exploring the joint integrating concepts. The scenarios will provide a context for both interagency and coalition operations.*

While allowing USACOM freedom to "*go where exploration leads*," the Chairman's memorandum provides broad guidance with respect to the joint integrating concepts and the major joint integrating experiments. It also calls for the incorporation of coalition and interagency involvement in the JE Program and for the use of vulnerability analysis as an integral part of the exploration of each concept. This CPLAN provides the strategy USACOM's JE Program will execute to accomplish the priorities assigned by the SECDEF and CJCS.

"Our Goal is to produce revolutionary changes and transform the U.S. military. …This can be achieved only if we rigorously test our technology, ideas, and plans through joint experimentation."

General Henry H. Shelton
Chairman, JCS

3 EXPERIMENTATION STRATEGY

3.1 CINC's Goal

CINCUSACOM's goal for the USACOM JE Program:

> *Identify, explore and assess new joint concepts in order to provide future joint force commanders with significant joint warfighting improvements and capabilities; to enhance competitive advantage; and to preclude adversarial surprises.*

3.2 CINC's Intent

To lead DOD's JE Program, USACOM will venture into new territory on many fronts. The JE Program must provide evolutionary improvements in military capabilities while fostering an environment where revolutionary "leap ahead" capabilities can be developed. USACOM's JE campaign will:

- Implement strategic guidance
- Leverage initiatives to address and enhance the current force
- Develop new concepts focusing on the today's major platforms or their derivatives employed with 2010's information technology
- Explore innovative approaches to 'leap-ahead' that supports transformation of tomorrow's platforms
- Focus on areas of early, continuous, and decisive combat effectiveness across the spectrum of conflict and execute experiments that assess and refine those concepts
- Design and execute rigorous and objective experiments that provide decisive evidence to support the implementation of recommended changes to DOTMLP

3.3 Construct

Two major challenges face our senior national leadership as we attempt to address the issues associated with the RMA.

> <u>For the Nation</u>: In an era of constrained resources and "strategic pause," where do we invest?
> - Today's readiness issues?
> - Modernizing the force and operationalizing JV 2010?
> - Transforming the force for the challenges of the RMA?
>
> <u>For the Department of Defense</u>: What is the value added by jointness?
> - Deconflicting service programs?
> - Filling the service gaps?
> - Directing service efforts?

The Joint Experimentation Program will contribute significantly to answering both of these sets of questions with empirical and non-parochial findings generated by valid, robust, and objective experimentation. The major focus of CPLAN 00 is on the operational challenges of the future. The development and exploration of evolutionary and revolutionary concepts will dominate the activities of the JE Program. CPLAN 00 continues to focus on the operational level of war, but includes, when necessary, occasional forays into the strategic level. While this plan is aimed primarily at U.S. forces, activities directed at incorporating interagency, allied, coalition, and international partners into the JE Program are ongoing.

> As you implement this process, we encourage you to focus on the operational challenges of the future, not the interoperability concerns of today.
>
> Senators Coats and Lieberman's letter to CINCUSACOM October 1, 1998

3.3.1 Three Interdependent Axes

CPLAN 00 provides a plan for contributing to the answer on how the nation should prioritize its investment across the competing demands of readiness, modernization, and transformation. The JE program will examine concepts across three axes: revolutionary, evolutionary and enhancement **(**see **Figure 3-1)**. These axes cannot be thought of as separate initiatives; there is interdependence, a continuous give-and-take, critical to fostering concept development throughout the JE process.

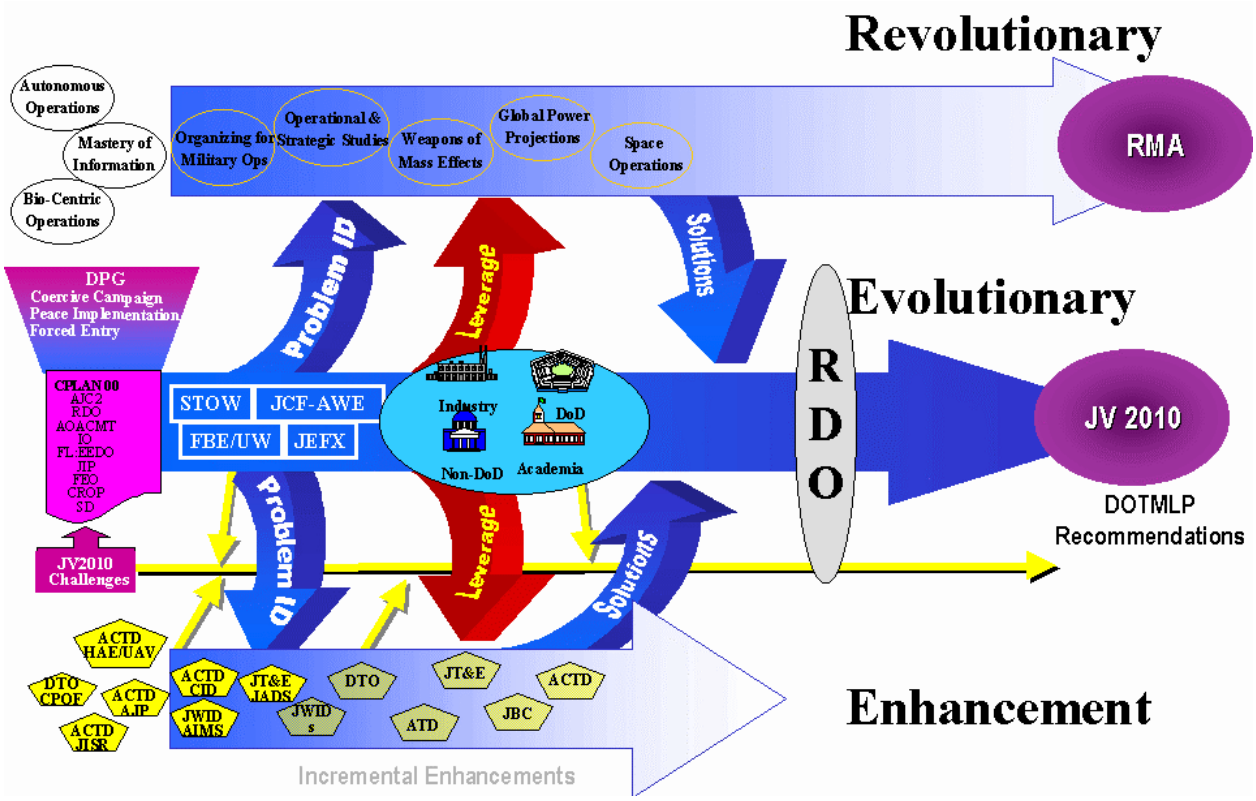


Figure 3-1 3-Axes Interdependence

3.3.1.1 Revolutionary Axis.

The revolutionary axis explores concepts and technologies that will truly support the breakthroughs necessary to accomplish the transformation of the force. Although it concentrates primarily on the timeframe beyond JV 2010 in the technology, human, and organizational dimensions of military art, efforts on this axis may discover radically new approaches to operations that can be integrated into the force in the near-term. The revolutionary axis is based on the development and exploration of ideas that may provide operational concepts for the joint force beyond 2010 (the "Joint Force After Next"), or identify “leap-ahead” technologies that fundamentally change warfighting as we know it today. This program looks beyond the current and programmed force to determine what should come next. It establishes the vision of future critical capabilities in terms of systems, platforms, and concepts to follow those of the 2010 force.

The JE Futures Program, a key aspect of the revolutionary axis, will convene a structured series of seminars, workshops and wargames that bring together experts in critical future focus areas to explore, expand, and in some cases define these far-reaching ideas. The program will culminate annually in a Joint Force After Next (JFAN) Wargame, which is designed to explore innovative concepts in a broad range of challenging potential future environments. Work in this program is conducted in close cooperation with OSD’s Office of Net Assessment.

3.3.1.2 Evolutionary Axis.

The evolutionary axis focuses on conducting experiments from the concepts developed as a result of ongoing JV 2010 implementation efforts. It addresses concepts that capture new processes and emerging technologies targeted on achieving and maintaining Full Spectrum Dominance for the JV 2010 joint force. The changes that result from the experiments will typically be evolutionary in nature due to the fact that they are based on the major platforms (or their enhanced derivatives) found in the current and programmed (POM) force. It explains how we can conduct operations in the future, with a force enabled by advanced information technologies employing the operational concepts of JV 2010. As experiments are conducted, issues that can be solved with currently available technology will be identified. Those proposals with near-term feasibility will be identified in immediate recommendations for improvement to DOTMLP.

3.3.1.3 Enhancement Axis.

The enhancement axis focuses on the rapid integration of processes and/or current technologies (off-the-shelf) to address known deficiencies and on the continuous and incremental improvement of the capabilities of the current joint force. The work of USACOM's Joint Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance Battle Center (JBC), Advanced Concepts Technology

JWCA Ribbons

- Intelligence, Surveillance & Reconnaissance
- Combating Terrorism
- Information Operations
- Interoperability
- Joint Readiness
- Strategic Mobility & Sustainability
- Deterrence/Counter Proliferation Of WMD
- Command & Control
- Land & Littoral Warfare
- Reform Initiative
- Sea, Air, & Space Superiority
- Regional Engagement/Presence
- Strike

Demonstration (ACTD) programs, CINC and Service experimentation programs, the OSD Joint Test & Evaluation programs, Joint Warfighting Capabilities Assessments (JWCA), and other programs and organizations will be leveraged to ensure synchronization with concept development across the axes of the JE campaign.

In addition to directing the activities of the operation of the JBC and the assigned ACTDs, USACOM's role in this axis will be to ensure that problems identified during real-world global military contingencies are addressed by one of USACOM's programs.

3.4 Structuring JE Campaign Concepts

A campaign arranges tactical, operational, and strategic actions to accomplish operational and strategic objectives. The Joint Experimentation campaign arranges concept development initiatives, experiments, and other activities to accomplish the requirements assigned in USACOM's strategic guidance. JE is founded on a concept-based process. Concepts provide the intellectual threads that link small, focused experiments to larger integrating events, and those, in turn, to elements of strategic guidance.

Campaign Planning Approach

Identify operational environments and missions to provide an operational context for employment of JV 2010's key elements.
Select a set of themes that are important for the support of Combined/Joint Forces, and which will provide focus for the selection and development of concepts.
Develop a family of concepts that describe how Combined/Joint Forces will employ new doctrine, organizations, and technology.
Design a sequence of experiments that will rigorously investigate each concept.

Eight concepts formed the foundation of CPLAN 99 (see box). CPLAN 00 subsumes "Interoperable Combat Identification" into the "Common Relevant Operational Picture" and adds three new concepts ("Forcible Entry Operations," "Strategic Deployment," and "Information Operations") in order to respond to the DPG and CJCS Guidance. "Future Collaborative Information Environment" has been adjusted and renamed as "Joint Interactive Planning" to more accurately reflect the content of the concept. "Surveillance & Fires From Space" has moved from concept development to the Futures Program for further study.

CPLAN 99 Concepts

Attack Operations Against Critical Mobile Targets
Future Collaborative Information Environment
Common Relevant Operational Picture
Interoperable Combat Identification
Adaptive Joint Command and Control
Joint Contingency Force Operations
Focused Logistics:
  Enabling Early Decisive Operations
Surveillance & Fires From Space

3.4.1 Operational Missions

The USACOM joint concept development and experimentation campaign will focus in FY 00 on defining a joint strike concept as a means of achieving the requirements of a rapid decisive operation. The concept of *Rapid Decisive Operations* describes how the Joint Force can simultaneously apply the full range of joint capabilities - from the air, land, sea, space, and

information domains - to effect an early and lethal strike operation against the enemy's operational center of gravity to break the coherence of the enemy's campaign and defeat his operational-level force. This will be supported by a simultaneous attack on his strategic center of gravity to undermine his will and degrade his capability to sustain operations. Doing so will deny him the ability to accomplish his intent and allow the U.S. to achieve our strategic objectives without having to conduct a prolonged, deliberate, and costly campaign that would include having to seize and control large expanses of terrain. Work on this Integrating concept will culminate in a Major Joint Integrating Experiment (MJIE) in FY 04.

In addition to conducting experimentation targeted on developing the RDO concept, in FY 00 USACOM will also conduct studies (including seminars and workshops) to develop the parameters of the following additional operational missions to set the conditions for further concept and experimentation strategy development:

- Coercive operations in which we compel an adversary to comply without having to conduct a protracted campaign.
- Major Theater War (a concept for the Deliberate Decisive Operation that could include seizing and holding terrain as a major strategic or operational objective - the focus for a FY 06 MJIE)
- Stability Operations (including Peace Operations, Non-combatant Evacuation Operations, and Humanitarian Support Operations objective - the focus for a FY 07/08 MJIE)
- Homeland Defense (defining DOD's role in the inter-agency effort to protect domestic interests objective - the focus for a FY 08/09 MJIE)

3.4.2 Themes

Four overarching "theme" areas help establish logical groups of similar concepts and relate them to the key elements in JV 2010. Each theme is enduring and represents an area of significant importance to the Joint Force Commander. Although the group of concepts currently under development will change over time, themes will span the succession of annual JE Campaign Plans, thus enhancing JE Program continuity. The four themes are "Force Application," "Deploy and Sustain the Force", "Information Superiority," and "Command and Control." **Table 3-1** relates themes, JV 2010 key elements, and CPLAN 00 concepts.

THEME	JV 2010 CONSTRUCT	CPLAN 00 CONCEPT
Force Application	• Dominant Maneuver • Precision Engagement • Full-dimensional Protection	• Rapid Decisive Operations • Attack Operations against Critical Mobile Targets • Forcible Entry Operations
Deploy and Sustain the Force	• Focused Logistics	• Focused Logistics: Enabling Early Decisive Operations • Strategic Deployment
Information Superiority	• Information Superiority	• Information Operations • Common Relevant Operational Picture
Command and Control	• Command and Control	• Adaptive Joint Command and Control • Joint Interactive Planning

Table 3-1 Theme / JV 2010 / CPLAN 00 Relationship

3.4.3 CPLAN 00 Joint Concepts

CPLAN 00 uses two categories of joint concepts:

- An "Integrating" concept describes how a Joint Force Commander integrates supporting concepts and capabilities in a specific operation. Integrating concepts provide operational context for supporting functional concepts. *Rapid Decisive Operations* (RDO) is an integrating concept.
- A "Functional" concept amplifies a specific function (such as theater missile defense) or describes how to employ a system or conduct a task (such as attack of critical mobile targets). Functional concepts rely on integrating concepts for operational context. The combination of the focused logistics methods and the capabilities that enable large-scale combat operations may be different from the combination that is effective for humanitarian assistance. For example, the RDO concept currently provides the operational context for *Focused Logistics: Enabling Early Decisive Operations*. A different integrating concept such as one oriented on peace operations, humanitarian assistance, or homeland defense would provide a different context for supporting concepts.

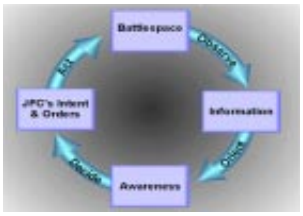
The concepts included in CPLAN-00 are those that are most essential to achieving the direction specified in the FY 2000 Defense Planning Guidance and the Chairman of the Joint Chiefs of Staff's instructions. In cooperation with the combatant commands, Services, and DOD agencies, USACOM developed this list of warfighting concepts to reflect potential high-value solutions to the joint issues identified from a wide range of sources including joint and service wargames, the CINCs' Integrated Priority Lists, after-action reviews of current operations, and a series of conferences with the combatant commands and Services to shape the Joint Experimentation Program for FY 00 and beyond.

The primary strategic objective for the Joint Experimentation Program in FY 00 is to develop the integrated concept for Rapid Decisive Operations to achieve the national aims of a coercive campaign. To accomplish a Rapid Decisive Operation, the joint force must integrate several new conceptual components. These concepts form the core of the concept development and experimentation that USACOM will conduct beginning in FY 00. Following is a brief review of CPLAN 00 concepts. See **Appendix A** for detailed summaries of each.

- Attack Operations Against Critical Mobile Targets (AOACMT): The immediate identification and continuous, accurate tracking of critical mobile and time-sensitive targets, and subsequent engagement with precise, re-targetable, and immediately responsive weapons and offensive information operations.

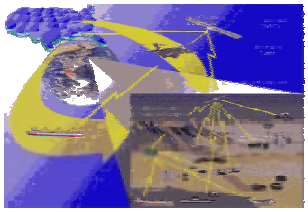
- Common Relevant Operational Picture (CROP): Present timely, fused, accurate, assured, and relevant information in a readily understandable, scalable, and interactive format that will help the Joint Force Commander (JFC) compress the decision cycle, react more quickly to high-tempo operational requirements, and limit risk.

- Adaptive Joint Command and Control (AJC2): Employing Information-based and other technologies to help the JFC organize the headquarters and task organize the joint force for the unique requirements generated by different missions and operational environments, and dynamically respond as requirements change.



- Joint Interactive Planning (JIP): Increase the ability to plan the various elements of a joint operation in a parallel and collaborative manner, rather than in a sequential and hierarchical manner, so that the JFC can decide and act faster than the adversary.

- Information Operations (IO): Use offensive and defensive information operations to degrade, destroy, and exploit an adversary's information-based processes while protecting our own. Provide the National Command Authority options for limiting conflict escalation and achieving strategic success through maintaining information superiority, vice total reliance on conventional forces.



- Focused Logistics: Enabling Early Decisive Operations (FLEEDO): Provide an agile, anticipatory, and responsive logistics infrastructure, and decrease the logistics requirements per unit of combat power in order to enhance force employment/deployment efficiency and provide "right-sized" support.

- Forcible Entry Operations (FEO): Rapidly deploy, integrate as required with in-theater forces, and employ joint forces against adversaries adept at denying access to the joint force and at using asymmetric means in theater. Establish theater entry points required to deploy decisive land, air, and sea forces for follow-on combat operations.

- Strategic Deployment (SD): Identify and develop capabilities that support rapid and simultaneous convergence of sea, land, and air assets into an area to conduct early decisive operations. Looks into the areas of strategic lift, pre-positioning, and basing in order to reduce footprint and enhance responsiveness.

3.5 Concept Development

In FY 00, USACOM will continue and improve its series of seminars, workshops, and wargames to support White Paper and experimentation strategy development and refinement for these concepts. Completion targets for revision of the White Paper on AOACMT and initial versions of additional White Papers are listed in paragraph 4.2. These documents will describe a hypothetical construct for future joint operations and the experimentation strategy that will be

used to assess that hypothesis and provide empirical findings that can be used with constructive analysis and quantitative methods to generate recommendations on improvements to DOTMLP.

Seminars bring together all components of the joint community to include, when appropriate, C/S/A, and inter-agency, academic, and industry representatives to define the scope of the concept propose promising supporting technologies, identify key equities and issues, and build a collaborative network that can support comprehensive concept development. These seminars bring additional expertise and perspectives to the work conducted by USACOM's core integrated concept teams (ICTs) and the expanded ICTs that conduct continuous inter-active dialogue with other key participants through a secure web site, e-mail, video-teleconferencing, and other virtual means. **Figure 3-2** shows one aspect of this integrated development.

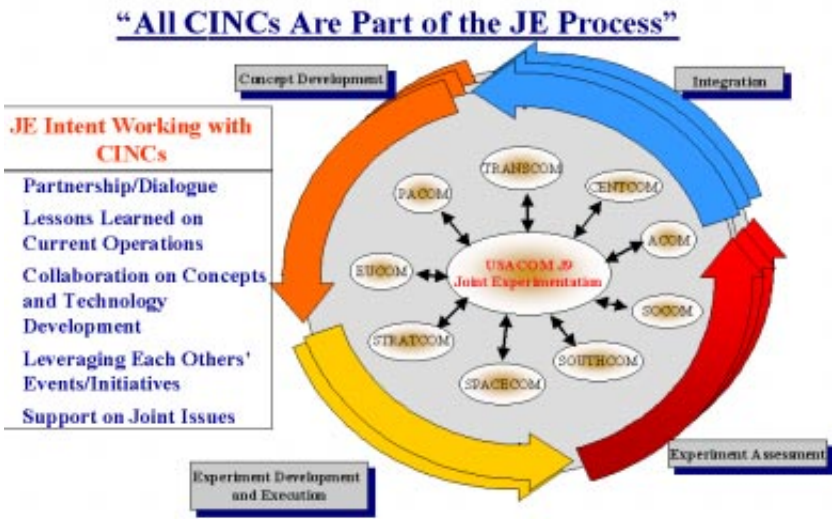


Figure 3-2 JE Interaction With The CINCs

Workshops use this extended community to develop a range of alternative solutions to the fundamental issues the concept must address.

Wargames then provide a forum for the robust and objective competition of ideas to determine which alternative, if any, promises the best overall solution, or to de-aggregate the proposals to identify the most promising components to be re-aggregated into an integrated construct more powerful than any of the individual alternatives. Wargaming also provides for rigorous Vulnerability Assessment to identify risks that must be mitigated if the concept is to be successful.

The analysis of the wargame(s) used during concept development leads to the hypothesis that will be explored during hypothesis-based experimentation. Paragraph 4.3 of this CPLAN identifies the wargames USACOM will conduct during FY 00 to support the development of the Rapid Decisive Operations concept and the supporting functional concepts that must be integrated to support its development.

3.6 The Experimentation Campaign.

The Experimentation Campaign will examine each concept through a series of hypothesis-based experiments and other events. This is done in a spiral process – a cyclical approach that uses major experiments, seminars, workshops, wargames, quantitative analysis, technology threads, and other events to investigate key dimensions of the concept. The content of a spiral strategy is shown in **Figure 3-3**.

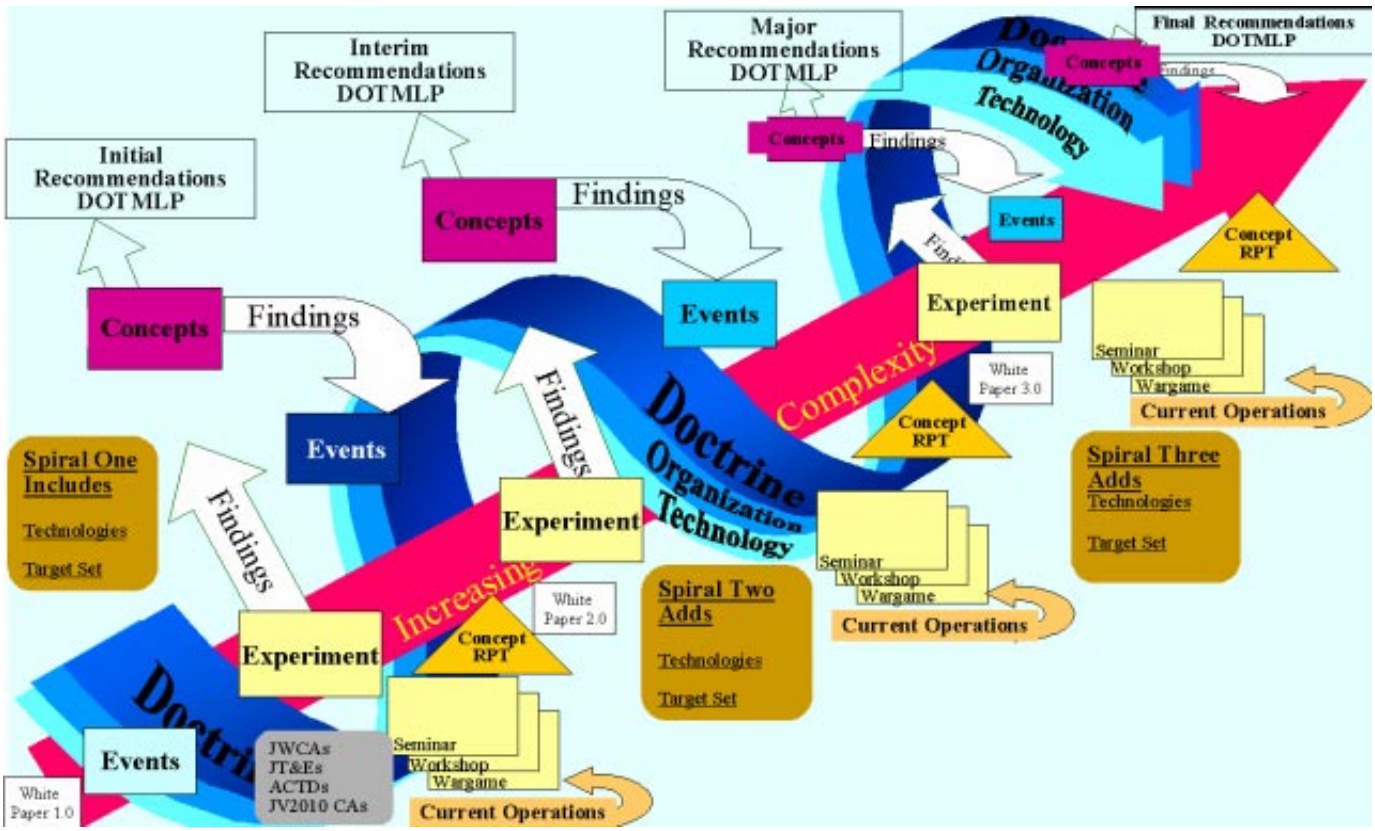


Figure 3-3 Concept Experimentation Strategy Utilizing A Spiral Process

Although the specific content of each concept's strategy is unique and based on its specific requirements, each spiral typically contains the following components:

- A USACOM-generated model or simulation-supported experiment that provides an operational context in which components of one or more concepts can be assessed
- One or more leveraged events sponsored by the combatant commands or Services that can be used to explore components of concepts
- A technology thread that incorporates exploration of supporting technologies through ACTDs, JT&Es, etc.
- Seminars, workshops, and wargames to assess collective results and refine the concept or hypothesis

Each spiral provides findings that support related concept development and can lead to recommendations on improving DOTMLP, while experimentation progresses.

