Delivering Innovation

The Joint Concept Development and Experimentation Campaign Plan

FY2004-2011

Prepared By Commander, US Joint Forces Command
For The Chairman, Joint Chiefs of Staff.

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DEPARTMENT OF DEFENSE
COMMANDER
U.S. JOINT FORCES COMMAND
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IN REPLY REFER TO:

15 December 2003

MEMORANDUM THRU COMMANDER, UNITED STATES JOINT FORCES COMMAND

FOR THE CHAIRMAN, JOINT CHIEFS OF STAFF

Subject: Joint Concept Development and Experimentation Campaign Plan, FY 2004-11.

1. The enclosed Joint Concept Development and Experimentation Campaign Plan for Fiscal Years 2004 to 2011 is provided in accordance with the Secretary's Transformation Planning Guidance (April 2003). This plan outlines the structure for joint concept development and experimentation and describes the Campaign's objectives, strategy and methods, and includes a schedule of events to achieve those objectives.

//original signed//
JAMES M. DUBIK
Major General, U.S. Army
Director, Joint Experimentation

ENDORSEMENT

1. I have reviewed and approved the Joint Concept Development and Experimentation Campaign Plan, FY 2004-2011.

//original signed//
E.P. GIAMBASTIANI
Admiral, U.S Navy

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The Role of United States Joint Forces Command

Joint Concept Development and Experimentation (JCDE) plays a central role as a major generator of transformational change, and United States Joint Forces Command (USJFCOM) is the focus of that activity. By 1 December, biennially, the Commander USJFCOM will submit to the Secretary of Defense, through the Chairman, Joint Chiefs of Staff (CJCS), a Joint Experimentation Campaign Plan (JE CPLAN) to effectively conduct Joint Concept Development and Experimentation.

The development of joint operating concepts guides long range planning for transformational change. Development of these joint operating concepts and related concept development and experimentation activities continuously feed back to each other in an iterative fashion, to ensure a dynamic, aggressive approach that demonstrates progressive refinement and optimization. The Chairman, Joint Chiefs of Staff and Commander, JFCOM will ensure that this synergy takes place.[1]

"As we prepare for the future, we must think differently and develop the kinds of forces and capabilities that can adapt quickly to new challenges and to unexpected circumstances. We must transform not only the capabilities at our disposal but also the way we think, the way we train, the way we exercise, and the way we fight. We must transform not only our armed forces but also the Department that serves them by encouraging a culture of creative and prudent risk taking. We must promote an entrepreneurial approach to developing military capabilities, one encourages people to be proactive, not reactive, and anticipates threats before they emerge."

Secretary of Defense Donald Rumsfeld
Transformation Planning Guidance
April 2003

[1] Secretary of Defense Transformation Planning Guidance, April 2003, p. 33

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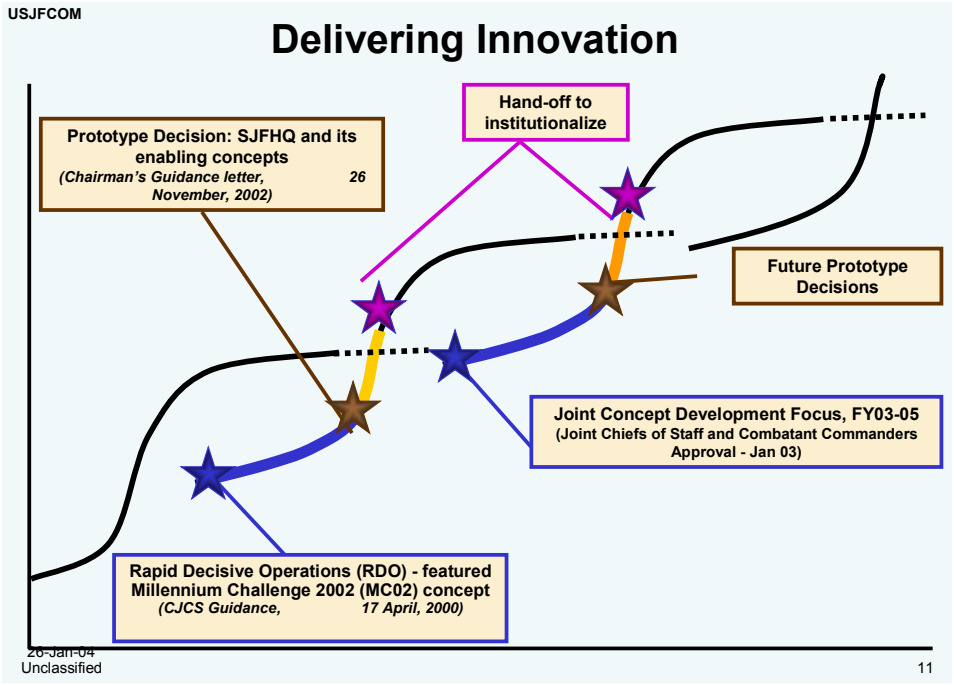
I. Campaign Plan Executive Summary