In FY 99 USACOM developed an experimentation strategy for Attack Operations Against Critical Mobile Targets. In FY 00 USACOM will complete and integrate experimentation strategies for the concepts included in this CPLAN (**Appendix A**). This integrated strategy will provide the core of CPLAN 01.

As the spiral strategy progresses, the operational context and the requisite capabilities to enable experimental concept will be more clearly identified, culminating in a major joint integrating event supported by major live field experimentation.

Consistent with the CJCS's guidance, CPLAN 00 projects that a major joint integrating experiment (MJIE) in 2004 will culminate a multi-year examination of the RDO integrating concept. The strategy for experimenting on RDO from the year 2000 to the 2004 event will describe an orderly and thorough examination of the key concept issues related to "coercive operations." The strategy will map these issues to specific types of experimentation events in a logical sequence. This will link concepts, experiments, and the JE campaign strategy to accomplish the aims of USACOM's strategic guidance.

Experimentation strategy development is a continuous process to present a comprehensive, achievable approach to address objectives associated with the 2004 MJIE. **Figure 3-4** depicts the relationships described above. As lessons from ongoing experiments are learned, concepts and strategies are continuously reviewed and refined. USACOM must have the authority and flexibility to redirect "its" efforts and resources in order to exploit newly found opportunities and drop initiatives that fail to produce anticipated capabilities.

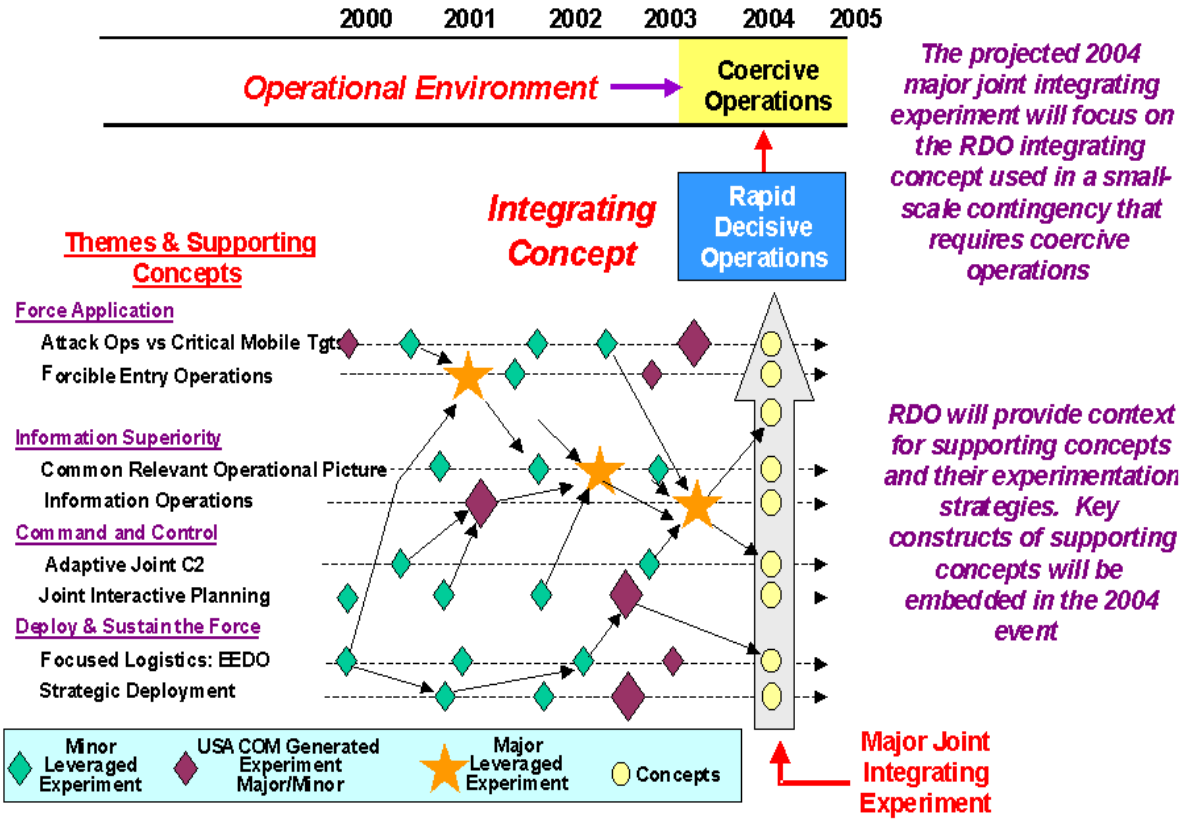


Figure 3-4 RDO Culmination Strategy

JV2010 establishes the requirement for ***Full Spectrum Dominance***—the ability to dominate any adversary and control any situation in any operation across the range of military operations. JV 2010 describes this as the key characteristic sought for the joint forces in 2010. While the integrating concepts, functional concepts, and the 2004 integrating experiment provide the impetus for CPLAN 00, the JE Program will over time examine a more inclusive and comprehensive set of concepts across different operational environments

CPLAN 01 will present an initial strategy for future operations in another mission environment, that of a major theater war. This next integrating concept will provide a construct for defeating a major regional, or peer, competitor. It will complement the RDO's strike-oriented concept by providing a way to conduct a major, sustained campaign that may require seizing and controlling enemy terrain. The experimentation strategy for this integrating concept will culminate in the FY 06 Major Joint Integrating Event (MJIE). It will also be the focus of a major Model and Simulations-supported experiment in FY 02.

Subsequent CPLANs will introduce additional operational missions and environments and the strategies to develop and assess the concepts necessary for successful accomplishment of their operational and strategic objectives **(Figure 3-5)**.

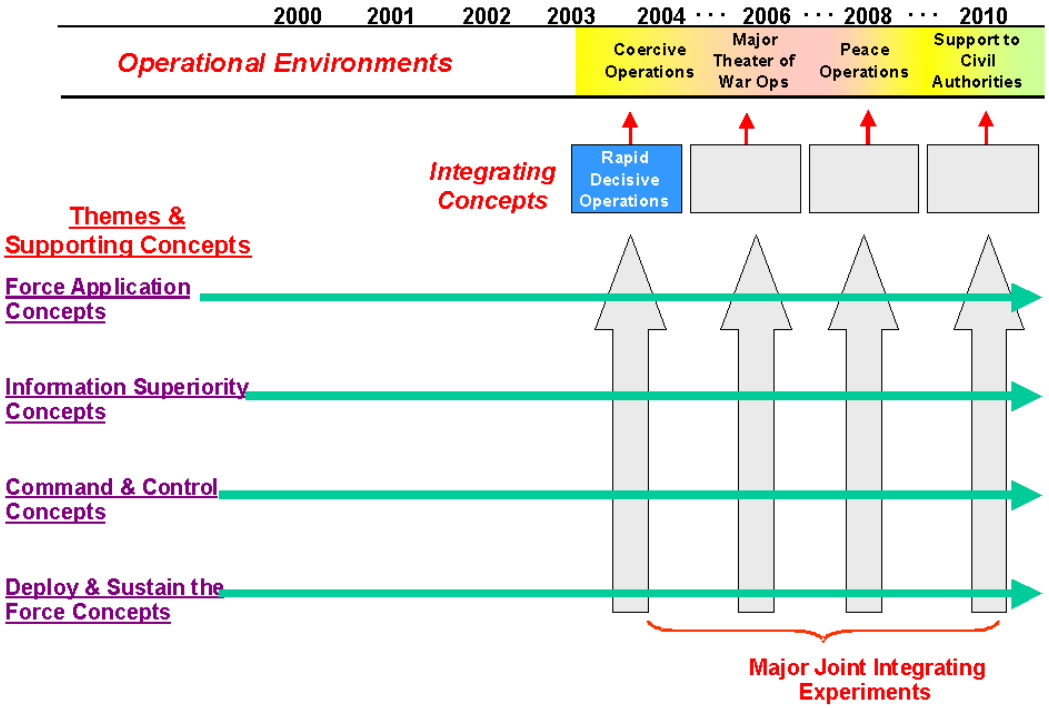


Figure 3-5 JE Major Integration Future

3.7 Adversary and Vulnerability Assessments (Red Teaming)

A key element of concept development and experimentation strategies is the requirement to accurately identify, analyze and portray the future global environment, potential adversaries,

their capabilities, and “friendly” technical vulnerabilities/weaknesses. This is called Adversary and Vulnerability Operations (AVO).

JE will use four separate components of AVO during concept exploration. Each identifies and assesses the adversary's strengths and friendly vulnerabilities of each concept:

- Initial Adversary and Vulnerability Assessment (AVA). AVA provides an adversary capability and U.S. vulnerability, background to a concept in development. The AVA is an appendix to the white paper. It will describe the global environment, potential adversary and assess macro ‘friendly’ concept vulnerabilities.

- Technical Vulnerabilities Analysis and Assessments**.** Vulnerability assessment synthesizes the identified vulnerabilities and other factors such as likelihood, severity of impact on the larger system, and likely mitigation to address the significance of the vulnerability.

- Red Teaming**.** Interactive red teams staffed by AVO skilled experts play "devil’s advocate." They assist event or concept discussion by providing a threat-based examination of friendly vulnerabilities. This point/counter-point examination is applied throughout the concept selection and development process, experiment design, execution, and assessment.

- Opposition Force (OPFOR). The primary purpose of the OPFOR is to provide moves and counter-moves that create the situation that friendly forces must counter within the experiment construct. The OPFOR will be designed around the adversary, the environment, and the capabilities outlined in the Initial AVA and refined during red teaming events and seminars.

4 FY 00 EXPERIMENTATION ACTIVITIES

Chapter 3 described the broad strategy that will lead U.S. to the first major joint integrating experiment in 2004 that will culminate in the investigation of the RDO concept. Chapter 4 describes in detail the workplan, events, and deliverables that comprise USACOM's FY 00 Joint Experimentation efforts. Chapter 5 will address the major events that represent the plan for the level of sustained operations USACOM can conduct when fully manned and resourced as programmed. **Appendix B** lists Service and CINC sponsored events that are potential candidate opportunities for collaborative work on joint concepts. Subsequent CPLANs will provide substantive content for these events and the deliverables they will generate.

4.1 Baseline Collective Assessments (BCA)

A baseline collective assessment is conducted for each concept selected in a campaign plan. It is a snapshot that investigates from all available sources, what concept development and experimentation activity has already taken place and what ongoing or planned activities might be leveraged to explore concept issues. In an effort to account for the progress that has occurred since the BCA, follow-on collective analysis and subsequent concept reports will provide feedback for further concept development, experimentation strategy adjustments, and recommendations for necessary changes to DOTMLP.

A typical BCA requires about four months to complete. By 1 Oct 99, BCAs will be complete for *Rapid Decisive Operations; Attack Operations Against Critical Mobile Targets; Common Relevant Operational Picture; Adaptive Joint Command and Control*; *Joint Interactive Planning;* and *Focused Logistics: Enabling Early Decisive Operations.* Target completion dates for remaining BCAs follow:

- *Strategic Deployment* **2nd QTR FY 00**
- *Information Operations* **3rd QTR FY 00**
- *Forcible Entry Operations* **4th QTR FY 00**

4.2 Concept Development

A version 1.0 White Paper is the product of the discovery phase of concept development. It provides a detailed, hypothetical construct for future operations that are defined sufficiently through a rigorous wargaming and vulnerability process to proceed to hypothesis-based experimentation. Concepts for which Version 1.0 White Papers were completed in FY 99 are AOACMT, *CROP*, and *FLEEDO*. Following are target milestones initial White Papers for the remaining six concepts:

- *Adaptive Joint Command and Control* **Jan 00**
- *Joint Interactive Planning* **Feb 00**
- *Information Operations* **Feb 00**
- *Rapid Decisive Operations* **Apr 00**
- *Strategic Deployment* **Apr 00**
- *Forcible Entry Operations* **Apr 00**

Development of these concepts will involve seminars, workshops, and expanded ICT meetings to ensure that members of the joint community provide perspectives addressing key conceptual issues. J9 will continue to collect concepts and ideas, analyze them, recommend candidates for future experimentation, and develop White Papers to support CPLAN 01.

Based on the findings of Joint Experiment J9901 and other AOACMT Experimentation Spiral 1 activities, J9 will publish a Version 2.0 of the White Paper on AOACMT during FY 00. An October 1999 Seminar will bring together the Joint and Service extended missile defense and ISR communities to compile findings from their various related activities, analyze results, and identify common conclusions or discrepancies. Recommendations for changes to DOTMLP based on corroborated findings will be prepared. Discrepancies will be defined in terms of additional joint issues to be resolved through further experimentation. The seminar's subsequent workshop will refine the Version 1.0 construct and hypothesis. This paper will provide the basis for further experimentation in Joint Experiment J0019 in Spring-Summer 2000 and other Spiral 2 activities.

4.3 USACOM Wargames

A wargame is a versatile tool that can greatly facilitate concept development and exploration. J9 will conduct a series of wargames in FY 00 to help explore RDO and other concepts. These games will be structured around the CPLAN 00 themes to facilitate exploration and integration of multiple concepts. Seminars and workgroups associated with each wargame will contribute to the development of scenarios and objectives, and will discuss how wargame results should impact on concept refinement. The planned schedule follows:

- Spring *RDO* Wargame. The primary focus of this wargame will be to set the overall concept of Rapid Decisive Operation for Joint Experiment J0019, described in paragraph 4-5, below.
  - *Rapid Decisive Operations*
  - *Attack Operations Against Critical Mobile Targets*
  - *Adaptive Joint Command and Control*
  - *Common Relevant Operational Picture*
  - *Strategic Deployment*
  - *Focused Logistics: Enabling Early Decisive Operations*

- Summer *Information Superiority* Wargame.
  - *Information Operations*
  - *Joint Interactive Planning*
  - *Adaptive Joint Command & Control*
  - *Common Relevant Operational Picture*

- Fall *Deployment and Sustainment* Wargame.
  - *Focused Logistics: Enabling Early Decisive Operations*
  - *Strategic Deployment*
  - *Adaptive Joint Command and Control*
  - *Common Relevant Operational Picture*

4.4 USACOM Joint Experiment *Unified Vision 00* (J0019)

In FY 00, USACOM will conduct a major simulations-supported experiment identified as *Unified Vision 00 (*UV00*).* In collaboration with the Defense Modeling and Simulations Office, this experiment will be supported principally by the Pegasus federation of constructive simulations. Supporting wargames will be conducted with PC-based simulations that will focus on the knowledge superiority and strategic deployment aspects of shaping the RDO battlespace

UV00 will focus primarily on "Shaping the Battlespace" to set the conditions for a Rapid Decisive Operation. The scenario will focus on a circa-2010 coercive campaign using a Southeast Europe (Balkans) terrain base. In addition to supporting experimentation Spiral 1 of the RDO concept, the experiment will also include major efforts in support of the following additional concepts:

- *Attack Operations Against Critical Mobile Targets* (Spiral 2, builds on UV00 results)
- *Common Relevant Operating Picture* (Spiral 1, initial hypothesis assessment)
- *Adaptive Joint Command and Control* (Spiral 1, initial hypothesis assessment)
- *Joint Interactive Planning* (Spiral 1, initial hypothesis assessment)
- *Focused Logistics: Enabling Early Decisive Operations* (Spiral 1, initial hypothesis assessment)
- *Strategic Deployment* (Spiral 1 initial hypothesis assessment)

This experiment and its supporting wargame will examine three independently derived approaches to the concept of Rapid Decisive Operations:

- An aggregate of the existing Service 2010 programs. This approach will combine the existing service initiatives into a Joint Task Force using the integrating concept of RDO and the operational concepts above. In addition to assessing dimensions of the joint concepts included in the experiment, it will provide an assessment of the compatibility of the Service concepts with each other and the joint context for the operation.
- A “Rapid Dominance” (Shock and Awe) force as proposed by Drs. Wade and Ullman of Defense Group, Incorporated.
- An RDO force designed as the operational component of the RDO White Paper to be co-authored by USACOM and the Institute for Defense Analysis’ Joint Advanced Warfighting Program.

During the preliminary wargaming for UV00, each alternative will be explored against a common scenario driven by a robust, independent red-team representing an advanced regional power equipped with capable, circa-2010 integrated systems capable of generating significant asymmetric counters to the RDO concept. Selected, revised, or aggregated concepts will be assessed in UV00's hypothesis-based scenario. Red-Team vulnerability assessments will begin during the preliminary RDO workshop and will continue through the UV00 post-experiment analysis.

4.5 Leveraged Events

J9 will leverage events sponsored by the Services and other Combatant Commands to the maximum extent possible. Leveraging is an opportunity for mutual support between the event

sponsor and the Joint Experimentation program. Major leveraging involves significant USACOM support for joint objective development, co-sponsorship, participation, and resource pooling. In FY 00, USACOM will participate significantly in the following Service-sponsored experimentation events as components of USACOM's experiment *Millennium Challenge 00 (MC00)*:

- Joint Contingency Force Advanced Warfighting Experiment (Army)
- Joint Expeditionary Force Experiment 00 (Air Force)
- Capable Warrior/MOUT ACTD (USMC)
- Fleet Battle Experiment Hotel (Navy)

USACOM will also provide observers to collect observations on other Service and CINC-sponsored events that include potential opportunities to assess joint concepts or component involvement in joint concepts. Potential events for partnership with the Services are found in **Annex B**. **Figure 4-1** identifies potential areas for cooperation with the Combatant CINCs. J9 is working with sponsors of these events to coordinate possible USACOM participation.

Enhancement Axis	
• JBC	CINC Requirements Driven
• ACTDs	CINC Requirements Driven
Concept Development Activities (Evolutionary / Revolutionary Axes)	
•Concept Development Conferences	All CINCs
• Futures Conferences	All CINCs
• Kosovo Lessons Learned	USEUCOM
• Attack Operations EXP Strategy	USEUCOM, USSOCOM, USSPACECOM
• FLEEDO EXP Strategy	All CINCs
•RDO EXP Strategy	USCENTCOM, USSOCOM
• JIP EXP Concept	USPACOM

Figure 4-1 Potential Collaborative Activities with Combatant CINCs

4.6 Related Initiatives

The development and exploration of CPLAN 00 concepts represents the current main effort of the JE campaign. Concurrently, USACOM will pursue a variety of related initiatives that support the long-term campaign and shape the expanded direction of subsequent CPLANs. The following initiatives will be worked throughout FY 00 to set the context for additional future efforts.

4.6.1 Studies

USACOM will conduct the following studies in FY 00:

Integrating Concepts Study. As mentioned above, other integrating concepts will follow RDO in order to help focus succeeding campaign plans on MJIE in the years beyond 2004. These concepts will address operational environments across the range of military operations, with particular regard for key operational missions (such as peace operations) identified in the DPG. This study will recommend the focus and sequence of future integrating concepts.

Capstone Concept Study. The *Concept for Future Joint Operations* (CFJO), published in May 1997, is the current Capstone Concept based on *Joint Vision 2010*'s key elements. This study

will investigate whether a revised Capstone may be required and what level of effort should be committed to such a project.

Interagency Support Study. The Chairman's guidance to USACOM directs that scenarios for major joint integrating experiments will provide a context for both interagency and coalition operations. This study will address ways to integrate interagency concepts, capabilities, and efforts with the USACOM JE Program.

4.6.2 International Experimentation Initiative

One of the key tenets of the National Security Strategy as contained in the 1999 DPG states, "The nature of the challenges the nation faces demands cooperative, multinational approaches that distribute the burden of responsibility among like-minded states". The development and assessment, through experimentation, of concepts for combined operations is an implied task in the Joint Experimentation Charter. Cooperative efforts with our Allies and coalition partners to mutually support our national and international Joint Experimentation Programs are essential for developing concepts for combined operations. Some U.S. Allies are already prepared to provide liaison officers to J9. Upon receipt of formal tasking and authority to expend resources, J9 is prepared to conduct a study to address ways to integrate allied and coalition concepts, capabilities, and efforts with the Joint Experimentation program.

Select International/ Coalition Operational Questions

- What are advantages and disadvantages of JV 2010 framework for international/coalition military?
- What architectural options best suit international military operations?
- What affects coalition ability to develop a common operational picture?
- What are the implications of different C2 and communications cycles for international military operations?
- Are common logistical solutions/capabilities possible?
- What are the gaps/challenges to the coalition intelligence cycle?

4.7 Current Global Military Operations and Limited Objective Experiments (LOE)

Real-time operations provide accurate baseline information with regard to current application of doctrine, technologies, and organizations. In cooperation with USACOM's Joint Battle Center (JBC), these events will be studied and provide feedback for analytical analysis and integration into concept refinement (**Figure 4-2**).

Figure 4-2 Maintaining Visibility of Current Operations

The Kosovo-based Force Application LOE. This LOE will investigate the potential impact on joint operations of using non-kinetic precision engagement means. The 1999 NATO operations in Kosovo provide the baseline.

4.8 Service and CINC Wargames

USACOM will participate in the Service After Next and JV 2010 Wargame programs. USACOM will cooperate with the functional CINCs and their wargaming efforts to develop advanced concepts in support of developing functional concepts for future joint operations. USACOM participants will include, as appropriate, players to provide a joint operational perspective to Service and CINC explorations, and assessors to collect and analyze joint lessons learned during these events as part of USACOM integrated experimentation strategies.

4.9 Futures Program Activities

During CPLAN 99 development, USACOM J9, in coordination with the joint community, identified eight futures "focus areas" for further exploration. USACOM will continue to investigate these areas for potential revolutionary operational concepts and capabilities through a series of RMA-oriented seminars and wargames. These events will have broad-based participation from many groups, including combatant commands, Services, the Joint Staff, OSD, academia, and civilian think-tanks. This program works closely with DARPA to mutually leverage efforts to synchronize technology and operational concept development. This program will culminate annually in a "Joint Force After Next" Wargame (circa 2030) that will incorporate areas investigated during the year as well as revelations from the Service futures programs and OSD/Net Assessment. USACOM will sponsor a number of FY 00 activities to explore revolutionary "focus areas." The results of these events can lead to proposals to develop concepts oriented on the RMA period. Following are scheduled events:

- First Annual Joint Force After Next (JFAN) Wargame **18-22 Oct 99**
- Focus Area Seminar 00-1: *Autonomous Decision Making* **16-18 Nov 99**
- Focus Area Seminar 00-2: *Autonomous Weapons & Sensors* **Jan 00**
- Focus Area Seminar 00-3: *Computer Network Warfare* **Feb 00**
- Focus Area Seminar 00-4: *Space Operations* **Apr 00**
- Second Annual Spring Seminar Game: Logistics Policy and Organizational Structures **May 00**
- Focus Area Seminar 00-5: Human Performance, Training, and Learning **Jun 00**
- Focus Area Seminar 00-6: *Predicting Intentions* **Aug 00**
- Second Annual JFAN Wargame **Sep 00**

J9 will also continue development of a far-term concept for advanced Surveillance & Fires From Space. In FY 00, J9 will produce an initial White Paper and Baseline Collective Assessment to define potential applications of the concept to operations beyond 2010.

4.10 Cooperation with the USACOM Joint Battle Center

USACOM J9 will partner with the USACOM Joint C4ISR Battle Center to develop concepts that provide mid-term and long-term follow-on to the JBC's 6 major project groups for FY 00:

- Joint Battle Management Integration
- Joint Communications Infrastructure Synchronization
- Joint Collaborative Standard
- Information Dissemination Management
- Coalition C4ISR
- Non-government Organization (NGO) and Inter-Agency Connectivity.

4.11 Advanced Concepts Technology Demonstration

The Advanced Concepts Technology Demonstration (ACTD) program provides a means for identifying potential technological solutions for the requirements of future operational concepts. USACOM will coordinate with ACTD sponsors to identify mutually supporting opportunities for ACTD assessment and integration into joint concept experimentation strategies.

In addition, USACOM is sponsoring the fourteen Advanced Concept Technology Demonstrations identified below. The ACTD process is a collaborative effort between the Department of Defense and the Warfighters. The goal of this new paradigm is to improve the acquisition process by involving the Warfighter early in the evaluation of emerging technologies. Revisions and additions for FY 00 are presently under review. The eleven USACOM ACTD's and their objectives are as follows:

- Adaptive Joint Planning (AJP): To enhance Joint Operational Planning Capabilities for the CINC by leveraging, refining, and integrating emerging C2 software technologies.

- Battlefield Awareness and Data Dissemination (BADD): Provide software tools to give joint warfighters improved capabilities to rapidly retrieve, process, and disseminate large volumes of imagery and data critical to providing battlespace awareness and executing wartime operations.

- High Altitude Endurance UAV (HAE UAV): Demonstrate a system capable of providing affordable, long dwell, near-real-time IMINT in all weather. Goal is to demonstrate that a $10M unit flyaway cost for each aircraft and sensor packages can be achieved.

- Integrated Collection Management (ICM): Provide the JTF Commander a common operating environment (COE) to optimize Intelligence, Surveillance, and Reconnaissance (ISR) sensors across National, Theater, and Tactical levels.

- Joint Logistics (JL): Develop Web-Based Joint Logistics Decision Support Tools applied to any phase, any box, any echelon, using live data.

- Navigation Warfare (NAVWAR): Demonstrate proof of concept for protection of U.S. and allied access to satellite navigation information (e.g., GPS) and prevention of adversarial use of navigation.

- Joint Modular Lighter System (JMLS): To demonstrate a joint interoperable causeway lighter system that can be safely assembled and operated in a loaded condition through Sea State 3.

- LINK-16 Variable Message Format (LINK-16 VMF): Link-16/VMF is a proof of concept ACTD designed to address the exchange of information between the Link-16 and ground VMF (Variable Message Format) networks.

- Chem-Bio Individual Sampler (CBIS): To provide the Joint Force Commander (JFC) with information that will assist the warfighter in effectively exploiting the battlefield environment while simultaneously protecting forces from exposure to chemical and biological agents.

- Joint Theater Logistics (JTL): Build upon existing technologies to produce a collaborative operations and logistics assessment capability for the Joint Force Commander that will close the loop between operations and logistics planning.

- Theater Air and Missile Defense Interoperability (TAMDI): Three-phase objective. Phase One is a gridlocking of radar and an engineering data collect for the PATRIOT and AEGIS phased array radar. Phase Two is an Engage-on-Remote missile engagement at the Pacific Test Range in July 2000. Phase Three is an engineering data collection effort to determine the potential to gridlock the THAAD into the PATRIOT/AEGIS radar grid.

4.12 Technology Initiatives

In FY 00 USACOM will add a technology assessment capability to the JE Program. FY 00 objectives for this capability will include:

- Establishment of a collaborative relationship with other key members of the transformation community that are involved in developing and integrating new technologies into the future joint force. These include the Defense and Service Science Boards, DARPA, the JT&E program, ACTDs, JWCAs, industry, academia, etc. CINCUSACOM will use the JWSTP and associated JWCOs and DTOs as primary sources for identifying technological capabilities to be incorporated into Joint Experimentation.
- Identification of the technologies that can potentially support the concepts under development
- A Fall Technology symposium for identification by industry of

JWCA Role

- Explore new program alternatives
- Examine relationships and interactions among joint warfighting capabilities
- Identify opportunities for improving warfighting effectiveness
- Provide insight into readiness, requirements, and support issues

ACTD Role

- Assess mature technologies through evaluations of existing prototypes
- Focus on technology vice cost
- Rapid fielding to address near-term capability shortfalls

promising new technologies that can lead to development of additional high-value concepts for future joint operations

- A Spring Briefing to Industry at which the technology community (including industry, academia, and the R&D agencies) will be updated on concepts under development, additional joint issues, and results of experimentation. This forum will assist industry by focusing R&D efforts on the JE program's priority requirements.
- An Annual Technology wargame that assesses the applicability of industry proposals to joint concepts under development. This effort also leverages the Service Technology Wargame programs as a stating point, avoiding redundancies.

4.13 Alliance of All Service Battle Laboratories

The JE Directorate will coordinate a viable alliance of Service Battle Labs, characterized by open, creative collaborative planning and respect for Service core competency contributions for joint interdependence, experimenting with innovative concepts, advanced technologies and organizations for 21st Century warfighting. Such an alliance will provide a venue for opening dialogue and debate on JE among the principal Service experimentation organizations. The alliance will contribute to efficient JE through sharing of experimentation data, expertise, facilities, and costs. The DOD and Department of Energy research labs will be invited to participate as adjunct members of the alliance.

4.14 Preparation for Experimentation Events in 2001

Major JE events require planning and preparation up to 24 months out. In order to prepare the J0116 and J0121 events scheduled for FY 01, simulation and database preparation must begin in FY 00. Database preparation includes terrain and weather data generation, friendly and enemy force structures definitions, weapon systems characteristics, force capabilities, unit and platform behaviors, and data collection plans. Simulation preparation includes the development of federations from service validated models, testing of the federation, and the verification, validation, and accreditation of simulations against the concept under development.

4.15 FY 00 JE Activities Matrix

FY 00 JE Activities						
		1st QTR	2nd QTR	3rd QTR	4th QTR	Annual
Baseline Collective Assessments						
	Strategic Deployment		**X**			
	Information Operations			**X**		
	Forcible Entry Operations				**X**	
	Surveillance and Fires from Space		**X**			
Concept White Papers (Version 1.0)						
	Adaptive Joint Command & Control		**X**			
	Joint Interactive Planning		**X**			
	Information Operations		**X**			
	Rapid Decisive Operations			**X**		
	Strategic Deployment			**X**		
	Forcible Entry Operations			**X**		
Seminars						
	As req to supt concept development	**X**	**X**	**X**	**X**	
J0035, J0030, J0041A, J0044A	RDO Force Application	**X**				
J0032, J0041B, J0044B, J0049	Information Superiority		**X**			
J038, J0041C, J0044C, J0055	Deployment and Sustainment			**X**		
Workshops						
J0036, J0031, J0042A, J0045A	RDO Force Application		**X**			
J0033, J0042B, J0045B, J0050	Information Superiority		**X**			
J0039, J0042C, J0056, J0045C	Deployment and Sustainment				**X**	
J0031	Attack Operations Against Critical Mobile Targets				**X**	
RDO Force Application Wargame			**X**			
J0019, J0037, J0043A, J0046A, J0058	Focuses on Rapid Decisive Operations; AOACMT; Adaptive Joint Command & Control; and CROP					

		1st QTR	2nd QTR	3rd QTR	4th QTR	Annual
M&S Activities Supporting Concepts		**X**	**X**	**X**	**X**	
J0037	Rapid Decisive Operations Wargame (EBW run)		**X**			
J0019	EADTB prep work for J0019 used in IS and Attach Ops.	**X**	**X**			
J0013, J0037, J0019	Unified Vision 00: RDO experiment using PEGASUS			**X**	**X**	
J0061	JWARS (future model for Joint world) testing to shadow RDO			**X**	**X**	
J0060	JCATS to test Limited Objective Experiment (LOE) Kosovo-based Force Application LOE	**X**	**X**	**X**	**X**	
J0054	Future Fed 1 & 2 as necessary to support Force Application Wargame			**X**	**X**	
J0121	Prep work for 01 RDO experimentation		**X**	**X**	**X**	
J0062	JFAST to test deployment before J0019	**X**	**X**			
J0116, J0121	Prep for RDO & Major Theater of War (MTW)					
Information Superiority Wargame				**X**		
J0034, J0043B, J0046B, J0051, J0019	Focuses on Information Operations; Joint Interactive Planning; Adaptive Joint Command & Control; and CROP					
Deployment and Sustainment Wargame					**X**	
J0040, J0043C, J0046C, J0057, J0019	Focuses on Focused Logistics: Enabling Early Decisive Operations; Strategic Deployment; Adaptive Joint Command & Control; and CROP					

		1st QTR	2nd QTR	3rd QTR	4th QTR	Annual
Leveraged Events						
L0002	Fleet Battle Experiment -- Foxtrot	**X**				
L0001	FLOW 99 JS/J4 Study	**X**				
L0029	OSD / Net Assessment, 20xx Game	**X**				
L0003	Global Engagement Wargame, USAF	**X**				
L0008, L0020, M0006	Capable Warrior, USMC	**X**		**X**	**X**	
L0010	VIC Workshop, USPACOM		**X**			
L0011	Prairie Warrior, USA		**X**			
J0009	ASCIET (USACOM)		**X**			
L0005	Aerospace Future Capabilities Wargame		**X**			
L0007	Army Space Game 4		**X**			
L0018	Army After Next Wargame			**X**		
J0027	Evident Surprise 00 (USACOM)			**X**		
L0015	Matador 00			**X**		
L0016	Mobility Requirements Study 05, JS/OSD			**X**		
L0017	Joint Logistics Management Study JS/J4			**X**		
L0023	Fleet Battle Exp. - Golf, USN			**X**		
L0024	JWID 00, USSPACECOM				**X**	
L0025	VIC Olympic Exercise w/Tempo Brave, USPACOM				**X**	
L0026	Global Wargame, NWC				**X**	
L0028	Joint Command Post Exercise, USA				**X**	
M0006 (MC00)	Joint Contingency Force AWE				**X**	
M0006 (MC00)	Fleet Battle Exp. - Hotel, USN				**X**	
M0006 (MC00)	Joint Expeditionary Force Experiment 00				**X**	
M0006 (MC00)	MOUT ACTD				**X**	
L0030	Marine Corps After Next Seminar Game	**X**	**X**	**X**	**X**	
J0014	Roving Sands, USACOM			**X**		
L0031	Apollo Lens Exercise, USSPACECOM				**X**	
L0032	Foal Eagle 00 (JL-ACTD & LRSSC)	**X**				
L0033	Bright Star 00 (JLWI)	**X**				

		1st QTR	2nd QTR	3rd QTR	4th QTR	Annual
L0034	ALP Execution & Replanning Demo, DARPA		**X**			
Studies						
S0001	Integrating Concepts Study	**X**	**X**			
S0002	Capstone Concept Study	**X**	**X**			
S0003	Interagency Study	**X**	**X**	**X**		
S0004	International Experimentation Initiative	**X**	**X**	**X**	**X**	
S0005	Reduce Log Footprint Study, JS/J4			**X**		
S0006	Joint Log Info Study, JS/J4			**X**		
Futures Program Activities						
1st Annual Joint Force After Next (JFAN) Wargame		**X**				**X**
Focus Area Seminar (FAS) 00-1: Autonomous Decision Making		**X**				
FAS 00-2: Auto Weapon and Sensors			**X**			
FAS 00-3: Computer Network Warfare			**X**			
FAS 00-4: Space Ops				**X**		
Second Annual Spring Seminar Game: Logistics Policy & Organizational Structures				**X**		**X**
FAS 00-5: Human Performance, Training, and Learning				**X**		
FAS 00-6: Predicting Intentions					**X**	
Second Annual JFAN Wargame					**X**	**X**
Technology Assessments						
J0029	Technology Symposium			**X**		
J0063	Briefing to Industry			**X**		
J0064	Annual Technology Wargame					**X**
CINCs Priority Issues & Initiatives Survey		**X**				
CPLAN 01 Major Planning Conference			**X**			
Annual Joint Experimentation Report						**X**

Table 4-1 FY 00 JE Activities Matrix (continued)

Budget assessments and programming efforts related to these activities, may be found in **Appendix C** and **Annex 1** (FOUO, published separately).

5 SUSTAINED EXPERIMENTATION OPERATIONS (FY 01 AND BEYOND)

Assuming the people, funding, and equipment resources for FY 00 and 01 arrive as programmed, USACOM will be capable of sustaining an annual experimentation OPTEMPO that includes for each year:

- **Five major JV 2010-oriented wargames**. These will include one integrating wargame based on an operational environment or mission, and four theme-based wargames, each of which addresses one of the major conceptual themes described in **Chapter 3** of this CPLAN. Each of these wargames will be preceded by a concept development workshop and one or more seminars that will assess and interpret collective experimentation results and identify additional experimentation-produced issues that will generate requirements for concept refinement.

- **Two major Joint Force After Next wargames.** These wargames provide a complement to, and a venue for, the integration of the individual "Service After Next" wargame programs. They will provide a common joint context that can assist the services with accelerating their Service After Next concept development, and resolve joint issues on topics such as future roles and functions. They also provide a means to explore the potential application of emerging or future technologies to begin to determine areas that merit research investment. These wargames are preceded by workshops that develop potential revolutionary joint concepts, and seminars that identify and study technologies and technological trends.

- **Limited Objective Experiments (LOE)**. LOEs are short-duration, low-cost experiments that explore specific components of broader concepts. LOEs may be USACOM-sponsored, or may be leveraged activities. They may include technology assessments of candidate systems. LOEs may be supported by live forces, virtual or constructive simulations, or entropy-based models, as appropriate. The number of LOEs to be conducted in a year depends on the experimentation requirements of the concepts under development and the opportunities that exist to leverage existing externally sponsored events.

- **Two major Modeling and Simulation (M&S) supported experiments**. Typically, the annual program will contain two major M&S-supported events, one based on a constructive simulation that can support large-scale quantitative assessment and one based on a virtual simulation that can support focused exploration of the "human-in-the-loop" dimensions of the concept. (These events are similar in scope to the J9901 event conducted in Spring-Summer FY 99).

- **Multiple Leveraged CINC and Service-sponsored experiments**. The number of leveraged events will depend on the number and content of the opportunities presented by Service and CINC-sponsored experiments during the year. USACOM will partner with the event sponsors and pool resources to include, when possible, opportunities for experimentation on joint concepts. Additionally, USACOM will send assessment teams to observe other external

experiments and events that provide opportunities to capture findings relevant to joint concept development.

- **Major Joint Integrating Experiments**. Beginning in FY 04, USACOM will host Major Joint Integrating Experiments every 12-24 months. These major events will involve major live forces and will provide a venue for validating in real time and space the findings developed during M&S-supported events. These events will generate major recommendations on improvement to DOTMLP. Each event will focus on a particular operational mission, with the FY 04 event being the culmination of concept development for the coercive campaign.
  MJIEs are not envisioned as additive events to planned OPTEMPO. Instead, the intent is to provide the joint context for probable service-connected experimentation events to be conducted during the general time frame (e.g. the Millennium Challenge 00 model. Scheduling of these events will be conducted as part of the Chairman's Joint Exercise Program.

- **Technology assessments.** USACOM will conduct a number of technology assessments in support of concept development including ACTDs, participation in Defense and Service Science Board programs, JWCA's, etc., as available during each year. The technology assessment program will include two annual **Industry and Technology Symposiums**. USACOM will host symposia to exchange information on operational concepts under development and emerging technologies that can support those concepts or lead to additional concepts for exploration. The **Spring Briefing to Industry** provides a forum for J9 to update industry on concepts under development, experimentation lessons learned, and new issues that have been identified that may lead to requirements for additional concept development. The **Fall Technology Symposium** provides industry an opportunity to present potential technical solutions to concept requirements or to introduce prototype technologies or new ideas for meeting the technological requirements of advanced concepts.

- **Vulnerability Assessments**. Robust red-teaming to discover the vulnerabilities of future concepts will be conducted both as components of wargames and experiments, and as stand-alone initiatives when appropriate. The number will be determined by the content and scope of each year's concept development program.

- **Studies.** USACOM will conduct or support studies for defining additional operational environments, identifying additional potential concepts, exploring technologies, or providing insights into additional areas of interest for joint concept development. The number and nature of studies will vary according to relevant issues and opportunities available.

- **Annual Major Planning Conference.** USACOM will host an annual JE Planning Conference for representatives from the CINCs, Services, the Combatant Commands, and other supporting agencies. The purpose of this conference will be to identify additional joint issues submitted following the Data call to be included in the experimentation program, identify opportunities for mutual support through leveraging activities, and review lessons learned and refinements to concepts in experimentation.

Figure 5-1 graphically displays this section.

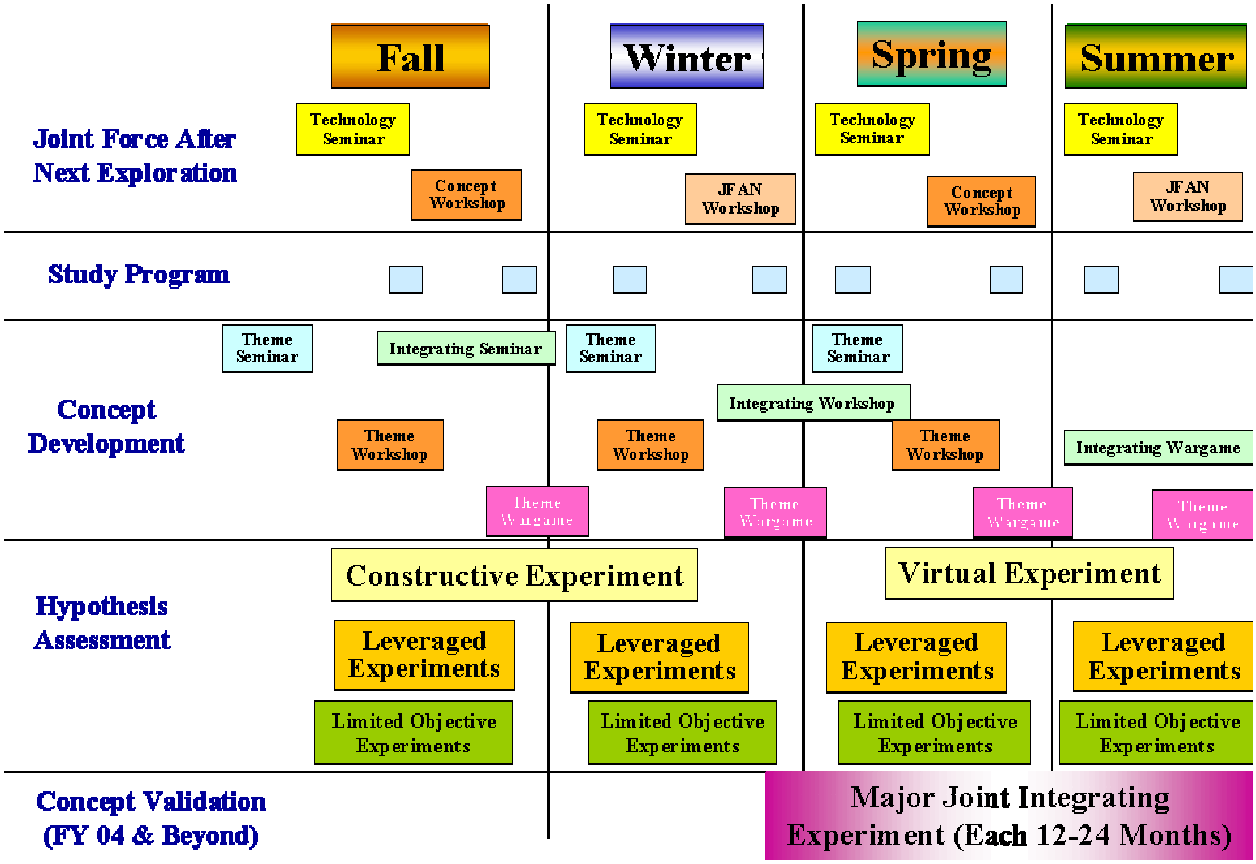


Figure 5-1 Sustained Experimentation Operations

APPENDIX A: CONCEPT SUMMARIES

RAPID DECISIVE OPERATIONS (RDO)

Simultaneity is a key characteristic of the American way of war. The dynamic combination of *JV 2010*'s dominant maneuver, precision engagement, focused logistics, and full-dimensional protection will enable the joint force commander to employ/deploy, protect, and sustain the force and achieve decisive results more rapidly than ever before. Striking the adversary quickly, in all dimensions at once, will foreclose or narrow his most damaging options.

The RDO concept will project how the JFC can undertake operations immediately to strike at the heart of the enemy's most dangerous capabilities to achieve rapid strategic success. The concept seeks to rapidly deny, degrade, or destroy strategic and operational centers of gravity using methods and capabilities that provide viable military options without having to conduct an extensive buildup of forces and support in the theater of operations.

The Result: More credible conventional deterrence and quicker conflict resolution.

Introduction

The April 1999 Defense Planning Guidance established a requirement for USACOM to develop new joint warfighting concepts to address a variety of challenging and important future operational missions. One of these relates to compelling an adversary to undertake certain actions or denying the adversary the ability to coerce or attack others. *Rapid Decisive Operations* (RDO) is a joint integrating concept that intends to investigate how a Joint Force Commander (JFC) can accomplish this in a rapid, decisive joint operation that forces the adversary to do our will as quickly as possible. In this arrangement of joint operations, the JFC quickly employs all available capabilities in the right balance to achieve operational and strategic objectives. Recent campaigns, including those against Iraq (December 1998) and Serbia (March-June 1999) have demonstrated that accomplishing our strategic objectives in the early 21st century may require more complex methods to achieve timely operational and strategic success.

In a generic sense, “rapid” and “decisive” are desirable characteristics for any mission across the range of military operations. For this concept, however, *Rapid Decisive Operations* will focus on applying joint combat power, principally at the operational level, to achieve objectives in a small-scale contingency environment such as recent operations in Serbia. A future integrating concept will address large-scale combat operations typically associated with a major theater warfare environment such as the 1990-91 Persian Gulf Conflict. Although many RDO principles will apply to larger-scale, longer-lasting operations, the RDO concept is not intended as a preliminary phase of a protracted campaign.

This RDO concept is founded in the key constructs of *JV 2010* as amplified by the May 1997 Capstone *Concept for Future Joint Operations* (*CFJO*). It also incorporates recent work from the draft *Joint Contingency Force Operations* concept that began as part of USACOM’s Campaign Plan 1999 (CPLAN 99). Finally, it provides context for USACOM’s current work on the following functional concepts—*Attack Operations Against Critical Mobile Targets*; Joint *Interactive Planning*; Common *Relevant Operational Picture; Adaptive Joint Command and Control*; and *Focused Logistics: Enabling Early Decisive Operations*. The concept will also influence early work related to strategic deployment, information operations, and forcible entry operations.