As the Department of Defense (DOD) Executive Agent for Joint Experimentation, USJFCOM develops a broad, multi-year, iterative Campaign Plan for the Chairman, Joint Chiefs of Staff. Principal authorities for development of this campaign plan are found in the Secretary's Transformation Planning Guidance and the Chairman's Joint Experimentation Guidance.[2]

This plan has been developed through extensive collaboration with Combatant Command, Service, Joint Staff, Office of the Secretary of Defense and selected interagency and multi-national partners. The strategy and methodology described in this plan have been in execution for over one year. The campaign has already improved joint warfighting and resulted in innovative joint concepts.



[2] Specific directives and references are footnoted throughout the plan as appropriate. Because this plan was developed collaboratively, use of personal pronouns (we, our, etc.) refers to the larger joint experimentation and concept development audience, not simply USJFCOM.

The Joint Concept Development and Experimentation Campaign - A Two-Path Strategy

The Joint Concept Development and Experimentation Campaign Plan has a fourfold purpose: 1) to field the Standing Joint Force Headquarters, which includes enabling concepts for developing transformational joint command and control, 2) to deliver rapid prototyping of capabilities that improve joint warfighting now, 3) to provide actionable recommendations based on the results of experimentation so that senior leaders can make informed choices about future investments in the armed forces, and 4) to include Combatant Commands, Services, defense agencies and multinational partners in the experimentation process.

In executing this campaign, US Joint Forces Command's strategy follows two paths: the joint prototype path and the joint concept development path. The joint prototype path improves current warfighting capabilities, maturing new capabilities through continuous experimentation immersed in combatant command joint exercise programs. The joint concept development path explores new concepts for improving future warfighting. These concepts result from an iterative experimentation program that relies on smaller, more frequent sets of experiments conducted in a joint, co-sponsored, wargaming environment. The plan provides a mechanism for incorporation of insights and lessons learned from ongoing and recent operations into joint concept development and experimentation.

Because the plan's experimentation environment is both collaborative and distributed, USJFCOM's partners – Combatant Commands, the Services, multinational partners, and selected inter-agency and industrial partners – may participate at whatever level their experimental objectives require. This broad effort ensures that future warfighting capabilities are born jointly.

The focus of this collaborative joint experimental campaign reflects the priorities of senior leaders in the Department of Defense. Senior Leadership - the Chairman, the Joint Chiefs, Combatant Commanders and multi-national, inter-agency and key industrial leaders – are involved early in the process in order to maintain that top-down priority and focus.[3]

The campaign plan's products are prototype capabilities, joint concepts, and actionable recommendations for further joint experimentation and investment. It describes the currently approved joint prototypes that support fielding the Standing Joint Force Headquarters, including a methodology to further develop and refine those prototypes. The plan also describes how USJFCOM develops concepts assigned by the Chairman, Joint Chiefs of Staff, including the Joint Operations Concepts (JOpsC), Joint Operating Concepts (JOCs), along with functional and enabling concepts. Other campaign products include concepts describing Joint Urban Operations, Joint Forcible Entry Operations, and Joint Deployment Employment and Sustainment. Understanding that the joint concept development and experimentation environment is designed to be dynamic and promote a culture of innovation, this plan addresses issues for further study via the next iteration of this campaign plan.