RDO looks at leveraging leading-edge technology enhancements to increase our capabilities and will investigate operations that could require new joint doctrine, organizations, training and education, materiel, leadership, and people (DOTMLP). RDO is a statement of how we want joint forces to operate given the potential of the general capabilities described in *JV 2010* and the *CFJO* (those DOTMLP capabilities projected to be available in the 2004-2016 timeframe). In an attempt to “think outside the box.” the concept is not constrained by current budget, strategy, or policy.

The Core Integrated Concept Team (ICT) for RDO, with membership from all J9 divisions, was established in December 1998, with the first meeting held that month. The Expanded ICT, which includes members from the Joint Staff, DOD agencies, Services and USACOM components, will assist in developing the concept. The current J9 ICT Chairman is CDR Dave Prothero, J98, (757-836-2846, DSN 836-2846), prothero@acom.mil.

Concept Description

When diplomacy and other options fail, our military capabilities currently provide several ways to compel an adversary to do our will. For example, strategic precision engagement by aerial and naval fires can destroy an adversary’s strategic capabilities, including critical infrastructure, military projection platforms, and economic targets. Air, sea, and land exclusion zones can deter an attempt by a hostile nation to acquire territory by force and can also adversely affect their economy. Even the credible threat of military operations through the quick deployment of military forces to the region can potentially deter an adversary. In other cases, a full-scale deployment and attack by coalition forces might be required to forcibly eject an enemy from the territory of a neighboring state. Possible strategic objectives, among many, could be to preclude or halt an adversary’s military operations against a neighbor, to cause him to cease development of weapons of mass effects, or to protect basic human rights. Whatever the goal, the basic

precepts typically will be quick decisive operations, minimal loss of life, and limited collateral damage.

The RDO concept focuses on how a highly deployable, lethal, agile, survivable, and supportable joint force can rapidly defeat an adversary's operational and strategic centers of gravity in order to force the adversary to do our will. The essence of the concept emphasizes situational understanding, immediate response capability, speed, and massing of effects rather than forces.

A limited, focused example of this type of operation might be a single precision strike from a great distance that accomplishes the strategic objective, such as Operation EL DORADO CANYON conducted against Libya in 1986 in response to the terrorist bombing of US Service

21st Century Environment

- Through 2010 and beyond, well-balanced military forces that can dominate opponents across the full range of military operations will be critical. We will be expected to achieve rapid, decisive victory predominantly by concentrated precision engagement, with minimal US casualties and collateral damage.

JV 2010's 21st Century Challenges

- Rapid Joint Force Projection; Decisive Combat Operations; Integrating Precision Effects

Hypothesis

IF a highly deployable, lethal, agile, survivable, and supportable force can conduct a deep operational strike against an adversary's operational and strategic centers of gravity,

THEN we can compel the adversary to concede without having to conduct a protracted campaign.

Desired Capabilities

- Highly lethal, maneuverable, survivable and agile combat forces
- Integrated, non-kinetic options
- Common relevant operational picture
- Networked sensor packages
- Advanced planning and decision support tools
- Support synchronized to battle rhythm
- Flexible options for staging and insertion of forces
- Adaptive joint force headquarters

Objectives

- Rapid world-wide joint force projection
- Rapid penetration of opponents' sanctuaries to attack centers of gravity and decisive points
- Smaller friendly footprint
- Multi-dimensional positional advantage
- Rapid Decisive Operations

Enabling

- Dominant Maneuver and Precision Engagement

members in Berlin. The RDO concept, however, will consider a broader scope of operations, one that enables a JFC to determine and employ the right balance of air, land, sea, space, and information-based capabilities in an intense, focused, brief campaign to defeat or neutralize an adversary's strategic and operational centers of gravity. Distinguished from traditional operations, this approach usually will not focus on seizing and occupying territory in the battlespace except for a limited purpose, such as to generate an otherwise unobtainable opportunity for precision engagement, to secure a key decisive point, or to protect the civilian populace. Forces inserted for these purposes would have the capability to be quickly withdrawn and employed elsewhere. An RDO campaign typically will be characterized by immediate, continuous, and overwhelming operations to shock and paralyze the adversary, destroy their ability to coordinate offensive and defensive operations, fragment their capabilities, and foreclose their most dangerous options.

Power projection and **forward presence** will likely remain the fundamental strategic concepts for our future force. Power projection will enable the timely response critical to our deterrent and warfighting capabilities. Forward presence facilitates power projection and sends a clear signal of US commitment and resolve. RDO builds on these concepts by calling for an agile, lean, and lethal joint force that can respond rapidly worldwide, achieve decisive results, and redeploy for subsequent operations.

RDO combines technology and innovative functional concepts to develop an adaptive joint force that presents a smaller physical and electromagnetic footprint, achieves rapid extended operational reach, and generates high-tempo operations. Precision engagement capabilities are significant. These capabilities increase the joint force's requisite lethality and are enabled by flexible options for staging and insertion of forces and synchronizing support to the battle rhythm while reducing deployment and sustainment requirements. Additionally, RDO calls for increasing the joint force's protection by reducing the exposure of the joint force to adversary action. Fused networked sensor packages and a robust information infrastructure, combined with advanced planning and decision support tools, provide commanders and staffs at all levels a common relevant operational picture (CROP) that increases battlespace awareness and enhances joint command and control.

These capabilities allow the JFC to attack centers of gravity directly, preempting the adversary's ability to operate from a positional advantage or threaten the joint force. This ability to operate within an adversary's strategic and operational decision cycles forces the adversary either to quit the conflict or to continue at a decisive disadvantage. If the adversary does not quit the conflict, the JFC can continue to employ an increasing volume of precision effects and deploy dominant maneuver forces directly into a combat posture. Both the JFC's combat and support forces possess the capabilities that allow the JFC to employ these lethal, highly mobile, and tailorable units over great distances. Deployment is in days and weeks versus months. Support is tailored, streamlined, anticipatory, and focused with quick reachback and reachout capability. Use of non-traditional mobile operating bases and platforms will be required when initially denied access or lodgment. Agile support reduces lift and distribution requirements while increasing force protection. After achieving decisive results, the JFC can quickly tailor the joint force for stabilization operations or, deployment to other contingencies, or redeployment to home station.

The RDO concept considers the application of several of JV 2010's 21st Century Challenges such as "Decisive Combat Operations" and "Unified Action." This concept also uses JV 2010 Desired Operational Capabilities (DOCs) as a point of departure for developing a comprehensive set of RDO DOCs. The two text boxes highlight the 21st Century Challenges and examples of DOCs relevant to the RDO concept.

JV 2010 21st Century Challenges

Integrate Precision Effects
Decisive Combat Operations
Battlespace Awareness
Information Operations
Joint Command and Control
Generate Precision Effects
Shape the Environment
Unified Action
Rapid Joint Force Projection
Battlespace Control

JV 2010 Desired Operational Capabilities

BA-01 Fused assessment and battlespace visualization
BA-04 Real time battlespace awareness
CC-09 Achieve unity of effort
CC-12 Organize HQ & force
DM-03 Ability to rapidly integrate forces arriving in a joint and multi-national operations area
DM-04 Ability to rapidly and seamlessly project and posture forces to enable rapid attainment of military objectives
DM-05 Achieve and preserve battlespace control
DM-07 Forces generate overmatching lethal and/or non-lethal effects
FDP-04 Early engagement of air and missile threats
FDP-11 Identify and characterize entities in the combatant's AOR
IO-02 Affect adversary ability to command and control forces
IO-06 Protect friendly ability to observe the battlespace
IO-07 Protect the friendly ability to command and control forces
IO-08 Protect the effectiveness of friendly forces
PE-02 Relevant force location and status
PE-03 Integrated battlespace picture
PE-04 Identify, prioritize and command/control effects against battlespace objectives/targets
PE-05 Tailorable force packages
PE-07 Time-critical-targeting
PE-09 Defeat threat protective systems
PE-13 Extended range engagement

Experimentation Strategy Overview

The RDO experimentation strategy begins with a series of investigation venues (and corresponding concept refinement) and culminates in a USACOM signature major integrating event (or package of events) in 2004. Initial focus areas and corresponding groupings of DOCs and Universal Joint Task List (UJTL) task sets have been identified for investigation. Given that many facets of RDO remain only loosely defined, the experimentation strategy in 2000 is directed toward alternative identification and exposure, discovery, and concept refinement. The strategy centers on two objectives:

USACOM will generate a forum by which new and potentially revolutionary alternatives to achieve RDO can be examined.

USACOM will capitalize on investigation and discovery opportunities presented in the near-term experimentation processes of the Services and other organizations.

The first objective will be achieved through a USACOM-sponsored RDO seminar - work shop - war game - experiment sequence. The seminar will provide the initial forum for exposure of three broad RDO alternatives that will be used as the preliminary vehicles for investigating RDO throughout spiral one of the iterative development process. These alternatives include a baseline comprised of programmed Service forces employed in accordance with current joint doctrine and two concept options that project new capabilities, organizations, and employment methods. The RDO Workshop will investigate force structure and deployability implications of each alternative. The RDO Wargame and follow-on experiment; UNIFIED VISION 00, will examine the alternatives and variations against a Kosovo-based, 2010-2015 campaign scenario.

The second objective will be achieved by leveraging the discovery opportunities that reside in currently scheduled FY 00 experimentation venues. Two active experimentation areas that are of particular interest are the DARPA-sponsored "Command Post of the Future" series of limited objective experiments (LOE) and the Joint Non-Lethal Weapons Directorate-sponsored series of wargames that will investigate the utility of non-kinetic weapons. USACOM will also conduct its own LOE to examine the implications of non-kinetic weapon availability during the target selection and approval process. USACOM's routine participation in Service-sponsored wargames and other venues will also provide opportunities for discovery and investigation of specific issues.

During 4th Quarter, FY 00 USACOM will participate in a major leveraged experiment, MILLENNIUM CHALLENGE 00, that will combine the opportunities associated with the four independent Service experiments. These are the Army's Joint Contingency Force-Advanced Warfighting Experiment (JCF-AWE), the Air Force's Joint Expeditionary Force Experiment (JEFX), the Navy's Fleet Battle Experiment-Hotel (FBE-H), and the Marine Corps' Urban Warrior MOUT ACTD. By providing the joint force headquarters, USACOM will leverage a significant opportunity to investigate emerging architectures associated with the *Joint Interactive Planning* and *Common Relevant Operational Picture* concepts.

Beyond 2000, we will continue to refine experimentation using the results of the findings and insights gained during the first year. The strategy will again focus on a USACOM-generated investigation series complemented by increased efforts to leverage high pay-off experimentation venues in the JE community at large.

Initial Experimentation Questions

What is the size, composition and capability of the joint force? How could we organize the joint force?

How will the joint force deploy to a theater? What is the deployment sequence? How long does it take the joint force to arrive in a combat position?

What is the best way to protect deployment of joint forces?

What is the best organization for the joint force and Service components' command and control?

What are the information requirements and information generating assets available to the JFC? How is information for the joint force managed, coordinated, and distributed?

What are the "new" warfighting capabilities of this force?

How mobile is the force? How does it achieve operational and tactical mobility?

How much firepower does the joint force need and how does the force receive timely and effective fires?

How can the JFC leverage non-kinetic capabilities to expand precision engagement options?

What are the essential components of "shaping the battlespace"?

How could the adversary counter the capabilities of the joint force at the strategic, operational and tactical levels of war?

How does the joint force protect itself?

What is the sustainable operational reach of the RDO force?

What are the human implications of RDO? How do humans make appropriate decisions rapidly enough to take full advantage of advanced information capabilities? How do they analyze and mitigate the risks involved in these operations?

What are the effects on leadership, morale, and sustainability of deep operational force projection?

How do advanced information systems such as CROP and interactive combat ID increase operational understanding of the battle space and allow the joint force to accept risk that previously would have been unacceptable

USACOM will modify the RDO concept as appropriate after each experiment spiral and will use the results of these experiments to build a USACOM major joint integrating experiment in 2004. This large joint field event will stress the following objective:

> *Employ the full range of joint capabilities to rapidly control, deny, degrade, or destroy an adversary's strategic and operational centers of gravity without a large-scale*

invasion of enemy territory to compel the adversary to undertake certain actions or to deny the adversary the ability to launch a successful attack.

Fiscal Year 00 Activity

The following table indicates those significant activities planned for RDO in FY00:

	Event	**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
J0035	RDO Seminar	X			
J0036	RDO Workshop		X		
J0037	RDO Wargame		X		
L0018	Army After Next			X	
J0035	RDO Seminar			X	
J0019	RDO, AOCMT M&S			X	
J0029	Technology Symposium			X	
M0006	Millennium Challenge 2000: JCF AWE, EFX, FBE-H, and Capable Warrior				X

ATTACK OPERATIONS AGAINST CRITICAL MOBILE TARGETS (AOACMT)

Despite arms control, the proliferation of increasingly lethal conventional weapons and weapons of mass effects (WME)--capable of being launched by a variety of mobile platforms--will continue well into the 21st Century. Rapid, effective operations to destroy or neutralize critical mobile air, surface, sub-surface, and space targets, particularly those that can deliver WME, are essential to the success of future joint operations.

Effective operations against these targets will depend on the synergistic effects achieved by improving three critical components: intelligence, surveillance, and reconnaissance (ISR); command and control (C2); and weapons systems. This will allow immediate identification and continuous, accurate tracking of critical targets, time-sensitive decision making, and engagement with precise, retargetable, and immediately responsive weapons and offensive information operations.

The Result: neutralization of critical mobile targets before or soon after launch.

Introduction

Current and future threats will rely heavily on using the mobility of key systems as a counter to our precision engagement and information superiority advantages. High-value systems, including theater missiles with weapons of mass effects (WME) capabilities, will be mounted on mobile platforms to increase their survivability and provide a dangerous asymmetric threat to our ability to enter a theater of operations and conduct effective sustainment once engaged.

Several concepts for protecting the joint force from theater missile attack already exist, or are in development. Passive defense relies on making it more difficult for the enemy to acquire high-value targets that merit missile engagement. The active defense concept uses advanced air defense systems to destroy warheads in their terminal approach to their targets. Work is underway to develop high-technology systems such as the airborne laser that could engage missiles during their boost phase or in-flight.

Attack operations complement these efforts to provide full-spectrum protection for the force. This concept provides for locating and engaging critical and time-sensitive targets, such as mobile missile launchers, between the time they leave their hide sites and complete their launch cycle. If this concept proves effective, it can significantly reduce the number of successful

launches. Used in an integrated fashion with the other concepts for missile defense, it can mitigate the threat posed by these systems and open a greater range of options for the joint force commander (JFC).

Another major component of this concept is location and destruction of the advanced mobile radar, launchers, and information networks of the enemy's integrated air defense system. Eliminating this capability is essential to establishing the air dominance needed to conduct deep operational strikes by all components of the joint force.

This concept also has the potential to be employed against other types of mobile targets including command posts, support systems, and maneuver forces. This capability would provide the JFC with powerful means to disrupt the coherence of the enemy's force by destroying high-value mobile targets.

This concept proposes a suite of integrated ground, air, space, sea, and undersea future sensors using automated sensor management to search for and track key targets. It supposes the resulting information can be fused into usable data and then used by a joint command and control system. Combined with improved command and control technologies and procedures, and a new suite of advanced weapons systems, the ability to identify, track, target, attack, and assess mobile targets should be greatly enhanced.

The Core Integrated Concept Team (ICT) for AOACMT, with membership from all J9 divisions, was established in December 1998 with the first meeting held that month. The Expanded ICT, which includes members from the Joint Staff, DOD agencies, Services and USACOM components, will assist in developing the concept. The current J9 ICT Chairman is Lt Col John Turack, J98, (757-836-2213, DSN 836-2213), turackj@acom.mil.

Concept Description

There are three essential components that require improvement or enhancement to advance our core capabilities against critical mobile targets. These three components —intelligence, surveillance and reconnaissance (ISR), command and control (C2), and weapons systems—comprise a system of systems whose net effects are interdependent and complimentary.

ISR enhancements will be comprised of a suite of future sensors that can integrate their respective search and track capabilities. Using automated sensor management, critical, relevant information would be fused and immediately communicated to decision-makers, providing them with continuous tracking and identification of critical mobile targets. Continued improvements in cross-cueing between all sensor systems will enhance ISR capabilities.

An automated joint control system will provide the capability to responsively disrupt, destroy or neutralize critical mobile targets by employing attack operations, both kinetic and non-kinetic (including information operations) *prior to launch*.

Attack systems required to defeat critical mobile targets will include combinations of the following: precise, retargetable and immediately responsive advanced weapons to destroy enemy launch capabilities; employment of directed energy effects to neutralize opponent's weapons or their command and control systems; application of offensive information systems attack to disrupt enemy information and communications flow; and use of perception management to influence adversary decision makers.

21st Century Environment

- The proliferation of increasingly lethal weapons—including WME—employed from air, surface, sub-surface, and space platforms, will continue. Some adversaries will attempt to field both conventional and unconventional delivery systems. This will increase the vulnerability of military forces and jeopardize access to forward bases. Effective operations against these critical mobile targets will require new methods and capabilities.

JV 2010's 21st Century Challenges

- Countering Air & Missile Threats

Hypothesis

IF we can establish a multi-spectral, cross-cued sensor network linked by a responsive decision mechanism to precision engagement means,

THEN we will be able to detect, locate, track, and destroy or neutralize critical mobile targets.

Desired Capabilities

- Networked sensors that detect, identify, and track critical mobile air, land, sea, and space targets
- Cross-sensor cueing; automatic target recognition systems; enhanced data links
- A joint C2 architecture that provides near-instantaneous linkage of sensors to shooters
- Common relevant operational picture
- Advanced planning and decision support tools
- Real-time combat assessment to support dynamic retasking and reattack

Objectives

- Effective reduction of the TBM threat
- More rapid early entry and force closure
- Greater force protection
- Increased freedom of maneuver
- Precise, unrelenting application of effects
- Quicker shaping of the battlspace

Enabling

- Dominant Maneuver, Precision Engagement, and Full-dimensional Protection

Effective operations against critical mobile air, surface, sub-surface, and space targets will depend on the synergistic effects of improving these three components. Most of the early effort will focus on theater missiles and mobile surface-to-air missiles (SAM) and their support systems, but the critical mobile target set will expand to include air, sub-surface, and space as experimentation on the concept matures.

The AOACMT concept considers the application of several of JV 2010's 21st Century Challenges such as "Integrate Precision Effects" and "Information Operations." This concept also uses JV 2010 Desired Operational Capabilities (DOCs) as a point of departure for developing a comprehensive set of AOACMT DOCs. The following text boxes highlight the 21st Century Challenges and DOCs relevant to the AOACMT concept.

JV 2010 21st Challenges

Integrate Precision Effects
Decisive Combat Operations
Battlespace Awareness
Information Transport and Processing
Information Operations
Joint Command and Control
Combat Identification
Combating Terrorism
Countering Air and Missile Threats
Crisis Stabilization
Generating Precision Effects
Shape the Environment
Rapid Joint Force Projection
Battlespace Control

JV 2010 Desired Operational Capabilities

CC-01 Situational Awareness
CC-05 Make Sound Decisions
CC-07 Direct Military Action
CC-10 Supervise Execution
CC-13 Prioritize and Allocate Resources
BA-04 Real-time Battlespace Awareness
DM-07 Maneuver Forces Generate Overmatching Lethal and/or Non-lethal Effects
PE-06 Minimize and/or Control Collateral Damage
PE-07 Time Critical Targeting
PE-08 Fratricide Prevention
PE-09 Defeat Threat Protective Systems
PE-12 Precision Force Protection
FDP-03 Early Detection, Identification, and Dissemination of Air and Missile Threats
FDP-04 Early Engagement of Air and Missile Threats
IS-IO-02 Affect the Adversary Ability to Command and Control Forces

Experimentation Strategy

Attack operations against critical mobile targets is a vast area that requires sequential, and occasionally parallel, experimentation in a variety of venues. Experimentation results will contribute to determining required changes to DOTMLP and to the utility and validity of modeling and simulation tools used for this and other experimental concepts.

Initial Experimentation Questions

Will the integration of future sensors and sensor exploitation technologies, future command and control technologies, and future weapons systems contribute to an effective attack operations system?

How will AOACMT systems perform against future (2015) threats?

Can advanced sensors detect and identify mobile targets and track them in real time?

Can improvements to processing, exploitation, and dissemination capabilities be realized to expedite sensor-to-shooter requirements?

Can automated decision aids or systems be designed to enhance human control over the sensor and attack systems to attack these targets in a timely manner?

What is the most appropriate C2 structure to satisfy the time restrictions posed by attacking critical mobile targets?

What degree of confidence is required (or acceptable) by a JFC to automatically identify and attack critical mobile targets?

What national precision engagement architecture and what level of direct interface with the JFC is required to support this concept?

To what extent should national assets provide direct support to a theater CINC or JFC?

Can advanced attack systems accurately find, identify, and attack critical mobile targets despite robust adversary efforts to hide and defend their assets?

The primary, initial venue for experimenting on this concept is through advanced, entity-based simulation. Constructive simulation (no live players) and virtual simulation (live blue and red players at the command level) would eventually be merged with live field events or experiments. Each succeeding virtual simulation would be previewed and checked by a constructive simulation corollary using the same scenario.

In FY 99, USACOM conducted the first experimentation spiral for AOACMT. This first phase focused on assessing the relationships between potential 2015 ISR technologies, dynamic tasking, and advanced precision engagement systems. The target set consisted of mobile Theater Ballistic Missiles and launchers. Spiral 2 will culminate in a constructive simulation-based experiment that will add an advanced mobile air defense system to the target array, and SIGINT capabilities to the ISR grid. Spiral 3, in FY 01, will expand the target array to include cruise missiles, mobile command posts, and other key mobile targets. It will add HUMINT and IO

capabilities to the joint force capabilities. Each spiral will also include several leveraged events, among which will be Roving Sands, Fleet Battle Experiments, Army AWEs, JEFXs, and ACTDs.

Fiscal Year 00 Activities

The following table represents potential FY 00 activities related to the AOACMT concept.

Event		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
L0002	FBE-Foxtrot (USN)	X			
L0003	Global Engagement (USAF)	X			
J0030	AOACMT/Force Application Seminar	X			
J0019	AOACMT M&S Experiment, USACOM		X		
J0031	AOACMT/Force Application Workshop		X		
J0013	RDO M&S Development Use to develop PW 00 2nd model			X	X
J0014	Roving Sands			X	X
L0015	Matador 00			X	X
L0023	FBE-Golf (USN)			X	X
J0029	Technology Symposium			X	X
J0058	AOACMT/Force Application Wargame			X	X
M0006	Millennium Challenge 2000: JCF-AWE, EFX, FBE-H, and Capable Warrior				X
L0024	JWID 00, USSPACECOM				X
L0026	Global Wargame, NWC				X

ADAPTIVE JOINT COMMAND AND CONTROL (AJC2)

Command and control is, perhaps, the single most important function in military operations. It is the means by which the JFC synchronizes joint activities in time, space, and purpose to achieve unity of effort. C2 enables the commander to balance new operational concepts in the right mix for any assigned mission. The enduring C2 function rests on planning, conceptualizing, applying experience, leading, and making sound decisions.

This Adaptive C2 concept investigates new ways to organize the joint force headquarters and task organize the joint force to leverage advances in information superiority and other technologies. Potential options include: a reach-back headquarters; a standing JTF headquarters; a Joint Force Information Superiority Coordinator; a Joint Force Protection Commander; a Theater Weapons Cell; an Offensive Information Operations Cell; and an In-theater Joint Logistics Manager. During the experimentation process, other ways to enhance command and control should surface and will be included in the maturing concept.

The Result: More efficient and effective joint C2 at the operational level.