[3] See Diagram on Page 7.

By delivering innovation and building collaborative partnerships, US Joint Forces Command and its partners work to transform America's defense and enhance global security. Continued collaboration and dialogue with those partners is essential to the success of this plan. Expanding that partnership will sustain and enable greater momentum and improve alignment of this complex effort. The future challenge is to change from a culture of 'we can't experiment because we're too busy' to one where 'we must experiment to get the future right'.

A Path to Transformation

This campaign plan is intended to provide the synergy described by the Secretary's Transformation Planning Guidance to the broad area of Joint Concept Development and Experimentation. Success of this campaign depends on creation of a collaborative environment among Combatant Commands, Services, and multinational partners. Together, we assess the results of experimentation, draw insights and implications from those experiments, and develop and implement recommendations for change. The recommendations will enable senior leaders to make decisions that determine the most effective way to allocate resources.

The two-path strategy described in this campaign plan lies at the heart of our approach to the transformation of military capabilities. Through a continuous process that integrates innovative thinking, experimentation, and discovery, we help convert mature concepts into prototypes. These prototypes, if they have value, ultimately make their way into the hands of Combatant Commanders who use them to strengthen their warfighting capability.

Developing a Culture of Innovation

USJFCOM is one part of a large, Department of Defense-wide effort to foster innovation. Prototyping, co-sponsorship, alternative approaches, embedding experiments in exercises and expanding the experimental ground all contribute to fostering that new innovative culture. Millennium Challenge 2002 started us on the track of innovation. USJFCOM's experimental activities over the past year have widened the track and accelerated our progress down-track significantly. Collaborative efforts in the coming years will build on these successes.

Military Superiority: The Measure of Success

This plan's measure of success is in generating real improvements in the military capability for the warfighters, including our multi-national partners. The intended outcome - a fundamentally joint, network-centric, distributed joint force capable of rapid decision superiority and massed effects across the battlespace - will undeniably advance our defense strategy and, therefore, enhance the freedom, peace, and security we seek as a nation.[4]

[4] Secretary of Defense, Transformation Planning Guidance, April 2003, p. 1.

II. Transforming Military Effectiveness

The Product of Creative Thinking and Intelligent Risk Taking

Transformation, Experimentation and Military Superiority

The U.S. military has a long tradition of transformation through experimentation, from the Navy's fleet challenges in the 1930s that gave birth to carrier tactics to the Army's famous Louisiana Maneuvers of 1941 that developed the initial doctrine for combined arms air-ground operations. The end of the Cold War has changed the international security landscape. The emergence of the information age offers new warfighting tools and methods. The threats to our nation's security have also changed. The conjunction of these major changes mandates transformation now.

Transformation is "a process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people, and organizations that exploit our nation's advantages and protect against our asymmetric vulnerabilities to sustain our strategic position, which helps underpin peace and stability in the world."[5]. For the United States military, transformation is a process that enables joint forces to maintain and extend overmatching combat power by exploring, testing, and then establishing new combinations of concepts, capabilities, people, and organizations. Through the process of discovering new capabilities, we can exploit our nation's strengths and advantages while protecting ourselves from asymmetric forces that threaten our strategic superiority. This transformation ultimately means redefining standards for military success by accomplishing military missions that were previously unimaginable or impossible except at prohibitive risk or cost.

Growing asymmetric threats, rising force-on-force challenges, historic opportunities, and the high stakes involved all demonstrate that the status quo is unacceptable. Military transformation is a key element of America's national defense strategy. The United States Joint Forces Command has been an important element in the overall joint concept development and experimentation program for the Department of Defense since 1999. On October 1, 2002, the United States Joint Forces Command (USJFCOM) was designated as the Department's Executive Agent for coordinating the transformation of our nation's joint warfighting forces.[6] As such, the USJFCOM mission is to maximize the Nation's future and present military capabilities by **leading the transformation of joint forces**, through ***joint concept development and experimentation***, identifying joint requirements, advancing interoperability, conducting joint training... all to support the Combatant Commands.[7]