Introduction

In the early twenty-first century technology and information superiority will change the way military forces operate. The battlespace will be marked by more lethal weapons possessing greater accuracy and longer ranges; a higher tempo of operations with dispersed forces and increased mobility; greater situational awareness of the Joint Operational Area; organizational changes to military units; and better trained and equipped personnel. The impact of these changes suggests different alternatives for organizing the joint headquarters and task organizing the subordinate components for specific missions.

The Core Integrated Concept Team (ICT) for AJC2, with membership from all J9 divisions, was established in September 1999, with the first meeting held that month. The Expanded ICT, which includes members from the Joint Staff, DOD agencies, Services and USACOM components, will assist in developing the concept. The current J9 ICT Chairman is Dr. Russell Richards, J98, (757-836-2211, DSN 836-2211), richarr@acom.mil.

21st Century Environment

- By 2010, we should be able to change how we conduct the most intense operations. Instead of relying on massed forces and sequential operations, we will achieve massed effects in other ways. Moreover, mission requirements and information superiority will cause decision cycles to compress. The "decide-act" link could be particularly seamless, representing the true heart of Joint C2.

JV 2010's 21st Century Challenges

- Joint C2, Battlespace Awareness, Decisive Combat Operations, Integrating Precision Effects

Hypothesis

IF we can gain information superiority and other enhancements projected by *Joint Vision 2010,*

THEN we can achieve significant efficiencies in how the Joint Force Commander organizes the headquarters and task organizes the joint force for operations.

Desired Capabilities

- Increased reach-back capabilities combined with existing in-theater knowledge base
- Common relevant operational picture
- Advanced planning and decision-support tools
- Assured, networked C2 systems

Objectives

- Improved synchronization of joint operations
- Adaptive structuring of the joint force and the JFC's headquarters
- A smaller headquarters' "footprint"

Enabling

- Joint Command and Control and Decisive Operations

Concept Description

The concept for AJC2 is based on the premise that if we gain information superiority and take advantage of other technological enhancements then we can achieve significant efficiencies in how the joint force commander organizes his headquarters and task organizes the joint force for operations. Version 1 of this concept will offer several "ideas" that are intended to serve as "marks on the wall" for joint experimentation. These ideas are far from perfect, but offer a starting point for experimentation.

Some initiatives this concept will explore include:

Reach-back Joint Force Headquarters. Information superiority will allow the JFC to have a small forward headquarters (JTF HQ Fwd), supported by a larger rear headquarters (JTF HQ Rear). This architecture will reduce the number of staff located in the combat theater; offer better protection due to the smaller, more mobile headquarters; and require less logistical support. The majority of the workload will be performed by a rear headquarters at a site selected for its mature infrastructure, strategic positioning, and security. This site could be at the CINC's headquarters, or even in CONUS. Functions such as intelligence, logistics, administration, planning, and targeting would be performed in the JTF HQ Rear with guidance coming from the JTF HQ Fwd staff. The information systems grid will allow members of both staffs to be in constant contact with their counterparts via verbal communications and full-time video teleconferencing. This will provide the JTF HQ (Fwd)

with a robust "reach back" capability to a JTF HQ (Rear), the CINC staff, or anyone else they need to contact.

Standing JTF Headquarters (SJTFHQ). Today's JTF HQ is often constructed ad hoc, in minimum time around Service component headquarters. This often restricts the JFC from quickly forming a smoothly functioning, cohesive headquarters, at the very time when demand for rapid, coherent planning is at its height, early in the crisis. Perhaps it is time to consider having a "standing" staff -- full-time, joint personnel who are experts in an assigned region, or mission (humanitarian, peacekeeping, combat, etc). Each geographical CINC may have several SJTFHQs. The SJTFHQs may be organized by mission (such as humanitarian, NEO, or combat), or the CINC may assign them to regional hot spots. The personnel in each SJTFHQ would be experts in their area of responsibility. If a contingency occurred, the SJTFHQ would be augmented by members in the CINC's staff, liaison officers from other CINCs, the Services, and government offices, as necessary. SJTFHQs would plan and train for various missions, be thoroughly familiar with their adversary and region, and would be proficient in their procedures and equipment. SJTFHQs would work closely with rear headquarters cells located in the U.S. and/or at the CINC's headquarters. SJTFHQ's would be specifically dedicated, manned, funded, and equipped to conduct joint operations.

Joint Force Information Superiority Coordinator (JFISC). Due to the importance of information superiority, the JFC may need a JFISC to control all aspects of information superiority (information systems, information operations and relative information). His/her responsibilities would be to form and control the architectures and functions for collecting, processing, analyzing, archiving, and disseminating information, while acting as the JFC's central point of contact for information.

Joint Force Protection Coordinator (JFPC). The protection of forces, facilities and equipment will become much more complicated with the increasing sophistication of terrorists, the increasing number of theater and cruise missiles, the proliferation of weapons of mass destruction, the dispersal of friendly units, and the requirement for reconstitution of forces following attack. We need to examine if it is time to have a commander responsible for coordinating most aspects of joint force protection

Theater Weapons Cell. Centralized control of combat aircraft has long been recognized as the most efficient way to employ them in the Joint Operational Area. With the proliferation of long-range, highly accurate missile systems, it may be time to centrally control them as well. Could a centralized Theater Weapons Cell coordinate and manage the integration of both air and missile weapons systems efficiently and effectively.

***In-Theater Joint Logistics Manager*.** In order to reduce the size of the logistical footprint required to support multinational operations, take advantage of the developing enabling technologies, and enhance effectiveness, increased centralized management of the logistic function may be necessary.

The AJC2 concept considers the application of several of JV 2010's 21st Century Challenges such as "Joint Command and Control" and "Rapid Joint Force Projection." This concept also uses JV 2010 Desired Operational Capabilities (DOCs) as a point of departure for developing a comprehensive set of AJC2 DOCs. The following text boxes highlight the 21st Century Challenges and DOCs relevant to the AJC2 concept.

JV 2010 21st Century Challenges

Joint Command and Control
Battlespace Awareness
Decisive Combat Operations
Rapid Joint Force Projection
Integrating Precision Effects
Shape the Environment
Unified Action

JV 2010 Desired Operational Capabilities

CC-1	Situational Awareness
CC-2/3	Experience and Judgment
CC-5	Make Sound Decisions
CC-4/7	Direct Military Actions
CC-9	Achieve Unity of Effort
CC-10	Supervise Execution
CC-11	Prepare Plans and Orders
CC-12	Organize Headquarters and Forces
CC-13	Prioritize and Allocate Resources

Experimentation Strategy

This concept contains many ideas for organizing functions within the Joint Force Headquarters and those of the subordinate components for specific missions. The experimentation strategy will initially look at each idea separately. For example during the air defense exercises *Roving Sands*, the idea for the "Joint Force Protection Coordinator" may be assessed. During the biannual exercise *Focused Logistics Wargame* the idea for "In-theater Joint Logistics Manager" may be assessed. Concurrently, other ideas for organizing the Joint Force may surface and offer new opportunities for experimentation.

As an enabler to other concepts in CPLAN 00, much of the assessment of AJC2 would parallel the experimentation strategy of the other concepts. For example, when the concept "Attack Operations Against Critical Mobile Targets" is assessed within an exercise, portions of the AJC2, such as the "Theater Weapons Cell" and/or "Joint Force Protection Coordinator" could be assessed with it. Similarly, AJC2 can provide command and control architectures for other concepts such as RDO, FLEEDO, OIO and S&FFS. Remaining CPLAN 00 concepts, such as CROP and JIP directly support AJC2 and portions of them can also be assessed jointly. Initial experimentation will primarily focus on AJC2's role in supporting the Joint Force during Rapid Decisive Operations.

After several years of experimenting, the lessons learned from these sub-concepts will offer the JFC options to forming an efficient, effective command and control architecture for the Joint Force. The culmination of this experimentation strategy will be to provide a command and control architecture for USACOM's Major Integrating Event in 2004.

Initial Experimentation Questions

Joint Force Information Superiority Coordinator (JFISC)

- Does the JFC need his own single-source IS coordinator?
- What components of the JTF HQ should be combined to make the JFISC cell? The J2, J6, parts of the J3?
- What would be the duties of the JFISC?

Joint Force Protection Coordinator (JFPC)

- Are there advantages in combining various protection assets under one coordinator?
- What force protection responsibilities should the JFPC have?
- How should the JFPC cell be structured?

Theater Weapons Cell (TWC)

- Should the Joint Force centrally control weapons with theater-wide ranges?
- Should all weapons with theater-wide ranges be controlled by the TWC, or should there be an apportionment of assets?
- How can users request fires in a timely manner?

In-Theater Joint Logistics Coordinator (JLC)

- Does the JFC need a single-source logistics coordinator?
- What would be his responsibilities? His authority?

Distributed Headquarters

- What functions could be performed out of theater?
- How much connectivity would this require?
- What would be the command and control arrangements?
- How do you perform "push-pull" operations?

General Questions

- Are there other C2 functions that should be reorganized?
- Should we have standing JTFs?

How do you integrate allies into the C2 structure?
How do you change the headquarters architecture to meet the operational requirement?
Will Information Superiority provide the JFC an opportunity to reorganize the headquarters of his joint force in a more efficient and effective manner?
What new training will leaders require in order to be able to effectively operate within this type of dynamic structure? How will we have to modify the mid-level and senior schooling of our officer corps?

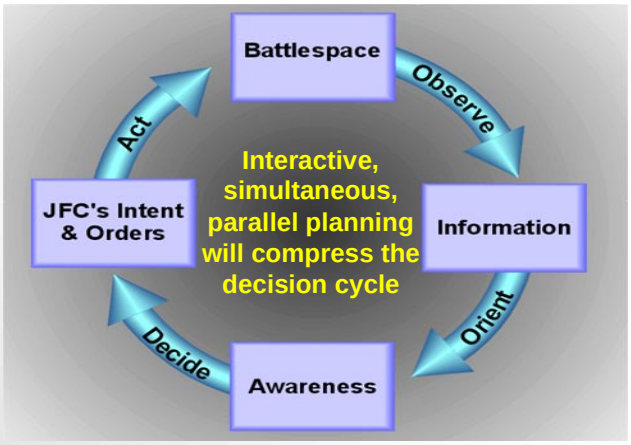
Fiscal Year 00 Activities

The following table represents the potential FY 00 activities/events that support the AJC2 concept.

Event		**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
	AJC2 Concept White Paper		X		
J0044	Force Application Seminar	X			
J0045	Force Application Workshop		X		
J0046	Force Application Wargame			X	
J0044	Information Superiority Seminar	X			
J0045	Information Superiority Workshop		X		
J0046	Information Superiority Wargame			X	
J0044	Deployment & Sustainment Seminar		X		
J0045	Deployment & Sustainment Workshop			X	
J0046	Deployment & Sustainment Wargame				X
M0006	Millennium Challenge 2000: JCF AWE, EFX, FBE-H, and Capable Warrior				X
L0028	Joint Command Post Exercise				X

JOINT INTERACTIVE PLANNING (JIP)

Planning and execution are the two actions that synchronize and sustain the application of military force so that the purpose of all battlespace functions, processes, and components are unified in a common effort. Future JFCs must be able to rapidly exploit information from a wide range of traditional and non-traditional sources in order to integrate fully with allies and other partners across the range of military operations.



The ability to rapidly exchange information around the globe and throughout the battlespace will force the sequential, linear planning of the past to give way to simultaneous, interactive planning, which will greatly affect the tempo of execution. In particular, simultaneous, parallel planning will shorten the "decide" component of the "observe-orient-decide-act" (OODA) cycle and will allow the JFC to gain significant leverage over the enemy counterpart.

The Result: Improved joint command and control and unity of effort.

Introduction

This concept was initially selected for development in CPLAN 99 and was then called the "Future Collaborative Information Environment." This concept has now been redefined as the Joint Interactive Planning (JIP) concept and is considered to be an enabling concept for Joint Command and Control and Information Superiority. JIP will provide for integrated, parallel planning and execution actions supporting the Joint Force Commander (JFC) and staff, subordinate and supporting commands and across all allied and coalition forces, increasing unity of effort and speed of command.

Joint Vision 2010 established that the basis for the new operational concepts of dominant maneuver, precision engagement, full dimensional protection and focused logistics is improved command and control. The Concept for Future Operations (CFJO) asserts that command and control has two parts: planning and execution. Together, they are actions that synchronize and sustain the application of military capabilities throughout the battlespace so that all battle space functions, process, and components are unified in a common effort. JIP will focus on these actions as well as ways and means to streamline the planning functions and increase the speed of command. JIP contributes to and is strongly supported by Information Superiority. Joint Vision

2010 established Information Superiority as a key enabler for future operational concepts and the Concept for Future Operations identified the three elements of Information Superiority: Information Systems, Relevant Information and Information Operations. The JIP will receive support and make contributions to the first two elements. Information assurance will be provided by the last element.

The Core Integrated Concept Team (ICT) for JIP, with membership from all J9 divisions, was established in September 1999, with the first meeting held that month. The Expanded ICT, which includes members from the Joint Staff, DOD agencies, Services and USACOM components, will assist in developing the concept. The current J9 ICT Chairman is Dr. Russell Richards, J98, (757-836-2211, DSN 836-2211), richarr@acom.mil.

Concept Description

We cannot predict, with any certainty, all of our future adversaries or military missions. In order to stay ahead of a complex and shifting global environment, joint forces must have the speed of command and unity of effort to dominate any battlefield. Speed of command can be equated to our ability to work through the process of observe, orient, decide and act (OODA) of the command and control loop. Planning and execution, within the loop, have become distinct and sequential steps in a time consuming progression. Warfare in the information age, however, will embody increased timeliness, accuracy and relevance to successfully accomplish our military missions. Dynamic planning methods are required to merge sequential steps into highly responsive, agile battlespace management courses of action and shorten the OODA loop.

JIP envisions the Joint Force Commander staff planning and executing with advanced, automated planning and decision support tools in a knowledge management environment. Collaborative-parallel planning takes place within and between the JFC, CINC, and subordinate and supporting command staffs. Neither geography nor time restricts planning. The Joint Force Commander maintains an integrated, real time presentation of the plan, which is shared across the battlespace. This provides a foundation for the dynamic, continual parallel planning process. Additionally, staffs are globally linked to national support networks of subject matter experts for precise support, in such mission areas as precision engagement, humanitarian relief or peacekeeping operations. Courses of action are evaluated at real-time wargaming centers for intelligent feedback and analysis. Planning and execution actions become continuous, integrated and dynamic thereby improving and shortening the OODA loop.

Military operations often involve planning and cooperation with many other partners (U.S. government, non-governmental organizations, international organizations, commercial businesses, foreign governments / military, etc.). Collaboration with people or organizations not able to communicate in our secure, military environment requires other methods. Multi-level security requirements will have to be addressed and resolved. Unclassified collaborative tools and methods may be the only means to communicate planning information with these other organizations. The use of commercial off the shelf technology (COTS) will provide the basis to establish linkage. These tools will have to be available, in order to be able to dialog with any potential partner.

21st Century Environment

- Information technologies continue to improve rapidly in quantity, quality, and responsiveness. Relevant information can be collected, processed and analyzed to produce a common relevant operational picture for the joint force commander. Advanced information capabilities will allow us to conduct military planning in an entirely new way. Commanders and their staffs will be able to centralize their planning efforts while becoming less centralized in location.

JV 2010's 21st Century Challenges

- Joint Command and Control, Information Transport and Processing

Hypothesis

IF we can increase our ability to plan the various elements of a joint operation in parallel rather than in sequence,

THEN commanders will be able to decide and act faster than the adversary.

Desired Capabilities

- Advanced joint collaborative planning links to non-traditional information sources
- Advanced planning and decision support tools
- Common relevant operational picture
- Information assurance
- Real-time, operational- & strategic-level modeling and simulation
- Increased "reach-back" and "reach-out" information capabilities

Objectives

- The capacity for quicker decisions
- Unity of effort (including multinational partners)
- Dynamic tasking and retasking of assets
- Control over operational tempo
- Faster response time than the adversary

Enabling

- Information Superiority and Joint Command and Control

A key enabler for the JIP will be the Common Relevant Operational Picture (CROP) concept because it provides timely, fused, accurate, assured and relevant information. This information will be tailored to meet joint planning and execution requirements. This alone will help speed the planning process. Open source and non-traditional information can also add value when combined with traditional military sources of information. These sources are often unclassified and show great potential in supporting joint force decision making at the strategic, operational and tactical levels. Real-time open source information should be available to the JFC and his staff. The JFC headquarters must also have the agility to exploit emerging technologies and respond to diverse threats and enemy capabilities. JIP will support the Adaptive Command and Control (AJC2) concept, which will investigate new ways to organize joint force headquarters to meet this challenge. Information assurance is also required for JIP. It protects and defends against adversary actions to ensure availability, integrity, authentication, confidentiality, and non-repudiation of friendly information and information systems. The Information Operations (IO) concept will provide this support.

The JIP concept considers the application of several of JV 2010's 21st Century Challenges such as "Joint Command and Control" and "Battlespace Awareness." This concept also uses JV 2010 Desired Operational Capabilities (DOCs) as a point of departure for developing a comprehensive set of JIP DOCs. The following text boxes highlight the 21st Century Challenges and DOCs relevant to the JIP concept.

JV 2010 21st Century Challenges

Joint Command and Control
Unified Action
Battlespace Control
Shape the Environment
Battlespace Awareness
Information Transport and Processing

JV 2010 Desired Operational Capabilities

CC-05	Make Sound Decisions
CC-07/4	Direct Military Action
CC-09	Achieve Unity of Effort
CC-10	Supervise Execution
CC-11	Prepares Plans and Orders
CC-13	Prioritize and Allocate Resources
DM-03	Ability to Rapidly Integrate Forces Arriving in a Joint and Multi-National Operations Area
DM-04	Ability to Rapidly and Seamlessly Posture Forces to Enable Rapid Attainment of Military Objectives
DM-07	Forces Generate Overmatching Lethal and/or Non-Lethal Effects
DM-24	Synchronized Employment of Forces Throughout the Battlespace to Achieve Desired Effects
ITP-3	Interoperability
ITP-4	Information Management
PE-04	Identify, Prioritize, and Command/Control Effects Against Battlespace Objectives/Targets
PE-07	Time-Critical Targeting
PE-10	Integrated Battlespace Fir and Maneuver
PE-12	Precision Force Protection

Experimentation Strategy

JIP is a key enabler of Joint Vision 2010 capabilities across the full range of military operations. Initial experimentation, however, will focus on how JIP enhances the Joint Force Commander's ability to conduct Rapid Decisive Operations (RDO) and Attack Operations Against Critical Mobile Targets (AOACMT) concepts.

JIP experimentation strategy proceeds from the development of the concept's white paper in 2000 to a series of experiments. It will be closely linked to Adaptive Joint Command and Control, Common Relevant Operational Picture and Information Operations concepts and their development. JIP will continue to support the development of all integrating and capstone concepts developed by USACOM. Studies, seminars and workgroups and wargames will be

utilized initially to determine requirements and to help bound the concepts scope. Other CINC, Service and agencies events will be leveraged to take advantage of the large body of work currently underway and planned in the future. JIP will look to modeling and simulation to experiment with the technical architecture back plane requirements. The concept will eventually show its utility in real time major leveraged events or USACOM signature events.

Initial Experimentation Questions

What are the real time planning information requirements for the joint force across the full range of military operations?
What advanced planning support tools support the joint force?
What collaboration tools and links enable the joint force?
What concept of operations for a dynamic knowledge management work best for a joint force?
Which collaboration and planning methods and architecture work best for both military secure systems and open systems?
What are the executive decision support system requirements for the joint force?
What reach back and reach out capability is required for forward-deployed joint force commanders?
What is the capability to create a presentation/database of real time information concerning a planning and execution functions?
What is the capability to develop real time modeling and simulation of tactical, operational and strategic courses of action?
What multi-level security tools are required?
Can a checklist of relevant planning information requirements be developed for different events?
What is the capability to establish information assurance?
Can we create a virtual planning environment for military and non-military organizations during a joint operation?
What information protection systems are required?

Fiscal Year 00 Activities

The following table represents the potential activities/events that support Joint Interactive Planning concept for FY 00

Event		**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
L0002	Fleet Battle Experiment Foxtrot	X			
L0003	Global Engagement Wargame, (USAF)	X			
J0032	JIP/Information Superiority Seminar	X			
J0033	JIP/Information Superiority Workshop		X		
J0034	JIP/Information Superiority Wargame			X	
J0019	J0019 RDO/AOACMT M&S Experiment, USACOM			X	
L0023	Fleet Battle experiment – Golf, USN			X	
L0025	VIC Olympic Exercise in conjunction with Tempo brave, USPACOM				X
L0028	Joint Command Post Exercise, Army				X
J0029	Technology Symposium			X	
M0006	Millennium Challenge 2000: JCF-AWE, EFX, FBE-H, and Capable Warrior				X
L0026	Global Wargame, NWC				X

COMMON RELEVANT OPERATIONAL PICTURE (CROP)

Currently, there are numerous operational pictures in use by the Services and DOD agencies, which, from conception through fielding had little or no emphasis on the requirement to be interoperable with other information systems. The tempo and precision of future operations demands that we develop an integrated operational picture that provides a warehouse of information required by warfighters for faster and better decisions.

With the rapid proliferation of information technology and a commitment to maintaining our information superiority, we have the opportunity to develop a global infosphere which will expand the information available to the warfighters. This "system of systems" will not only provide past and present knowledge but will also provide predictive, cognitive and decision-making tools.

The Result: Improved battlespace awareness.

Introduction

The United States has an opportunity to capitalize on its expertise in developing and applying Information Technology by leading the global shift to a new type of information-based warfare that emphasizes delivery of comprehensive knowledge to warfighters at all levels. This differs from current practices that focus mainly on providing data from disparate stove-piped systems that have become expensive in time and resources to make them interoperable.

The Core Integrated Concept Team (ICT) for CROP, with membership from all J9 divisions, was established in December 1998 with the first meeting held that month. The Expanded ICT, which includes members from the Joint Staff, DOD agencies, Services and USACOM components, will assist in developing the concept. The current J9 ICT Chairman is Dr. Russell Richards, J98, (757-836-2211, DSN 836-2211), richarr@acom.mil.

Concept Description

The Common Relevant Operational Picture (CROP) is a presentation of timely, fused, accurate, assured, and relevant information that can be tailored to meet the requirements of the joint force

and is common to every organization and individual involved in joint operations. It must be sufficiently robust and adaptable to accommodate exchange of information with non-DOD organizations (including governmental, international, and private) and coalition forces. This presentation of information will be rapidly accessible by all approved users and must support the full range of military operations. The CROP is a key element of information superiority and battlespace awareness.

21st Century Environment

- The ever-changing and complex environment of the Information Age will provide seemingly limitless access to an infinite volume of information, for both ourselves and our adversaries. Forces harnessing the capabilities potentially available from improvements in information and systems integration technologies will benefit from increased battlespace awareness.

JV 2010's 21st Century Challenges

- Joint C2, Battlespace Awareness, Information Transport & Processing, Combat Identification, and Information Fusion

Hypothesis

IF we have a common relevant operational picture in readily understandable, scalable, filterable, and interactive format,

THEN we can compress the decision cycle, react more quickly to high-tempo operational requirements, and limit risk.

Desired Capabilities

- Common information protocols, databases, and architecture
- Increased "reach-back" and "reach-out" capabilities
- Advanced planning and decision support tools
- Tailored displays that can aggregate and deaggregate information
- Methods to "customize" incoming information to each unit's specific mission
- Interoperable combat identification

Objectives

- Shared understanding of situation and intent
- Improved synchronization of Joint operations
- Rapid, highly informed decisions
- Reduction of redundancies and decreased footprint
- Global infosphere with all information required by approved users
- Prevention of fratricide

Enabling

- All JV 2010 Key Elements

The CROP will use Information Technology to provide warfighters with knowledge that will permit them to employ forces and mass effects in revolutionary new ways. This knowledge-centric integration of operations will enable new joint and coalition operational concepts not possible today. The CROP is an operational concept enabling other operational integrating concepts across the full range of military operations by providing the information required by the users, in the format and timeframes as determined by these other new concepts.

Joint Vision 2010 (JV 2010) established four new operational concepts, which will be enabled by technological innovations and information superiority. Information superiority is defined as, "the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same". The Concept for Future Joint Operations identified the three elements of information superiority: information systems, relevant information, and information operations. The CROP concept will deal with the first two elements.

Throughout history, gathering, exploiting, and protecting information have been critical in command, control, and intelligence. The unqualified importance of information will not change in 2010. What will differ is the increased access to information and improvements in the speed and accuracy of prioritizing and transferring data brought about by advances in technology. A significant element of information superiority is a common operational picture populated with information that is relevant at each user's level. The CROP concept will attempt to define what information needs to be collected, how it should be processed (analysis and fusion), how it will be disseminated, and how it will be presented in the future.

The CROP concept considers the application of several of JV 2010's 21st Century Challenges such as "Battlespace Awareness" and "Combat Identification." This concept also uses JV 2010 Desired Operational Capabilities (DOCs) as a point of departure for developing a comprehensive set of CROP DOCs. The following text boxes highlight the 21st Century Challenges and DOCs relevant to the CROP concept.

JV 2010 21st Century Challenges

Battlespace Awareness
Information Transport and Processing
Joint Command and Control
Combat Identification
Information Fusion

JV 2010 Desired Operational Capabilities

BA-01 Fused Assessment and Battlespace Visualization
BA-02 Integrated, Collaborative Collection Management
BA-03 Identification of Friendly, Adversary, and Neutral Forces and Noncombatants
BA-04 Real Time Battlespace Awareness
BA-05 Provide Comprehensive Battlespace Awareness to Support the Full Range of Military Operations
ITP-01 Assurance
ITP-02 Capacity
ITP-03 Interoperability
ITP-04 Information Transport and Processing – Information Management
CC-01 Situational Awareness
CC-05 Make Sound Decisions
FL-01 Provide Unimpeded Access to Operational and Logistics Information for All Who Need It
FL-04 Provide Timely and Accurate Enhanced Asset Visibility, Control, and Management

Experimentation Strategy

Effective experimentation of this concept is linked to the information requirements of other operational concepts. Seminars, workgroups, and/or wargames will be the venue to determine what the user's information requirements are and these events will occur in FY99 – FY01. Modeling and simulation will be instrumental in developing the architecture for an information back plane and showing the "value added" by a CROP and these events are planned in FY00 –

FY03. Near-term leveraging of CINC, Service, and agency events will provide the visibility of current interoperability issues and develop a roadmap for future experimentation. Some issues like timeliness and accuracy ultimately must be experimented in field exercises during FY02 and beyond. Experimentation strategy for FY99 – FY04 will look at USACOM's major integrating event in FY04 and work back to determine what CROP experimentation is required to support this event.

Additional experimentation objectives are to maintain visibility on the myriad of subject related studies, advanced concept technology demonstrations (ACTDs), advanced technology demonstrations (ATDs), joint test and evaluations, and Services' future concepts.

Initial Experimentation Questions

What information must be included in the CROP?
What is the proper relationship between the CROP and CTPs (common tactical pictures)?
How can all sources of data be integrated into one back-plane of information (system architecture)?
How should information be input to the CROP in order to ensure that it is valid? How will confidence or the estimated degree of accuracy be represented in the CROP? How will conflicting information be adjudicated?
How should near-real-time information on the adversary and the environment be fused with baseline information from interactive databases and with friendly force information? How should information be time-stamped in a fused CROP?
How much more capable/effective/efficient will commanders and their forces be if they have a CROP?
Do automated decision-making and cognitive tools result in better and faster decisions?
How should information be presented to the commanders in order to provide them with the greatest degree of battlespace awareness possible while focusing them on those critical areas that require their immediate attention and action?
Will the CROP facilitate flatter command structures and delegation of decision-making, or will it invite micro-management by senior commanders?
Should the CROP database reside in one system, e.g. GCCS, or should it be a multitude of databases, resident in different systems, but easily and rapidly accessible?

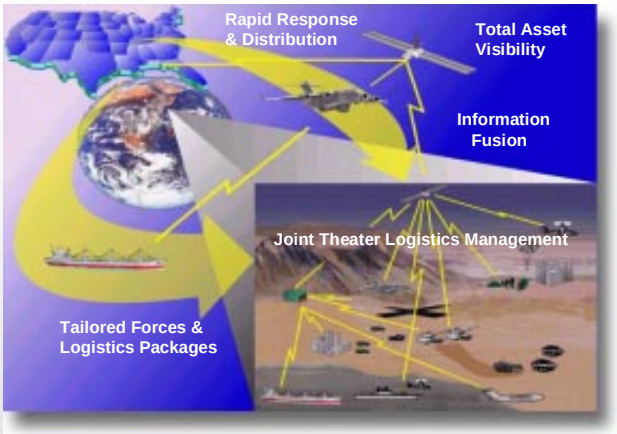
Fiscal Year 00 Activities

The following table represents potential FY00 activities related to the CROP concept.

Event		**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
L0002	Fleet Battle Experiment Foxtrot, USN	X			
L0003	Global Engagement Wargame, USAF	X			
J0041	Information Superiority Seminar (CROP), USACOM	X			
J0042	Information Superiority Workshop (CROP), USACOM		X		
J0043	Information Superiority Wargame (CROP), USACOM			X	
J0041B	Force Application Seminar (CROP), USACOM	X			
J0042B	Force Application Workshop (CROP), USACOM		X		
J0043B	Force Application Wargame (CROP), USACOM		X		
J0009	ASCIET 00		X		
J0019	RDO/AOACMT M&S Experiment, USACOM		X	X	
J0041C	Deployment & Sustainment Seminar (CROP), USACOM		X		
J0042C	Deployment & Sustainment Workshop (CROP), USACOM			X	
J0043C	Deployment & Sustainment Wargame (CROP), USACOM				X
J0029	Technology Symposium			X	
M0006	Millennium Challenge 2000: JCF AWE, EFX, FBE-H, and Capable Warrior				X
L0026	Global Wargame, NWC				X

FOCUSED LOGISTICS: ENABLING EARLY DECISIVE OPERATIONS (FLEEDO)

The requirement to gather, insert, distribute and sustain logistics support for a rapid decisive force necessitates unprecedented systems for information collection and decision support. The nature of Rapid Decisive Operations also requires an agile delivery system capable of time-definite support to mobile combat units in multiple locations. Such logistics agility begs the issue of a joint logistics manager to prioritize and synchronize joint theater support. The fusion of information, logistics, and transportation technologies to provide rapid crisis response, to track and shift assets even while enroute, and to deliver tailored logistics packages directly to the user will enable rapid decisive operations.



Logistics support must be fused with the Joint Force Commander's requirements and the joint force's capabilities. Precise and time-definite delivery must be its watchword.

The Result: Rapid, precise, agile, and synchronized support for decisive operations.

Introduction:

"… to explore the most effective means, in the near and mid-term periods, to create an integrated logistics picture and an agile and precise logistics support capability for early entry decisive operations."

FLEEDO Experimentation Definition

The objective of the Focused Logistics: Enabling Early Decisive Operations (FLEEDO) concept is to provide significantly improved joint and Services logistic capability to the Joint Force Commander. It focuses on enabling him to conduct military operations within the context of an early-entry contingency force, which will conduct decisive military operations in a regional theater. Drawing upon the operational concept of Focused Logistics, a part of the Chairman of the Joint Chiefs of Staff Joint Vision 2010, it describes a revolutionary logistic support capability.

The Core Integrated Concept Team (ICT) for FLEEDO, with membership from all J9 divisions, was established in December 1998, with the first meeting held that month. The Expanded ICT, which includes members from the Joint Staff, DOD agencies, Services and USACOM

components, will assist in developing the concept. The current J9 ICT Chairman is Ms. Lauran Winter, J98, (757-836-2847, DSN 836-2847), winterl@acom.mil.

Concept Description

The FLEEDO concept describes the capability to support a Rapid Decisive Operations (RDO) scenario—inserting a joint force into a theater and conducting decisive operations within days from deployment. Essential features called for in the concept include:

Provide rapid and agile ability to deploy enabled by in-theater logistics support to account for joining forces.

Provide early entry and enable rapid force closure and survive.

Enable logistics responsiveness to the JFC using the relevant capabilities of each Service.

Provide precise on-time delivery, direct delivery, reduced transportation nodes, and seamless hand-offs between support agencies.

Provide fusion of logistics and operational information to enable informed JFC decision-making.

Integrate business practices, technology, and information systems to enhance ability to track and precisely move units, equipment, assets, personnel, and casualties, and to retrograde.

Provide sustained support with a reduced dependence on fixed air and sea ports. Integrate the use of commercial and multi-national support material and services to optimize lift and sustainment capability.

Together these features describe the capability to provide to the JFC a logistic support service which embraces a comprehensive picture of the battlespace along with the key (and, if desired, detailed) logistic assets which are and/or will be required in supporting his needs and those of his component commanders. This picture, alone, is a very different and empowering capability, which has been unknown in large to medium scale theaters of war. This picture, combined with decision support tools (DST) designed to present decision-worthy information to senior logisticians, will enable these persons to facilitate a logistics infrastructure, both of information and of materiel, maintenance, and transportation capability, which enables Service logistic elements to provide timely, precise, and agile support to their forces. How this group of senior logisticians is to be organized has yet to be determined; this is one of the objectives of the experimentation strategy.

Logistic support of RDO presents a very different operational and support scenario than previously. It is altogether possible that only a very small ground force will be directly inserted into the joint operations area (JOA), at least initially. It will be the combined and coordinated effects of ground, air, sea, and special operations elements, integrated and lead by the JFC, and supported by an integrated, precise, and agile logistic system, that will convince our future adversaries to desist in their aggressive behavior. These effects will be employed in what the

Defense Planning Guidance for 1999 has termed a "coercive campaign." Joint forces in the early 21st century will be sourced and deployed to the JOA in a matter of days. They will combine with those forces that are already forward presence. They will arrive at intermediate staging bases (ISB) for final integration and insertion into the JOA. (At times the JOA may be so close as to preclude the need for ISBs). Inside the JOA ground forces will be supported by bare-based facilities and will receive replenishment support either through the use of pulsed logistic packages delivered at forward arming and refueling points (FARP) OR will returned to the ISBs for refreshment and rest. Both ground forces and the air and sea forces will be sustained by these

21st Century Environment

- Logistics systems and practices that were "good enough" for a Cold War environment are not adequate for operations in the Information Age. The demand for US overseas presence is not likely to diminish. Rapid response by US forces will require projecting power with capable, sustainable forces and a significantly greater "tooth-to-tail" ratio.

JV 2010's 21st Century Challenges

- Joint Deployment & Rapid Distribution, Information Fusion, Joint Theater Logistics Management, and Agile Infrastructure

Hypothesis

IF we can provide an agile, anticipatory, and responsive logistics infrastructure and decrease the logistics requirements per unit of combat power,

THEN we can enhance force deployment and employment efficiency and provide "right-sized" support to enable rapid decisive operations.

Desired Capabilities

- Robust distributed networks
- Advanced planning and decision support tools
- Common processes and standards of support for multinational partners and 3rd parties
- Common relevant operational picture
- Dynamic, integrated logistics planning, analysis, and control
- Agile staging and delivery platforms

Objectives

- Begin and conclude decisive operations quickly.
- Provide one "fused" logistics picture.
- Synchronize logistics functions with battle rhythm.
- Near real-time management of the pipeline.
- Assured, time-definite delivery and distribution.

Enabling

- Precision Engagement, Dominant Maneuver, and Focused Logistics.

same or similar ISBs in a logistic infrastructure enabled because of the logistic information superiority and high-level management functions addressed above.

While the focus of both RDO and FLEEDO is early entry operations, other operational and logistics experimentation will also have to address the deployment, insertion, and sustainment of a more conventional "heavy force" should the initial force prove non-decisive in its effects.

The FLEEDO concept considers the application of several of JV 2010's 21st Century Challenges such as "Information Fusion" and "Agile Infrastructure." This concept also uses JV 2010 Desired Operational Capabilities (DOCs) as a point of departure for developing a comprehensive set of FLEEDO DOCs. The following text boxes highlight the 21st Century Challenges and DOCs relevant to the FLEEDO concept.

JV 2010 21st Century Challenges

Information Fusion
Joint Theater Logistics Management
Joint Deployment/Rapid Distribution
Agile Infrastructure
Multi-National Logistics
Force Health Protection

JV 2010 Desired Operational Capabilities

FL-01 Access to operational and logistics information
FL-04 Asset control
FL-20 Logistics management
FL-05 Transportation Management
FL-06 Transportation Operations
FL-07 Intra-theater deployment
FL-17 Sustain the force
FL-35 Optimize multi-national logistics support
FL-08 Protect the force against medical threats
FL-33 Casualty care and management

Experimentation Strategy

The following provides an outline of the FLEEDO Experimentation Strategy. It proceeds from the development of the concept White Paper through a general sequence of events and tools, culminating in an USACOM-Generated event in 2004. The structure of the strategy parallels the four joint areas of the White Paper: information collection and decision support tools, deployment/forward presence planning and execution, agile sustainment and delivery, and joint theater logistics management. These in effect form four major "experimentation paths" each of which defines a major issue to be resolved during, and certainly by the end of, the experimentation process, and which will support, or deny the validity of the FLEEDO hypothesis shown in the previous section. In turn, these paths can be divided into sub-paths, each of which explores one or lower-level issues related to the main issue. In some cases a sub-path issue will be ready for live experimentation; more often it will require more definition and narrowing in a workshop or conference setting, and perhaps modeling and simulation, before it is ready for wargaming or live experimentation.

Initial Experimentation Questions

What are the optimum AIT modes for reducing the time to communicate logistics data?
What are the JFC's requirements for logistics information?
What are the optimum decision support tools for the JFC?

What is the optimum system technology and architecture for the JFC's decision support tools?
What is the optimum means of matching life capability, ports, and forces?

What is the optimum means of tailoring logistics forces to best support joint operations?
What is the optimum mix of platforms for theater insertion?
What is the optimum combination of platforms, technology, and practices to ensure time-definite deliver, improve throughput, and support agile and mobile forces?
What is the optimum means of reducing logistics footprint while ensuring optimum support?
Which logistics functions require direct joint control?
What is the optimum arrangement of logistics management for the JFC to best use joint and Service capabilities?

As is implied in the foregoing, there is an intricate relationship between and among the four experimentation paths set out for FLEEDO. They might be interpreted as described and explained as if they were single stovepipe concepts**. In fact they are not**, but rather they support an integrated approach to determining the means of altering military logistics to fit a very new set of operational requirements in a joint context.

Fiscal Year 00 Activities

The following table represents potential FY 00 activities related to the FLEEDO Concept.

Event		**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
L0001	FLOW 99, JS/J-4	X			
L0032	Foal Eagle 99 (JL-ACTD & LRSSC)	X			
J0038	Deployment & Sustainment Seminar		X		
L0033	Bright Star 99 (JLWI)	X			
L0034	ALP Execution & Replanning Demo, DARPA		X		
L0016	MRS 05, JS/J-4		X		
J0039	Deployment & Sustainment Workshop			X	
S0006	Joint Log Info Study, JS/J-4			X	
J013	J0013 RDO M&S Development, USACOM			X	
L0017	Joint Log Management Study, JS/J-4			X	
J0029	Technology Symposium			X	
S0005	Reduce Log Footprint Study,			X	
J0040	Deployment & Sustainment Wargame				X
M0006	Millennium Challenge 2000: JCF-AWE, EFX, FBE-H, and Capable Warrior				X

INFORMATION OPERATIONS (IO)

The proliferation of information-related technologies in the early 21st century can provide potential adversaries with powerful asymmetric means to impact on joint operations. Offensive and defensive information operations (IO) involve actions taken to affect adversary's information and information systems while defending our own. IO can enable our NCA and combatant commanders to significantly affect an adversary even before destructive means are authorized, thus contributing to deterrence while shaping the environment .

During combat operations, effective defensive IO will protect and assure the common relevant operational picture (CROP) that is essential for rapid decisive operations. Offensive IO that influences, disrupts, denies, exploits, and destroys adversary capabilities will simultaneously help the JFC achieve operational and strategic objectives with less use of conventional force, minimum losses, and reduced collateral effects .

The Result : Information superiority and rapid decisive operations.

Introduction

Our ability to conduct peacetime theater engagement, to preclude crisis and conflict and to conduct decisive joint operations and win, is significantly dependent on our ability to gain and maintain Information Superiority (IS). There are three components to IS, Relevant Information, Information Systems, and Information Operations (IO), which are actions taken to affect adversary information and information systems while defending one's own information and information systems. By 2010, operational commanders with specialized Agency and other CINCs' support, will plan, coordinate, integrate, and execute IO in support of the National Military Strategy. IO provides for a fully integrated range of precise and flexible effects achieved by the combined application of air, land, sea, and space assets across the range of military operations at every level of warfare to preclude war. If that fails, IO will be an enabler of decisive operations and insurer of information superiority. We must protect our information environment that can be affected by any adversary with the capability, intent, and opportunity to influence it.

The Integrated Concept Team (ICT) for IO has not yet been established. When it is, the Core ICT will include membership from all J9 divisions, while the Expanded ICT will extend membership to the Joint Staff, DOD agencies, Services and USACOM components who will assist in developing the concept. The current J9 concept author is Mr. Steve Barneyback, J92, (757-836-2247, DSN 836-2247), barneybs@acom.mil.

Concept Description

Conducting information operations requires integrating and synchronizing traditionally independent capabilities and activities in support of the commander's objectives of winning quickly and decisively with minimum losses and collateral effects. The concept will focus on the realization of operational objectives against an adversary in the commander's AOR, by the use of information operations. What can the Joint Force Commander (JFC) do to integrate the two interrelated elements of IO, protection and attack? How can the JFC integrate IO capabilities to accomplish the IO mission in support of overarching objectives? Both interact to maintain information superiority by protecting information, defusing crises and preparing the battlespace to ensure information superiority for decisive combat operations.

JFCs require the means to implement IO throughout the range of military operations at the theater-strategic and operational levels. Offensive Information Operations (OIO) capabilities include, but are not limited to, operations security (OPSEC), military deception, psychological operations, electronic warfare, physical attack and/or destruction, and computer network attack. Commanders can use Offensive Information Operations (OIO) to influence, disrupt, deny, destroy, and or exploit an adversary's information, information systems, and decision processes. Defensive Information Operations (DIO) protect our information environment and are conducted through programs for: information assurance, physical security, OPSEC, counterdeception, counter-propaganda operations, counterintelligence, and electronic warfare. IO is supported by related activities of public affairs, civil affairs, and command information programs.

In order to achieve information superiority at the operational level, IO will focus on the use of the military to achieve campaign objectives through the planning, coordinating, and executing IO plans using both lethal and non-lethal means. The focus at the tactical level will be on protecting friendly or influencing, destroying, denying, or otherwise exploiting an adversaries use of information and information systems. OIO will use one or combinations of both destructive as well as non-destructive/lethal means. The objectives and resulting types of intended targets – nodes, links, and human, not the means and methods, define Offensive IO, with the ultimate desired effect being on affecting the human decision maker.

Today the cost of conducting information attacks is substantially lower than the cost of defending against this developing form of asymmetric warfare. Our increased worldwide dependence on information technologies and the vulnerabilities associated with this dependence for military operations demands protection, detection, restoration, and an integrated response to protect and defend friendly information and systems from attack. Commanders will have to dramatically raise the defensive threshold for any adversary, making IO attacks more difficult and expensive (risk and resources) while limiting the damage that an adversary can do to our friendly information environment.

21st Century Environment

The globalization of the information environment and advancement of technology will continue at an ever-increasing pace and our dependencies and vulnerabilities will exponentially increase. Potential agile, flexible and difficult-to-identify adversaries, including non-nation state, may have access to the same enabling technologies. The greatest challenge will come from asymmetric attacks.

JV 2010's 21st Century Challenges

- Information Superiority, Integrate Precision Effects, Control the Battlespace

Hypothesis

IF we can use information operations to degrade, destroy, and exploit an adversary's critical information-based processes while defending our own,

THEN we can provide the NCA options for limiting conflict escalation while maintaining information superiority and achieving objectives with less use of conventional force.

Desired Capabilities

- Common relevant operational picture
- Immediate and automatic detection of adversary offensive IO and capability to respond
- Information assurance and rapid information/ system restoration
- Broad-based dedicated intelligence to identify adversary vulnerabilities
- Integrated IO campaign planning tools

Objectives

- Accomplish operational and strategic objectives with less use of force
- Affect an adversary's capability to effectively use information and information systems.
- Deny an adversary's opportunity to exploit friendly information and information systems
- Degrade the adversary's battlespace awareness, C2, and "will" to employ forces

Enabling

- Information Superiority and Decisive Operations

Offensive Information Operations (OIO), will support the operational objectives of the JFC by synergistically affecting the adversary's ability to: control the information environment; comprehend the battlespace; command, control, and communicate with forces; effectively use weapons, forces and resources; support its forces; and use its critical national infrastructure. The JFC will use relevant information to integrate the employment of IO to affect adversary decision-makers to achieve or promote specific objectives, while protecting friendly information, information systems and processes. Using OIO as a deterrent and preemptive attack will be a policy issue above the operational commanders' level.

During combat operations, OIO will be used to maintain information superiority, shifting focus toward attaining the desired end-state of maintainable peace. OIO integrates lethal and non-lethal precision effects, providing the JFC influencing capabilities to affect the links, nodes, and human components of an adversary's information-based processes and systems. Defensive Information Operations (DIO) will benefit from the examination of OIO requirements. The relative low cost of mounting information attacks, the risk of this asymmetric form of warfare, the increased worldwide dependence on information technologies, and the military reliance on information superiority demand protection, detection, restoration, an integrated response to protect and defend friendly information and systems from attack due to increasing vulnerabilities.

The IO capabilities required in the 21st century, identified so far, are the ability to:

> Comprehend the battlespace: Protect friendly and degrade adversary's in-depth understanding of space, air, land, and sea-based intelligence, surveillance, and reconnaissance infrastructure, navigation systems, assets, information fusion capabilities, targeting systems, and decision making processes.

Affect command and control (C^2): Protect friendly and degrade adversary's decision-makers and commanders ability to freely and effectively command and control their forces. Includes systems that transmit information about the battlespace to decision-makers (commanders) who will decide how to act on that information, and the information networks that enable those decisions to be communicated to forces in the field. Also includes the capability to protect the freedom of action and to protect information systems that enable horizontal command and control in the battlespace.

Affect weapons employment: Protect friendly and degrade adversary's degrade adversary's information environment that directly enables weapons, weapons platforms, and/or troops capability to execute their assigned missions, and infrastructure.

Affect military support capabilities: Protect friendly and degrade adversary's information environment that enables effective human resource utilization, efficient movement of forces, defense industrial base/acquisition processes, materiel resupply, and logistical support.

Affect critical civilian infrastructure: Protect friendly and degrade adversary's network of independent systems and processes that function collaboratively and synergistically to produce and distribute a continuous flow of essential goods and services.

IO is a critical enabler and force multiplier, for all the JV 2010 operational concepts and their associated twenty-one 21st century challenges. This concept will take the IO challenge from information superiority and address the operational level elements addressing the deterrent and enabling capabilities of IO. Commanders can use OIO to influence, disrupt, destroy, deny, and or exploit an adversary's information, information systems, and decision processes. Conversely, we must have DIO to protect friendly information environment against attack, ensuring timely, accurate, and relevant information access while denying adversaries the opportunity to exploit friendly information environment for their own purposes.