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[5] Secretary of Defense, Transformation Planning Guidance, April 2003, p. 3.
[6] See also US Joint Force Command Joint Warfighting Experimentation Charter, 15 May 1998, and Joint Vision Implementation Master Plan (CJCSI 3010.02A), 15 Apr 01, p. A3.
[7] US Joint Forces Command, Command Information Brief, (www.jfcom.smil.mil), 20 August 2003

The outcome of transformation - a fundamentally joint network-centric distributed force capable of making immediate, superior decisions and massing effects across the battlespace - is the focus of this campaign plan.[8] Employing the powerful tools of joint concept development and experimentation, the U.S. military can address, and possibly even anticipate, the challenges that threaten the security of our nation and our allies around the world. Through this transformation, U.S. forces will continue to operate from a position of overmatching power, deterring conflict, dissuading adversaries, and assuring others of our commitment to a peaceful world.

1. **Successfully Pursue the Global War on Terrorism**
2. **Strengthen Combined/Joint Warfighting Capabilities**
3. **Transform the Joint Force**
4. **Optimize Intelligence Capabilities**
5. Counter Proliferation of WMD
6. Improve Force Manning
7. **New concepts of Global Engagement**
8. **Homeland Security**
9. **Streamline Department of Defense Processes**
10. Reorganize the Department of Defense and the US Government to deal with pre-war opportunities and post-war responsibilities

Senior leaders have outlined these ten priorities for the Department of Defense. Joint concept development and experimentation is a significant contributor to the seven priorities highlighted in bold print.

Department of Defense Priorities Supported by Joint Experimentation[9]

Joint Concept Development and Experimentation: A Catalyst for Transformation

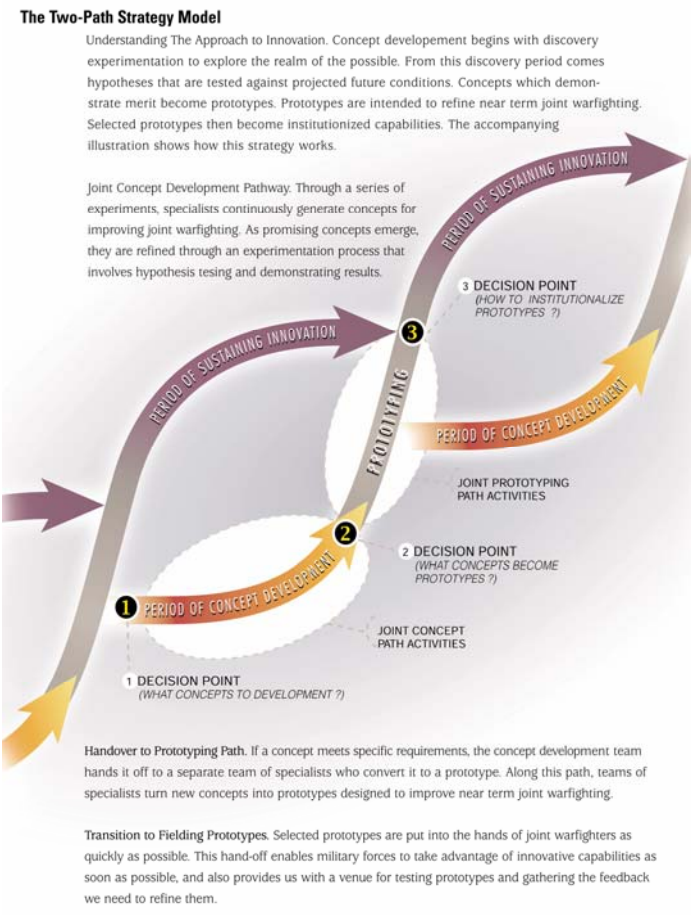
The Joint Concept Development and Experimentation Campaign is an important catalyst for transforming military capability. This campaign aims to develop capabilities and concepts that, through vigorous debate, collaboration, refinement, prototyping, and experimentation, strengthen the effectiveness of joint force commanders in the field. Perhaps more important than fostering the creation of new concepts, the campaign serves as a mechanism to align the efforts of Combatant Commands, Services, and interagency, multi-national and industry partners as we collectively develop capabilities and concepts. Finally, the campaign helps create an overall culture of innovation among the partners.

[8] Secretary of Defense Transformation Planning Guidance, April 2003, p. 1.
[9] DOD Senior Leader Review Group, "Top Priorities for Next 16 Months," 25 Aug 03, as found in Secretary of Defense Memorandum, Subject: "Legislative Priorities for Fiscal Year 2005," dated 24 Sep 03. Also available in US Joint Forces Command, Command Information Brief, (www.jfcom.smil.mil).

A Two-Path Strategy – Our Approach to Innovation

This campaign employs a two-path strategy that results in two distinct products. The first product consists of prototypes - improvements to near term warfighting capabilities. The second product consists of joint concepts and actionable recommendations – new approaches to capabilities that focus on the next decade. To improve near-term warfighting capabilities, the campaign pursues a strategy of rapid prototyping. This effort takes place along the joint prototype path. This strategy takes new ideas or concepts that originate on the joint concept development path or from real-world operations and converts them into physical form as prototypes. These prototypes are then put into the hands of joint warfighters in field exercises as quickly as possible.

The prototype path began to take shape in preparation for Millennium Challenge 02. During that experiment, Combatant Com-manders and others saw the power of the body of concepts being explored.



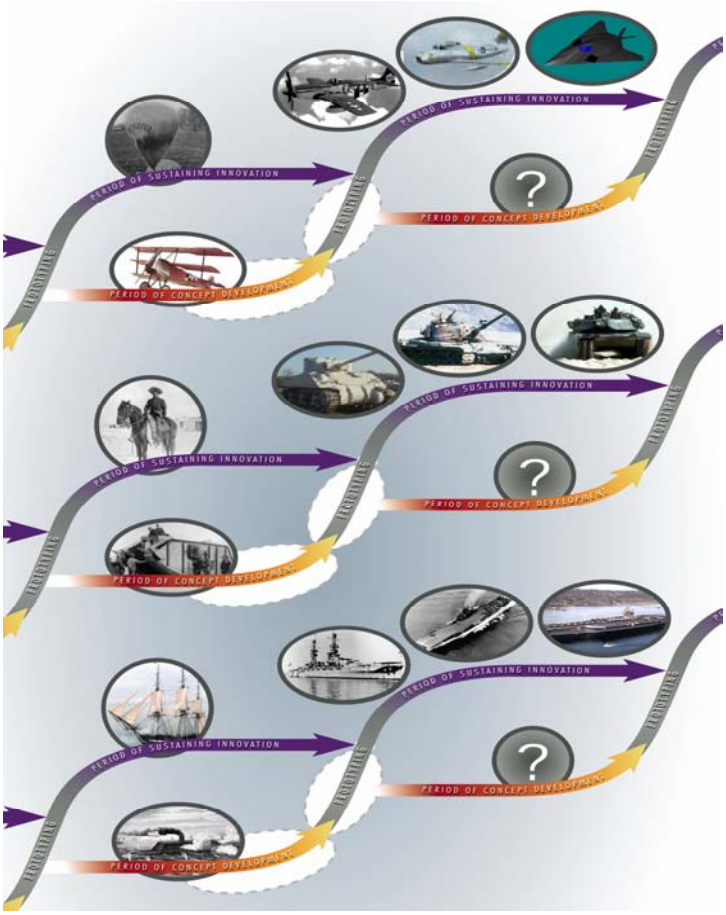
Delivering Innovation[11]

Following the experiment, the Chairman of the Joint Chiefs of Staff directed USJFCOM to field Standing Joint Force Headquarters in each Combatant Command by FY 2005. [12]

[10] Christensen, Clayton M, The Innovator's Dilemma, (Boston: Harvard Business School Press), 1997.
[11] Christensen, Clayton M, The Innovator's Dilemma, (Boston: Harvard Business School Press), 1997.
[12] Chairman JCS Memorandum for Commander, USJFCOM, Subject: USJFCOM Joint Experimentation Guidance Letter (CM 56-01), 2 Nov 01; Chairman JCS Memorandum for Commander, USJFCOM, Subject:

We have been aggressively partnering with regional Combatant Commanders to execute this directive. We have taken sufficiently completed capabilities into the field to get them into the hands of the users and incorporated their feedback to make improvements.