The IO concept considers the application of several of JV 2010's 21st Century Challenges such as "Decisive Combat Operations" and "Information Operations". This concept also uses JV 2010 Desired Operational Capabilities (DOCs) as a point of departure for developing a comprehensive set of IO DOCs. The two text boxes that follow highlight the 21st Century Challenges and DOCs relevant to the IO concept.

JV 2010 21st Century Challenges

Decisive Combat Operations
Shape the Environment
Generating Precision Effects
Battlespace Awareness
Information Transport and Processing
Battlespace Control
Joint Command and Control
Combating Terrorism
Information Operations

JV 2010 Desire Operational Capabilities

IO - 01 Affect Adversary Ability to Observe the Battlespace
IO - 02 Affect Adversary Ability to Command and Control Forces
IO - 03 Affect the Effectiveness Of Adversary Forces
IO - 04 Affect Adversary Ability to Support Forces
IO - 05 Affect Critical Adversary Civilian Infrastructure
IO - 06 Protect Friendly Ability to Observe The Battlespace.
IO - 07 Protect Friendly Ability to Command & Control Forces
IO - 08 Protect the Effectiveness of Friendly Forces
IO - 09 Protect Friendly Ability to Support Forces
IO - 10 Protect Friendly Civilian Information Infrastructures
ITP - 01 Assurance
DM - 05 Achieve and Preserve Battlespace Control In Support Of The Full Spectrum of Operations
FDP -08 Recover from Terrorist Attacks and Continue Operations
BA - 05 Provide Comprehensive Awareness to Support The Full Range of Military Operations
PE - 04 Identify, Prioritize, and Command/Control Effects Against Battlespace Objectives/Targets
PE - 06 Minimize or Control Collateral Damage

Experimentation Strategy

The experimentation strategy will consider/investigate both high technology and traditional IO capabilities against a range of adversaries. The strategy will have to address two sets of overlapping phases/elements of IO: Offensive/Defensive IO during both crisis/prewarfare and warfighting operational phases. Experimentation strategy would include a three phased – workshop, seminar, and wargame approach to refine the OIO and DIO concepts, assess various capabilities, and finally integrating both DIO and OIO into an overall operational major event. This should be an iterative process that continuously revised to reflect knowledge gained along the experimentation path.

The challenge will be to gain the advantage over an adversary that has achieved some success in integrating the vast array of off-the-shelf technologies available through commercial means, as well as any technologies developed through emerging DOD R&D programs. We should not limit ourselves to high-tech solutions. The approach to the experiment would include a two-phased look at how IO would be conducted in a pre-conflict stage and warfighting phase, while keeping in mind the effects that any actions may have in a third phase--transitioning to peace.

The goal of OIO experimentation is to determine best methods to plan, coordinate, and execute OIO in an integrated, synchronized fashion while highlighting required capabilities.

Initial Experimentation Questions

Is the current Joint Pub 3-13 model for an IO Cell the most effective integration approach? If not, how could the IO cell and integration process be modified for dynamic operations?

What is our capability to:
maintain the integrity or our information environment?
employ integrated tools to visualize adversaries' C4 networks and processes?
correlate attack information to determine source, nature, and scope of attack, attack attribution, and characterization?
share standardized, interoperable distributed IO data among friendly forces?

What are the measures of effectiveness and success for an information operation?

How will the military commanders identify/characterize the threat?

What is the best way to integrate the related activities of public affairs, command information programs, and civil affairs into IO?

How can the joint force commanders ensure that physical targeting does not interfere with IO operations exploitation efforts?

What support can we expect from our allies and how should this be integrated?

What are the best IO means to influence, degrade, destroy, and or exploit an adversary's nodes, links, and human components to achieve the desired endstate of affecting the adversary's ability to: (1) comprehend the battlespace, (2) conduct C^4, (3) direct its weapons, (4) support forces, and (5) gain civilian infrastructure support?

What is the best IO means to protect information and its infrastructure components in the following areas: (1) promoting understanding of the IO threat, (2) protecting information (3) developing a strategy for deterring information attacks, (4) developing a means of providing real time detection and warning of attacks, (5) defending against IO attacks, (6) determining attribution and characterization of the IO attack, (7) restoration of attacked information and systems, and (8) developing appropriate and effective response to attacks?

Fiscal Year 00 Activities

The following table represents the potential activities related to the Information Operations concept.

EVENTS		**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
L0003	Global Engagement Wargame, USAF	X			
J0049	Information Superiority Seminar (IO)	X			
L0005	Aerospace Future Capabilities Wargame		X		
J0050	Information Superiority Workshop (IO)		X		
J0013	RDO M&S Development, USACOM			X	
M0006	Millennium Challenge 2000: JCF-AWE, EFX, FBE-H, and Capable Warrior				X
J0051	Information Superiority Wargame (IO)				
L0024	JWID 00, USSPACECOM				X
L0026	Global Wargame, NWC				X
J0027	Evident Surprise (ACOM IO Wargame)				X

FORCIBLE ENTRY OPERATIONS (FEO)

Considerable turmoil in the world's regions will continue to produce civil strife, mass migration of refugees, famines, and even genocide well into the 21st century. These unsettling trends will be coupled with the threat of regional aggression. As the U.S. military responds, our adversaries may attempt to counter our force projection capabilities. This requires future joint forces that have responsive, credible, and sustainable in-theater and forcible entry capabilities.

The U.S. military must be prepared to rapidly employ/deploy joint forces against capable adversaries adept at trying to deny U.S. access. The joint force must be able to integrate improvements to employment in-theater, deployment, command and control, and combat power capabilities to secure positions from which to conduct follow-on sustained combat operations.

The Result: Assured access and accelerated forcible entry operations that enable sustained combat operations.

Introduction

The Forcible Entry concept describes how the joint force commander can rapidly deploy and employ forces to penetrate the adversary's territory to conduct operations or to establish theater entry points required to deploy decisive land, air, and sea forces for follow-on combat operations. The United States' global commitment to its Allies and coalition partners will not diminish with the advent of a new century. As such, those who seek to impose their will on others by military force will threaten the interests of our nation, resulting in hostilities. Therefore, the requirement to efficiently deploy and effectively employ joint combat power against adversaries adept at denying access in theater and elsewhere by asymmetric means will be a prerequisite and critical function of military strategy in the future. The set-piece, sequential pattern of prehostilities, lodgment, build-up, and decisive combat phasing will have to be replaced with the cumulative effects of bringing joint asymmetric strengths to bear against the enemy's weaknesses in a decisive operation to gain entry into his territory while simultaneously protecting our own critical vulnerabilities. The full integration of air, land, sea, and special operations forces in theater, supported by space and information operations, will provide the best joint means to overcome resistance as all aspects of joint military power are deployed. The need to rapidly bring overwhelming force to bear at the critical point by multiple means, to include Forcible Entry Operations, must be planned for and executed in such a manner that the enemy

can never consolidate its military gains. A synergistic joint force will capitalize on agility, adaptability, and interaction to establish the timing and tempo of operations to insure maximum efficiency and lethality while allowing the least advantage to the enemy.

The Integrated Concept Team (ICT) for FEO has not yet been established. When it is, the Core ICT will include membership from all J9 divisions, while the Expanded ICT will extend membership to the Joint Staff, DOD agencies, Services and USACOM components who will assist in developing the concept. The current J9 concept author is Mr. Bob Fawcett, J92, (757-836-2252, DSN 836-2252), fawcett@acom.mil.

Concept Description

Future adversaries, having learned from Desert Shield and Desert Storm, will no longer wait for the US to establish the parameters for a set piece battle. They will employ a robust intelligence, surveillance, and reconnaissance (ISR) architecture for targeting and combat assessment. They will combine a well-developed cruise and ballistic missile capability that allows for firing salvoes on in-theater bases and staging areas. They will also develop highly integrated air defense systems (IADS) to protect their offensive capability and infrastructure when the US begins to strike. In addition, their maritime activities will be used try to deny access to the region further exacerbating US attempts to bring force to bear. Recognizing that US forces integrate information to provide a dynamic planning and execution system with a heavy reliance on space-based ISR systems, they will use all necessary means to negate US systems while protecting their own. In the face of these future challenges, the US Joint Force of the 21st Century will have to be more flexible and have greater speed and lethality to conduct Forcible Entry Operations on a Global Scale.

21st Century Environment

- Future adversaries will likely attempt to counter US military intervention in their region. Not only will many opponents have access to high-technology weapons, but they will use effective asymmetric means as well. Offensive information operations, shallow-water and land mines, and relatively inexpensive missiles that may carry weapons of mass effects (WME) will challenge future joint force commanders attempting forcible entry operations.

JV 2010's 21st Century Challenges

- Rapid Joint Force Projection, Decisive Combat Operations

Hypothesis

IF we can rapidly seize positions from which to conduct follow-on sustained combat operations,

THEN we can limit adversary success, rapidly build combat power, and accelerate mission accomplishment through assured access.

Desired Capabilities

- World-wide joint force projection
- Flexible options for staging and insertion of forces
- Agile and tailorable joint force package
- Adaptive joint force headquarters
- Support synchronized to the battle rhythm
- Common relevant operational picture
- Increased "reach-back" and "reach-out" capabilities

Objectives

- Rapidly enable follow-on operations
- Precise closure of joint forces in the JOA
- Rapid and informed decisions
- Rapid destruction of the adversary's will and ability to use asymmetrical means

Enabling

- Dominant Maneuver and Precision Engagement

The Forcible Entry Operations concept differs from the Rapid Decisive Operations concept in that RDO is an end-to-end concept that results in decisive operational-level victory. FEO is an enabling concept that sets the conditions for a major contested invasion of enemy territory that will help achieve decisive strategic victory. Forcible Entry Operations may be an element of or a follow-on to RDO. Like RDO, Forcible Entry Operations require elements of all the other supporting concepts to be successful: Focused Logistics, Enabling Early Decisive Operations, Attack Operations Against Critical Mobile Targets, Joint Interactive Planning, Common Relevant Operational Picture, Adaptive Joint Command and Control, Strategic Deployment, and Information Operations.

The Forcible Entry Operations concept considers the application of several of JV 2010's 21st Century Challenges such as "Decisive Combat Operations" and "Battlespace Control." This concept also uses JV 2010 Desired Operational Capabilities (DOCs) as a point of departure for developing a comprehensive set of forcible entry DOCs. The following text boxes highlight the 21st Century Challenges and DOCs relevant to the Forcible Entry Operations concept.

JV 2010 21st Century Challenges

Decisive Combat Operations
Battlespace Awareness
Information Operations
Joint Command and Control
Joint Deployment and Rapid Distribution
Generating Precision Effects
Shape the Environment
Integrating Precision Effects
Battlespace Control

JV 2010 Desired Operational Capabilities

CC-07/04 Direct Military Action
CC-09 Achieve Unity of Effort
DM-03 Rapidly Integrate Forces Arriving in the JOA
DM-05 Achieve and Preserve Battlespace Control
DM-07 Generate Overmatching Lethal and Non-lethal Effects
DM-24 Synchronize Employment of Forces Throughout the Battlespace
FDP-04 Early Engagement of Air and Missile Threats
FL-05 Fully Enabled Mobility System to Optimize Rapid Joint Projection
FL-08 Support Rapid Force Maneuver within the JOA
BA-05 Comprehensive Battlespace Awareness
IO-03 Affect the Effectiveness of Adversary Forces
IO-08 Protect the Effectiveness of Friendly Forces
PE-10 Integrate Battlespace Fire and Maneuver

Experimentation Strategy

Defense Planning Guidance (DPG) Update FY 2001-2005 tasked USACOM to develop and explore, through experimentation, new joint warfighting concepts and capabilities to improve the abilities of future Joint Force Commanders to rapidly and decisively conduct particularly challenging and important operational missions, such as conducting forcible entry operations against adversaries intent on denying access to U. S. forces. A detailed experimentation strategy will be developed for this concept during FY 00. The experiment strategy will proceed from the development of the concept's initial white paper in FY-00 to a series of experiments. The culminating event for this concept's development will be a Major Joint Integrating Event in the FY 06 timeframe, which will portray a Major Theater War against a near-peer competitor.

Initial Experimentation Questions

What is the size, composition, and capability of the Joint Forcible Entry Force? How would it be organized?
How long will it take the joint force to position forces to execute a forcible entry operation?
How can operational and tactical surprise be maintained?
What is the best organization for the joint force command element and its subordinate service or functional elements?
What are the new warfighting capabilities of the forcible entry force?
How mobile is the force. How does the forcible entry force achieve and maintain tactical and operational mobility once employed?
What are the firepower requirement and how does the force receive timely and accurate fires?
How could the adversary counter the capabilities of the joint force at the strategic, operational, and tactical level?
What is the sustainable operational reach of the forcible entry force?
What are the major adversary counters to forcible entry operations? How can they be overcome or neutralized?

Fiscal Year 00 Activities

The following table represents the activities related to Forcible Entry Operations concept development.

	Event	**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
	Draft White Paper			X	
	Baseline Collective Assessment			X	
J0052	Seminar				X
M0006	Millennium Challenge 2000: JCF AWE, EFX, FBE-H, and Capable Warrior				X

STRATEGIC DEPLOYMENT (SD)

In the 21st Century, the U.S. and its allies will depend on their ability to provide immediate military presence to counter threats and provide regional stability. The requirement for projecting credible military capability to all corners of the globe necessitates an agile and responsive strategic deployment capability. Through the advantages provided by a worldwide information architecture, integrated joint theater logistics management, and responsive strategic lift, the JFC can be assured that force employment/deployment within positions of operational reach will be agile, precise and synchronized.

Response times will likely be very short and the deployment of military capability must be tailorable and swift. The joint force must be capable of marrying in-theater forces, deployment assets, pre-positioned equipment, and near-theater staging alternatives into an immediate presence of combat-capable power.

The Result: Strategic positioning of sufficient capability to ensure sustained, rapid decisive operations.

Introduction

> *" the process of moving multi-service forces to an operational area coupled with the accelerated delivery of logistics resources through improved transportation and information networks providing the warfighter with vastly improved visibility and accessibility of assets from source of supply to point of need."*
>
> Focused Logistics Roadmap

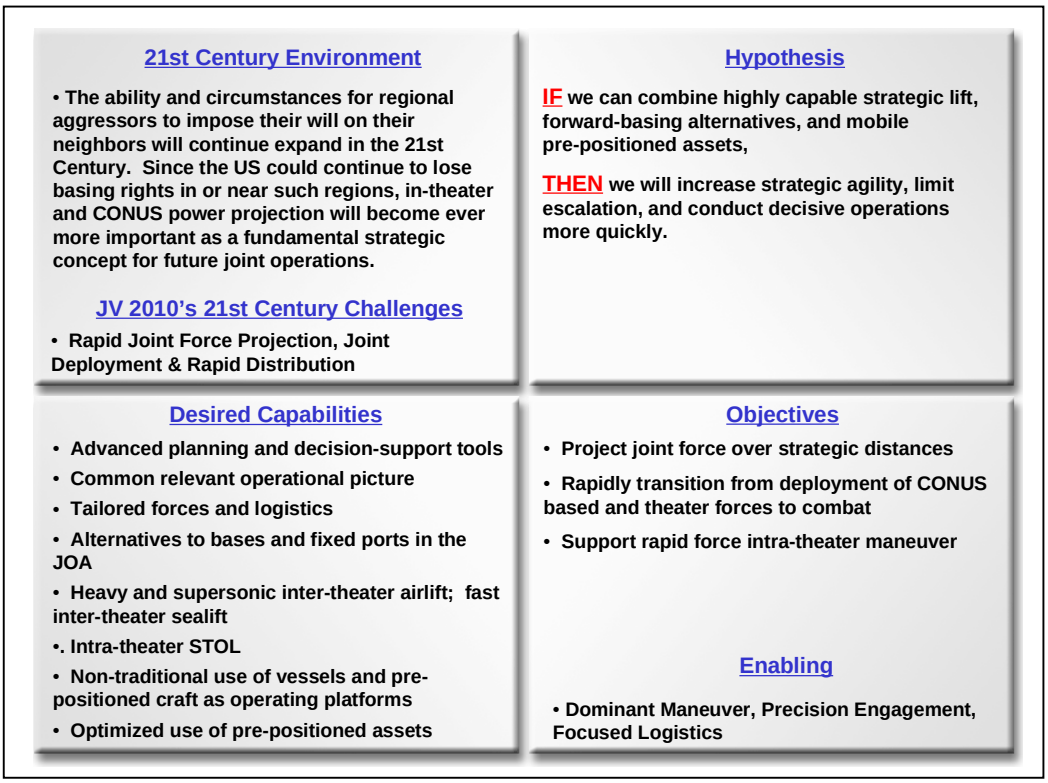
The Chairman of the Joint Chiefs of Staff clearly stated the overarching goal for this transportation tenet with his challenge, "we must be the world's premier deployer." The key to operational success is our ability to rapidly move our combat power to a supported CINC's theater, ready for mission execution. Not surprisingly, the 1999 Defense Planning Guidance (DPG), identified improved Strategic Deployment (SD) as one of the areas that the joint experimentation process should investigate. The SD concept is a mid-term (2010–2015) functional concept focusing on the implementation of *Joint Vision 2010* and will assist in achieving Full Spectrum Dominance across the full range of military operations. The concept will also address near-term developments that can provide early solutions and document those far-term evolving ideas still in varying stages of development. The objective of this concept is to provide significantly improved SD capable of projecting joint forces by sea, land and air, along

with sustainment, over strategic distances, transitioning rapidly from deployment to a mission capable posture, and supporting rapid force intra-theater maneuver. Achieving these objectives will enable the Joint Force Commander (JFC) to conduct Rapid Decisive Operations (RDO).

The Core Integrated Concept Team (ICT) for SD, with membership from all J9 divisions, was established in August 1999, with the first meeting held that month. The Expanded ICT, which includes members from the Joint Staff, DOD agencies, Services and USACOM components, will assist in developing the concept. The current J9 ICT Chairman is Ms. Lauran Winter, J98, (757-836-2847, DSN 836-2847), winterl@acom.mil.

Concept Description

This concept is in the beginning stages of concept definition. The quad chart below provides context to the concept's hypothesis and guides the development of the concept and the experimentation strategy to validate the concept.



Deployment operations involve four phases: predeployment activities; movement to and activities at the port of embarkation (POE); movement to the port of debarkation (POD); and joint reception, staging, onward movement, and integration (JRSOI) activities. The primary objective of deployment is to provide personnel, equipment, and materiel when and where the JFC requires it to support his concept of operations. The increased level of deployments, along with recent studies, have revealed a need for the JFC to have the capability to deploy joint forces and sustainment to undeveloped areas with limited infrastructure and under unfavorable conditions, a need for deliberate and crisis deployment planning systems to be flexible, interoperable, seamless, fused, and responsive to user requirements, and for the data in the

systems to be accurate, relevant, and current. There is also a requirement for a rapidly deployable, flexible, lighter, agile, mobile, and lethal early entry force that, in combination with forces present in theater, is immediately combat ready and decisive in its initial and sustained effects. This early entry joint force is composed of air, land, sea, special operations force (SOF), and space elements that are combined to produce a decisive effect on any adversary. While the intent is to impose decisive effects on the adversary, the joint force must be capable of either decisively overwhelming a potential adversary, or delaying his advance until follow on forces arrive to assist in accomplishing the mission. To support RDO and other missions across the range of military operations, *JV 2010* calls for:

> ***"…the rapid deployment of forces capable of engaging the enemy on arrival and sustaining operations with a minimal logistics tail in theater of operations."***

and a force which must be sustainable with reduced reliance on fixed air and sea ports.

This concept will describe the SD process in the context of the improved, integrated, and fused automated information systems (AIS) and processes required by the JFC and system users to plan, coordinate, and track the movement of joint forces and sustainment. It will describe the JFC's need, and potential solutions, for a single end-to-end capability to manage and monitor units, personnel, and equipment from point of origin through JRSOI in or near the joint operations area (JOA). The concept will also describe evolving and future transportation equipment improvements for enhanced Joint Logistics Over the Shore (JLOTS), sealift, and airlift capabilities.

The Strategic Deployment concept considers the application of several of JV 2010's 21st Century Challenges such as "Agile Infrastructure." This concept also uses JV 2010 Desired Operational Capabilities (DOCs) as a point of departure for developing a comprehensive set of strategic deployment DOCs. The following text boxes highlight the 21st Century Challenges and DOCs relevant to the Strategic Deployment concept.

JV 2010 21st Century Challenges

Joint Deployment and Rapid Distribution
Agile Infrastructure
Information Fusion

JV 2010 Desired Operational Capabilities

FL-06 Advanced Planning and Decision Support tools
FL-01 Common Relevant Operational Picture
FL-05 Tailored Forces and Logistics
FL-07 Alternatives to Bases and Fixed Ports in the JOA
FL-05 Heavy and Supersonic inter-theater airlift; Fast inter-theater Sealift
FL-05 Intra-Theater Short-Take-Off-and-Landing (STOL)
FL-07 Non-Traditional Use of Vessels and Propositioned Craft as Operating Platforms
FL-07 Optimized Use of Propositioned Assets
FL-05 Total Asset Visibility of Personnel and Sustainment
FL-05 Reduced Logistics Footprint

Experimentation Strategy

The SD experimentation begins with the development of the white paper in 2000 and proceeds to a series of working groups, seminars, and wargames with the capstone event being the major joint integrating experiment (MJIE) in 2004. To the degree the concept has been developed, SD will be a contributor to the Unified Vision (J0019) modeling and simulation event focused on the RDO concept, and in the Fall Deployment and Sustaining Wargame, both to be conducted in 2000. The SD concept will leverage events such as Focused Logistics Wargame (FLOW) 99, Aerospace Future Capabilities Wargame, Technology Symposium, and other events to development and further refine the concept. Experimentation will be conducted within the context of, and focus on, the four major sections of the concept: predeployment activities; movement to and activities at the POE; movement to the POD; and JRSOI activities, and experimentation results will be used to refine the concept. As the concept matures and becomes more robust, and the Baseline Collective Assessment (BCA) is completed, additional candidate experimentation events will be identified for leveraging.

Initial Experimentation Questions

Has the initial and follow on logistics force been tailored to reduce lift requirements and minimize the footprint in the JOA?
Are deployment planning and execution automated information systems (AIS) meeting JFC and users needs?
Do maneuver commanders and logisticians at all levels have access to required logistics information during predeployment, and JROSI activities?
Can the visibility of units, equipment, and accompanying sustainment be tracked from origin to destination to allow the JFC to divert assets?
Are airlift and sealift capabilities sufficient to provide timely response to the JFC?
Are intermediate staging bases (ISBs) used to reduce the logistics footprint in the JOA?
Is it feasible to use prepositioning platforms as floating ISBs?
Does the JRSOI capability meet JFC needs?
How can JRSOI activities be reduced or eliminated?
How much can Aerocraft airlift (1.0 million pounds over 2,300 miles) speedup deployment?
How much can High Speed Sealift (HSS) (150 knots speed, 12,000 nautical mile, 100,000 square feet capacity) speed up deployment?

Fiscal Year 00 Activities

The following table represents potential FY 00 activities related to the Strategic Deployment concept.