Concept development, a period of discovery and hypothesis testing, precedes prototyping. Concepts are generated along the joint concept development path through a series of wargames and experiments. In collaboration with our Service, Combatant Command, Joint Staff, defense agency and multinational peers, we are exploring promising new ideas and concepts. We begin to refine them through an experimentation process that begins by testing hypotheses and ends with a demonstrated capability. Concepts that meet certain requirements are eventually given to teams of specialists who convert them to prototypes. Based on how these concepts perform, we make recommendations to senior leaders that help them decide how to invest military resources. Work performed on the joint concept development path is dedicated to making long-term improvements to military capability. The focus is on making the next decade's improvements to joint warfighting.



Delivering Innovation – Historical Perspectives

Guidance for USJFCOM Joint Experimentation (CM635-02), 26 Nov 02, and Chairman JCS Memorandum for Commander, USJFCOM, Subject: Change for Guidance for USJFCOM Joint Experimentation (sic) (CM636-02), 26 Nov 02 (directs biennial submission of JE CPLAN beginning with FY04-11).

Expanding the Experimental Ground

One of the most significant ways we improve our perspective in this campaign is by making every effort to expand the scope of our experimentation. This ensures that the widest arrays of partners are included in our activities. We call this effort to enlarge the scope of our campaign "expanding the experimental ground." Expanding our scope occurs as we participate in Combatant Command exercises and Service wargames, incorporate lessons learned from ongoing operations, interact with organizations outside the DOD, and with other nations that want to contribute to military experimentation, pursue innovative methods of testing, and explore new concepts.

Millennium Challenge 2002 serves as a good example of how expanding the experimental ground works to improve our warfighting potential. That warfighting experiment used a synthetic environment with a mix of live and simulated forces along with current and projected military capabilities. During the experiment, Joint Forces Command developed, tested, and then integrated a series of concepts into a warfighting scenario that was based on a set of conditions we might expect to face in 2007. Millennium Challenge 2002 was the most comprehensive joint military experiment ever conducted, involving 13,500 men and women at twenty-five locations across the United States.

Today we have expanded the experimental ground even further by conducting more frequent small-scale events rather than less frequent large-scale events like Millennium Challenge. Multiple small-scale events expand the experimental base both in long-term concept development and near-term prototyping. The Combatant Commands, Services, as well as multi-national and inter-agency partners, are better able to participate in that expanded environment, particularly given USJFCOM's capabilities to virtually distribute joint experimentation activities.[13] These events also allow us to take more intellectual risk in a prudent way, building a culture of innovation. Finally, those events occur at a pace consistent with the turnover of technology, allowing us to keep at the cutting edge of technological development.

US Joint Forces Command has already begun embedding prototype experimentation within joint exercises. These prototyping exercises will include 14 different exercises and span seven Combatant Commands. Our concepts are being developed primarily in co-sponsored wargames and experiments. These co-sponsored events focus on development and refinement of the current Joint Operations Concepts (JOpsC), Joint Operating Concepts (JOCs) and other joint operating, functional and enabling concepts.[14] We have conducted three already, and plan eight more wargames in the coming 18 months. Our involvement with allies and coalition partners has also expanded. We have conducted two distributed multinational experiments with Australia, Canada, the Federal Republic of Germany, and the United Kingdom. We currently plan two more in this series to include NATO and

[13] See "Collaborative Partners Strengthen Innovation," discussion of the Distributed Continuous Experimentation Environment, p. 15.
[14] See Appendix C for detailed discussion of Concept Development methodology.

potentially including Poland, Norway, Finland, Sweden, Korea and Japan as observers. Interagency partnership has also grown, with the Departments of State, Justice, and Treasury connected on a collaborative information environment. Additionally, the Department of Commerce and the US Agency for International Development (USAID) will be added shortly. The Departments of State, Justice, Treasury, Commerce and USAID have participated in four workshops and experiments.

One key benefit of expanding the experimental ground is the productive exchange of expertise and ideas among organizations that are helping develop joint and multinational concepts and capabilities. While this expanded vision broadens the span of military experts who contribute to the process, it also ensures that joint context is embedded in Service and Combatant Command wargames and exercises. Through this expansion of the experimental ground, more organizations gain access to the capabilities, tools, and information necessary for exploring new and powerful military capabilities. Because of early and frequent collaboration, we are able to translate good ideas into capabilities more quickly. This expansion of experimentation and broadening of partners also nurtures a culture of innovation that affects the evolution of joint military capabilities.

Collaborative Partnerships Strengthen Innovation

Our effort to expand the experimental ground is more than an attempt to move the laboratory to the field. It reflects our desire to create a collaborative atmosphere that encourages partners to integrate their ideas in new ways. The Distributed Continuous Experimentation Environment (DCEE) and the Joint National Training Capability (JNTC) each supports training and experimentation with a mix of actual, constructive, and virtual capabilities.

Joint Forces Command designed and created the Distributed Continuous Experimentation Environment to be a world-class resource - a sophisticated network of high-tech modeling and simulations with a global reach. In an environment that is both virtual and physical, concepts can be repeatedly tested and rigorously analyzed from the time they emerge as potentially good ideas until they are ready to be used by the warfighters. This distributed laboratory is capable of conducting various experiments, either locally or globally. Because the environment is distributed, our partners - the Combatant Commands, Services, allied nations, or various agencies - may participate in experiments at levels appropriate to their needs, interests and resources. What is especially valuable about the Distributed Continuous Experimentation Environment is that it both supports and links the two experimental paths, joint prototype and joint concept. As such, the environment serves as a conduit for feeding promising capabilities back and forth between the joint concept development path and the joint prototype path.

In 2004, Joint Forces Command will establish the Joint National Training Capability (JNTC) to link previously independent Service ranges together in a network that can be used for joint training and experimentation. When completely developed, the Joint National

Training Capability will provide a real world laboratory to conduct experiments that assess new doctrine, tactics, and procedures using live military forces against professional opposing forces in realistic combat conditions. Lessons learned from JNTC exercises and experiments will be a principal source of insight for generating new operating concepts.[15] The JNTC represents a global network of joint training facilitators composed of live, virtual and constructive components. This environment works to meld existing operational and strategic facets of the exercise with live forces, creating a more robust and realistic exercise. The goal is to create an environment where every level of training is conducted within a joint context, thus providing the highest level of training and experimentation for seamless future warfighting. The JNTC mission incorporates service, interagency and multinational coalition partners. JNTC will achieve initial operating capability by Fiscal Year 2004 (FY04), and final operating capability by FY09.[16]

United States Joint Forces Command: Learning with Our Partners

US Joint Forces Command assists in promoting the transformation of our nation's military, including its warfighting culture. This transformation will emphasize a change from a force that focused on the deconfliction of Service capabilities to a warfighting force that is coherently joint, collaboratively coordinated, effects-based, and network-centric. A transformed force has coherent capabilities that are born and fielded via a collaborative joint process. Our responsibility requires that we work with all who might have a stake in transforming our military, making sure our collective efforts are focused and integrated.

To fulfill our mission, we follow a specific course of action. First, we receive guidance, principally in the form of the Chairman's Joint Experimentation Guidance. This guidance provides the focus of our concept development and experimentation. Through collaboration with other Combatant Commands, the Services, the Joint Staff, Office of the Secretary of Defense, and multinational partners, we determine which wargames we should co-sponsor. Joint Forces Command co-sponsors approximately two Service or Combatant Command wargames every six months. These wargames help refine joint concepts, produce insights and implications for future experimentation, and guide investments in our military forces. Lastly, on a semi-annual basis, Joint Forces Command will package recommendations for the Chairman, Combatant Commanders, the Joint Chiefs, and other senior leaders. Their iterative guidance and directives drive both paths of the joint concept development and experimentation campaign.