Event		**1st Quarter**	**2nd Quarter**	**3rd Quarter**	**4th Quarter**
	Concept Definition	X			
L0001	FLOW 99, JS/J-4	X			
	First Draft of SDWP	X			
	Baseline Collective Assessment – SD		X		
J0055	SD Seminar		X		
L0005	Aerospace Future Capabilities		X		
J0056	SD Workshop			X	
J0013	RDO M&S Development			X	
J0019	J0019 RDO Experiment			X	X
L0016	Mobility Requirements Study 05, JS/J4			X	
L0017	Joint Logistics Management Study, JS/J-4			X	
J0029	Technology Symposium			X	
	SD Concept White Paper Version 1.0			X	
M0006	Millennium Challenge 2000: JCF-AWE, EFX, FBE-H, and Capable Warrior				X
J0057	SD Wargame				X
J0040	Fall Deployment and Sustaining Wargame				X

APPENDIX B: POTENTIAL CANDIDATE EVENTS SYNCHRONIZATION MATRIX

USACOM-Generated Experiments (J) Major Leveraging Experiments (M) Minor Leveraging Experiments (L)			AOACMT	JIP	RDO	FLEEDO	CROP	AJC2	IO	FEO	SD
Experimentation Events		FY/Qtr	E01	E02	E03	E04	E05	E06	E09	E10	E11
FY 2001											
J0127	AOACMT Seminar	2001-1	X								
J0129	JIP Seminar	2001-1		X							
J0132	RDO Seminar	2001-1			X						
J0134	FLEEDO Seminar	2001-1				X					
J0137	CROP Seminar	2001-1					X				
J0140	AJC2 Seminar	2001-1						X			
J0145	IO Seminar	2001-1							X		
J0148	FEO Seminar	2001-1								X	
J0151	SD Seminar	2001-1									X
L0101	Atlantic Resolve, USEUCOM	2001-1		X							
L0102	Foal Eagle, USFK	2001-1				X					X
L0103	Global Engagement Wargame, USAF	2001-1	X						X		
L0104	AWE Capable Warrior	2001-2		X	X		X	X		X	
J0128	AOACMT Workshop	2001-2	X								
J0130	JIP Workshop	2001-2		X							
J0133	RDO Workshop	2001-2			X						
J0135	FLEEDO Workshop	2001-2				X					
J0138	CROP Workshop	2001-2					X				
J0141	AJC2 Workshop	2001-2						X			
J0146	IO Workshop	2001-2							X		
J0149	FEO Workshop	2001-2								X	
J0152	SD Workshop	2001-2									X
L0106	AEROSPACE FUTURE CAPABILITIES Wargame	2001-2	X								X
L0107	Flow 2001, JS J-4	2001-2				X					X
M0108	Division Capstone Exercise, Army	2001-2		X	X		X	X	X		
J0109	ASCIET 01, USACOM	2001-2		X			X				
J0110	Unified Endeavor, USACOM	2001-2					X				
J0111	Agile Lion 2001, USEUCOM	2001-2				X					X

USACOM-Generated Experiments (J) Major Leveraging Experiments (M) Minor Leveraging Experiments (L)			AOACMT	JIP	RDO	FLEEDO	CROP	AJC2	IO	FEO	SD
Experimentation Events		FY/Qtr	E01	E02	E03	E04	E05	E06	E09	E10	E11
FY 2001 cont.											
L0115	Fleet Battle Experiment- India, USN	2001-2		X	X		X	X	X		
J0126	Technology Symposium	2001-3	X	X	X	X	X	X	X	X	X
J0131	JIP Wargame	2001-3		X							
J0136	FLEEDO Wargame	2001-3				X					
J0139	CROP Wargame	2001-3					X				
J0142	AJC2 Wargame	2001-3						X			
J0147	IO Wargame	2001-3							X		
J0150	FEO Wargame	2001-3								X	
J0153	SD Wargame	2001-3									X
J0112	Roving Sands 01, USACOM	2001-3	X		X		X		X	X	X
L0113	ARMY SPACE GAME 5	2001-3									
J0116	AOACMT M&S Experiment, USACOM	2001-3	X								
J0117	JTFEX 01-02, USACOM	2001-3							X		
J0155	AOACMT Wargame	2001-3	X								
L0119	Ulchi-Focus Lens, USPACOM	2001-4	X			X			X		
L0120	ARMY AFTER NEXT Wargame	2001-4			X					X	X
J0121	RDO M&S Wargame, USACOM	2001-4			X						
L0122	Atlantic Resolve, USEUCOM	2001-4					X	X			
L0123	Global Wargame, NWC	2001-4	X								
L0124	Division Capstone Exercise, Army	2001-4		X	X		X	X	X		

USACOM-Generated Experiments (J) Major Leveraging Experiments (M) Minor Leveraging Experiments (L)			AOACMT	JIP	RDO	FLEEDO	CROP	AJC2	IO	FEO	SD
Experimentation Events		FY/Qtr	E01	E02	E03	E04	E05	E06	E09	E10	E11
FY 2002											
J0222	AOACMT Seminar	2002-1	X								
J0224	JIP Seminar	2002-1		X							
J0227	RDO Seminar	2002-1			X						
J0229	FLEEDO Seminar	2002-1				X					
J0232	CROP Seminar	2002-1					X				
J0235	AJC2 Seminar	2002-1						X			
J0240	IO Seminar	2002-1							X		
J0243	FEO Seminar	2002-1								X	
J0246	SD Seminar	2002-1									X
L0201	Fleet Battle Experiment-Juliet, USN	2002-1		X			X			X	
L0202	Global Engagement, USAF	2002-1	X					X	X		
J0203	JTFEX 02-01, USACOM	2002-1							X		
L0207	Coalition Warrior LOE, USMC	2002-1			X		X			X	
J0223	AOACMT Workshop	2002-2	X								
J0225	JIP Workshop	2002-2		X							
J0228	RDO Workshop	2002-2			X						
J0230	FLEEDO Workshop	2002-2				X					
J0233	CROP Workshop	2002-2					X				
J0236	AJC2 Workshop	2002-2						X			
J0241	IO Workshop	2002-2							X		
J0244	FEO Workshop	2002-2								X	
J0247	SD Workshop	2002-2									X
L0205	AEROSPACE FUTURE CAPABILITIES Wargame	2002-2	X								X
L0206	ARMY SPACE GAME 6	2002-2									
L0208	Strike Force AWE, Army	2002-2			X					X	X
J0226	JIP Wargame	2002-3		X							
J0231	FLEEDO Wargame	2002-3				X					
J0234	CROP Wargame	2002-3					X				
J0237	AJC2 Wargame	2002-3						X			
J0242	IO Wargame	2002-3							X		
J0245	FEO Wargame	2002-3								X	
J0248	SD Wargame	2002-3									X

USACOM-Generated Experiments (J) Major Leveraging Experiments (M) Minor Leveraging Experiments (L)			AOACMT	JIP	RDO	FLEEDO	CROP	AJC2	IO	FEO	SD
Experimentation Events		FY/Qtr	E01	E02	E03	E04	E05	E06	E09	E10	E11
FY 2002 cont.											
J0214	AOACMT M&S Experiment, USACOM	2002-3	X								
L0210	Brave Knight	2002-3					X				
L0211	Coalition/Joint Warrior, USMC	2002-3		X		X					
L0212	Fleet Battle Experiment-Kilo, USN	2002-3	X	X		X	X			X	
J0213	Roving Sands 02, USACOM	2002-3					X		X		
L0215	ARMY AFTER NEXT WARGAME	2002-3			X					X	
J0221	Technology Symposium	2002-3	X	X	X	X	X	X	X	X	X
J0249	AOACMT Wargame	2002-3	X								
L0217	Coalition Warrior LOE, USMC	2002-4			X		X			X	
L0218	JEFX 02, USAF	2002-4	X	X	X	X	X				X
J0219	RDO M&S Wargame, USACOM	2002-4			X			X		X	
L0220	Global Wargame, NWC	2002-4	X								

USACOM-Generated Experiment (J) Major Leveraging Experiments (M) Minor Leveraging Experiments (L)			AOACMT	JIP	RDO	FLEEDO	CROP	AJC2	IO	FEO	SD
Experimentation Events		FY/Qtr	E01	E02	E03	E04	E05	E06	E09	E10	E11
FY 2003											
J0316	AOACMT Seminar	2003-1	X								
J0319	JIP Seminar	2003-1		X							
J0322	RDO Seminar	2003-1			X						
J0325	FLEEDO Seminar	2003-1				X					
J0328	CROP Seminar	2003-1					X				
J0331	AJC2 Seminar	2003-1						X			
J0336	IO Seminar	2003-1							X		
J0339	FEO Seminar	2003-1								X	
J0342	SD Seminar	2003-1									X
L0301	Coalition Warrior CPE, USMC	2003-1			X		X				X
L0302	Fleet Battle Experiment-Lima	2003-1	X	X		X	X	X			
L0303	Global Engagement, USAF	2003-1	X						X	X	X
J0317	AOACMT Workshop	2003-2	X								
J0320	JIP Workshop	2003-2		X							
J0323	RDO Workshop	2003-2			X						
J0326	FLEEDO Workshop	2003-2				X					
J0329	CROP Workshop	2003-2					X				
J0332	AJC2 Workshop	2003-2						X			
J0337	IO Workshop	2003-2							X		
J0340	FEO Workshop	2003-2								X	
J0343	SD Workshop	2003-2									X
L0306	FLOW 03, JS J-4	2003-2				X					X
J0315	Technology Symposium	2003-3	X	X	X	X	X	X	X	X	X
J0318	AOACMT Wargame	2003-3	X								
J0321	JIP Wargame	2003-3		X							
J0324	RDO Wargame	2003-3			X						
J0327	FLEEDO Wargame	2003-3				X					
J0330	CROP Wargame	2003-3					X				
J0333	AJC2 Wargame	2003-3						X			
J0338	IO Wargame	2003-3							X		
J0341	FEO Wargame	2003-3								X	
J0344	SD Wargame	2003-3									X
L0307	AWE Coalition Warrior,USMC	2003-3			X		X			X	

USACOM-Generated Experiment (J) Major Leveraging Experiments (M) Minor Leveraging Experiments (L)			AOACMT	JIP	RDO	FLEEDO	CROP	AJC2	IO	FEO	SD
Experimentation Events		FY/Qtr	E01	E02	E03	E04	E05	E06	E09	E10	E11
FY 2003 cont.											
L0308	Fleet Battle Experiment-Mike	2003-3		X				X	X		
J0309	Roving Sands 03, USACOM	2003-3			X		X				
J0249	AOACMT M&S Experiment, USACOM	2003-3	X								
L0312	Ulchi Focus Lens, PACOM	2003-4							X		
J0313	RDO JWE, USACOM	2003-4	X	X	X	X	X	X	X	X	X
L0314	Global Wargame, NWC	2003-4	X					X			X

USACOM-Generated Experiments (J) Major Leveraging Experiments (M) Minor Leveraging Experiments (L)			AOACMT	JIP	RDO	FLEEDO	CROP	AJC2	IO	FEO	SD
Experimentation Events		FY/Qtr	E01	E02	E03	E04	E05	E06	E09	E10	E11
FY 2004											
J0416	AOACMT Seminar	2004-1	X								
J0419	JIP Seminar	2004-1		X							
J0422	RDO Seminar	2004-1			X						
J0424	FLEEDO Seminar	2004-1				X					
J0427	CROP Seminar	2004-1					X				
J0430	AJC2 Seminar	2004-1						X			
J0435	IO Seminar	2004-1							X		
J0438	FEO Seminar	2004-1								X	
J0441	SD Seminar	2004-1									X
L0401	Joint Warrior LOE, USMC	2004-1	X		X		X			X	X
L0402	Fleet Battle Experiment-November	2004-1	X	X							
L0403	Global Engagement, USAF	2004-1	X					X	X	X	X
J0417	AOACMT Workshop	2004-2	X								
J0420	JIP Workshop	2004-2		X							
J0423	RDO Workshop	2004-2			X						
J0425	FLEEDO Workshop	2004-2				X					
J0428	CROP Workshop	2004-2					X				
J0431	AJC2 Workshop	2004-2						X			
J0436	IO Workshop	2004-2							X		
J0439	FEO Workshop	2004-2								X	
J0442	SD Workshop	2004-2									X
J0415	Technology Symposium	2004-3	X	X	X	X	X	X	X	X	X
J0418	AOACMT Wargame	2004-3	X								
J0421	JIP Wargame	2004-3		X							
J0426	FLEEDO Wargame	2004-3				X					
J0429	CROP Wargame	2004-3					X				
J0432	AJC2 Wargame	2004-3						X			
J0437	IO Wargame	2004-3							X		
J0440	FEO Wargame	2004-3								X	
J0443	SD Wargame	2004-3									X
L0406	Quick Force	2004-3					X				
L0407	Joint Warrior LOE, USMC	2004-3			X		X	X		X	X
L0408	Fleet Battle Experiment-Oscar	2004-3			X			X			

USACOM-Generated Experiments (J) Major Leveraging Experiments (M) Minor Leveraging Experiments (L)			AOACMT	JIP	RDO	FLEEDO	CROP	AJC2	IO	FEO	SD
Experimentation Events		FY/Qtr	E01	E02	E03	E04	E05	E06	E09	E10	E11
FY 2004 cont.											
J0409	Roving Sands 04, USACOM	2004-3			X		X			X	
J0444	AOACMT M&S Experiment, USAOM	2004-3	X								
J0411	RDO JWE, USACOM	2004-4	X	X	X	X	X	X	X	X	X
L0412	Joint Warrior LOE, USMC	2004-4			X		X	X	X	X	X
L0413	JEFX 04, USAF	2004-4	X	X	X		X		X	X	X
L0414	Global Wargame, NWC	2004-4	X						X	X	

USACOM-Generated Experiments (J) Major Leveraging Experiments (M) Minor Leveraging Experiments (L)			AOACMT	JIP	RDO	FLEEDO	CROP	AJC2	IO	FEO	SD
Experimentation Events		FY/Qtr	E01	E02	E03	E04	E05	E06	E09	E10	E11
FY 2005											
J0518	AOACMT Seminar	2005-1	X								
J0521	JIP Seminar	2005-1		X							
J0524	RDO Seminar	2005-1			X						
J0527	FLEEDO Seminar	2005-1				X					
J0530	CROP Seminar	2005-1					X				
J0533	AJC2 Seminar	2005-1						X			
J0538	IO Seminar	2005-1							X		
J0541	FEO Seminar	2005-1								X	
J0544	SD Seminar	2005-1									X
L0501	Ultimate Warrior CPE, USMC	2005-1			X		X	X		X	X
L0502	Fleet Battle Experiment-Pappa	2005-1	X	X		X					
L0503	Global Engagement, USAF	2005-1	X								X
J0519	AOACMT Workshop	2005-2	X								
J0522	JIP Workshop	2005-2		X							
J0525	RDO Workshop	2005-2			X						
J0528	FLEEDO Workshop	2005-2				X					
J0531	CROP Workshop	2005-2					X				
J0534	AJC2 Workshop	2005-2						X			
J0539	IO Workshop	2005-2							X		
J0542	FEO Workshop	2005-2								X	
J0545	SD Workshop	2005-2									X
L0505	Agile Lion	2005-2					X	X			
L0507	FLOW 05	2005-2				X					X
J0517	Technology Symposium	2005-3	X	X	X	X	X	X	X	X	X
J0520	AOACMT Wargame	2005-3									
J0523	JIP Wargame	2005-3		X							
J0526	RDO Wargame	2005-3			X						
J0529	FLEEDO Wargame	2005-3				X					
J0532	CROP Wargame	2005-3					X				
J0535	AJC2 Wargame	2005-3						X			
J0540	IO Wargame	2005-3							X		
J0543	FEO Wargame	2005-3								X	
J0546	SD Wargame	2005-3									X

USACOM-Generated Experiments (J) Major Leveraging Experiments (M) Minor Leveraging Experiments (L)			AOACMT	JIP	RDO	FLEEDO	CROP	AJC2	IO	FEO	SD
Experimentation Events		FY/Qtr	E01	E02	E03	E04	E05	E06	E09	E10	E11
FY 2005 cont.											
L0508	AWE JOINT Warrior, USMC	2005-3			X		X	X		X	X
J0509	JTFEX 05-02, USACOM	2005-3							X		
L0510	Fleet Battle Experiment-Quebec	2005-3	X	X			X				
J0511	Roving Sands, USACOM	2005-3			X		X			X	X
J0547	AOACMT M&S Experiment, USACOM	2005-3	X								
J0513	MTW JWE, USACOM	2005-4	X	X	X	X	X	X	X	X	X
L0515	Global Wargame, NDU	2005-4	X					X			
L0516	Foal Eagle, USFK	2005-4				X					X

APPENDIX C: RESOURCES/PROPOSED BUDGET FY 00-05

Background

This appendix sets forth the justification for the funding and resources required to support the USACOM Joint Experimentation six-year (FY00-05) operations strategy. Past and present efforts have provided USACOM with opportunities to refine budgetary needs. USACOM's experimentation activities for CPLAN 00 include a variety of experimentation venues ranging from wargames, to constructive and virtual simulations, concept development studies, seminars, and Red Team vulnerability assessments. Beginning with CPLAN 00, the JE program will be synchronized with the budget cycle. Resources are identified and programmed as directed by the Secretary of Defense. As in any new organization, there will be initial start-up costs; however, it is the intention for JE to eventually improve upon the U.S. Government military spending by its very nature in combining and developing limited resources and reducing redundancies for a more effective fighting force in the future. The funding to support JE will be from two categories of funds: Research, Development, Test and Evaluation (RDT&E) and Operations & Maintenance (O&M). The following paragraphs describe the major cost factors considered when developing the budgets for CPLAN 00.

RDT&E Funding

Funding to support all of the efforts directly associated with the program of experimentation will come from the RDT&E funds. The JE Program requires a balanced mix of military, government civilian, and contractor support of various disciplines and types of personnel that can execute the mission in the most cost-effective manner. Listed below are the major cost factors that were considered when developing the CPLAN RDT&E budget:

- Modeling and Simulation activities to conduct predictive analysis for individual experiment design and for assisting program planners in anticipation of problem areas.
- Modeling and Simulation during experimentation execution. This includes the cost of scenario and database development, modification of simulations to reflect new organizations and systems, and execution of the simulations.
- Leasing or purchasing communications and data processing assets to support experimentation execution and data collection at remote sites. This includes the initial costs for investigating and developing the Information Technology Backplane as described in the USACOM Implementation Plan (IPLAN) as well as other leading edge services and applications on the SIPRNET, NIPRNET, and JWICS.
- Leasing or purchasing prototype or surrogate systems incorporating new or emerging technologies as experiment subjects.
- Reimbursement, as appropriate, to Service and Components for providing and training Exercise forces, Opposing Forces, Situational forces, and controllers, as well as the equipment and consumables associated with these forces to support experiments.

- Costs associated with International Experimentation with NATO, Coalition, and other outside organizations.
- Costs associated with bringing together warfighters, futurists, academics, and industry.
- Leaders to participate in seminars, workshops, and wargames as part of the Futures Program.

O&M Funding

O&M funds are required to support day-to-day operations of JE management processes such as policy development, and Campaign Plan development.

Personnel

A Joint Staff Validation Board conducted 1 Oct 98 validated the following one hundred twenty-six requirements.

Mil 52 GS 74 Reimb. (Not a topic for this board)

APPENDIX D: USACOM J9 POINTS OF CONTACT

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Futures Program Website www.acom.mil/j9futures

ICT Info Website www.acom.mil/ict

APPENDIX E:JOINT EXPERIMENTATION BIBLIOGRAPHY

The Strom Thurmond National Defense Act of 1999, Section 923, (Report to Congress)

SECDEF Charter, 15 May 1998

Defense Planning Guidance, Update for Fiscal Years 2001-2005, April 1999

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Joint Vision 2010, CJCS, July 1996

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USACOM Joint Experimentation Implementation Plan, 15 July 1998

USACOM Joint Experimentation Campaign Plan 99, 4 December 1998

APPENDIX F: DEFINITIONS

Advanced Concept Technology Demonstrations (ACTD): ACTDs are designed to transfer technology quickly from developers in order to users to solve important military problems, resulting in new operational capabilities. They are based on advanced technologies. ACTDs have three principal objectives: to gain an operator's understanding and evaluation of the military utility of new technology applications before committing to acquisition; to develop corresponding battlefield concepts of operation and doctrine that make the best use of the new capability; and to provide new capabilities to combatant forces. ACTDs are demonstrated in large joint training exercises or experiments.

Advanced Technology Demonstrations (ATD): ATDs are demonstrations of advanced technologies with potential for enhancing military operational capabilities or cost effectiveness. ATDs may be incorporated into major service experiments or conducted as stand-alone experiments. ATDs may be especially useful in identifying the feasibility of new concepts and architectures. ATDs ae characterized by four parameters: large-scale, both in resources and complexity; operator/user involvement from planning to final documentation; specific cost, schedule, and performance metrics; and a clearly defined transition target.

Advanced Warfighting Experiments (AWE): Service, Joint, and Combined AWEs are large-scale experiments that demonstrate and test emerging operational concepts and new technologies. They are an integral part of DOD's effort to develop innovative operational concepts, new organizations, doctrine, training, leadership, materiel, and other advanced capabilities. AWE's may involve constructive, virtual, or live simulations embedded in force exercises.

Battle Labs and Warfighing Centers: Battle labs and warfighting centers develop and assess new concepts and advanced technologies to carry out key military operations. They are DOD's test beds for exploring how 21st century military forces will maximize their effectiveness across the spectrum of operations. Most labs address near- and long-term concept development. Many are focused on specified critical challenges, with the intent of rapidly developing and testing concepts through experimentation. Typically, battle labs assess mature or rapidly emerging technologies or concepts that can be rapidly integrated into the force as near-term enhancements to existing capabilities, or can serve as a component of a follow-on, broader initiative to introduce new capabilities.

Concept Development: Concept development is a continuous, iterative process of forming new ideas that describe the application of future warfighting capabilities. Concept development is focused on developing new ways and means to conduct future military operations. The definition includes the development of concepts for different levels of military operations. For example, a battlefield operational concept links together a series of functions that must be accomplished in order to carry out a critical operational task, such as applying U.S. force to key pressure points to deny enemy objectives.

Concept Development Studies: Concept development studies focus on exploring the impact of emerging security challenges and threats on military capabilities and operations, future missions, potential operational concepts, and technological challenges and opportunities. Concept development studies represent an inexpensive and broad resource mechanism for identifying areas of possible exploitation and analysis.

Concept Development Wargaming: In the context of concept development, wargaming involves carefully constructed scenarios where experienced civilian and military representatives must make decisions regarding the use of force in the context of future conflict environment. Used to improve understanding of the future security environment and the relative merits of alternative concepts and capabilities to meet critical military challenges over the long-term, they can be invaluable guides to concept development and refinement.

Concept Experimentation: Concept experimentation is an iterative approach involving the discipline of the scientific method that includes rigorous management of controls and variables to provide quantifiable, repeatable results. Experiments are part of the assessment process. Events in the experimentation tool kit include studies, wargaming, modeling and simulation, ACTDs, ATDs, exercises (Roving Sands), advanced warfighting experiments, joint warfighting experiments, joint warrior interoperability demonstrations, joint test and evaluation, and real world operations.

Concept Experimentation Exercises: Service, Joint, and combined exercises that are conducted to better understand and assess new operational concepts and emerging technologies. They play a key role in the demonstration and integration of joint capabilities, doctrine, and warfighting concepts. Command Post exercises, Field Training exercises, and Computer Assisted exercises can provide opportunities for experimentation using fully trained and deployed troops.

Joint Experimentation (JE): Joint Experimentation is an iterative process of collecting, developing, and exploring concepts to identify and recommend the better value-added solutions for change to DOTMLP required to achieve significant advances in future joint operational capabilities.

Military Transformation: Military transformation activities are focused on determining the capabilities required to defend U.S. national interests in the future, and to implement the necessary changes in forces, concepts, and organizations to achieve these capabilities. Military transformation involves much more than the acquisition of new military systems. It means harnessing new technologies to give U.S. forces greater military capabilities through advanced concepts, doctrine, and organizations so that they can dominate any future battlefield.

Mission Area Analysis (MAA): Joint and Service mission area analyses perform end-to-end assessments of key military missions and tasks. Mission area analysis can be focused on developing new operational concepts and future mission area architectures.

Modeling and Simulation (M&S): Modeling and simulation are means to test or analyze a logical representation of a system, entity, phenomenon, or process. For the purpose of concept

experimentation, modeling and simulation provide environments to explore concepts and refine capability requirements in preparation for field experimentation.

Revolution in Military Affairs (RMA): An RMA occurs when a nation's military seizes an opportunity to transform its strategy, military doctrine, training, education, organization, equipment, operations, and tactics to achieve decisive military results in fundamentally new ways.