We will submit recommendations to improve joint force capabilities in terms of the seven critical considerations: Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities. These Transformation Change Packages may also suggest what sort of changes must take place in terms of policy and culture to ensure that innovation becomes an integral part of the way we think about military operations.[17] One point that we never forget

[15] Secretary of Defense, Transformation Planning Guidance, p. 24.
[16] "About the Joint National Training Center Capability", http://www.jwfc.jfcom.mil/about/fact_jntc.htm
[17] In accordance with Joint Vision Implementation Master Plan, (CJCSI 3010.02A), 15 Apr 01, pp. A8-11.

is that our work has a vital impact on the military strength of our country. As such, any recommendations we make must be based on a reliable body of knowledge if we expect senior leaders to trust the accuracy of our information and to act on each recommendation with confidence.

Coordination of this expansive partnership falls to a set of Service and Combatant Command General and Flag officers. This group meets regularly to align activities.[18] By encouraging a culture of collaboration, creativity, and intelligent risk taking, Joint Forces Command can help transform our military into a force that meets new and unexpected challenges with a rich assortment of resources and innovative capabilities.

[18] See Appendix E for current Joint Concept Development and Experimentation Peer Group

III. The Joint Prototype Path

Refining Innovative Concepts to Strengthen Military Effectiveness

Using Prototypes

A prototype is an original type or form of an object that can be evaluated in terms of its design, performance, and production potential.[19] Prototypes— models on which later stages of development are based or judged—have inherent attributes that make them valuable tools in promoting and sustaining transformation. The process of prototyping is integral to military transformation because modeling and experimentation are crucial to refining concepts and bringing ideas to physical form.

During the evolution of a prototype, five important activities occur. First, we develop a prototype that offers promise. Second, we demonstrate its value to potential users. Third, we engage in strategic partnerships as we further experiment with the prototype in the field. And fourth, we use the prototype in multiple environments to ensure the final product will provide superior results to our forces. Finally, a proven prototype is institutionalized by making it a fielded system, incorporating it into doctrine, developing a training regimen, or making organizational adjustments. The text box below describes the list of currently approved prototypes.[20]

Currently Approved Prototypes

- **Standing Joint Force HQ:** A standing joint command and control element.
- **Collaborative Information Environment:** A *tool and process* that provides common situational awareness, understanding, and collaborative workspace for decision makers and staffs *without today's time and space limitations.*
- **Operational Net Assessment:** A *product, process, and organization* all focused upon understanding the operational environment as well as the effects of friendly actions.
- **Effects-based Operations:** A method of planning, preparing, and executing operations in which the focus is on achieving common effects on adversaries.
- **Joint Interagency Coordination Group:** An *advisory element* on the Commander's staff that facilitates information sharing and coordinated action across the interagency community.
- **Joint Fires Initiative:** *Processes and tools* that improve the Joint Force's capability to apply fires from any force in support of any other..
- **Joint Logistics (Common Relevant Operating Picture):** A *tool* that addresses the deployment, employment, and sustainment for a *coherently joint and multinational force*.

[19] Joint Publication 1-02.
[20] For detailed discussion of prototypes and approvals, refer to Appendix B.

The Prototype Path

The Joint Prototype Path is designed to pursue the rapid prototyping of capabilities that improve the conduct of joint warfighting in the near term. The Joint Prototype Path incorporates detailed testing of capabilities in real-world environments such as Combatant Command exercises, service wargames, and on-going operations.

There are a couple key advantages to accelerating the speed with which prototypes reach the field. Delivering prototypes to the field early provides Combatant Commanders with new capabilities that are often more effective than what is currently in use. This practice also multiplies the locations of experimentation. Experimenting in multiple locations provides us with multiple data points with which we can measure the value of new prototypes. As the accompanying list illustrates, the joint prototype path improves warfighting, encourages continuous experimentation, accelerates transformation, and incorporates feedback from Combatant Commanders and other partners.

Benefits of Using the Joint Prototype Path

- Improves joint warfighting capabilities now
- Expands the experimental ground
- Identifies specific experimental tasks
- Linked to Standing Joint Force Headquarters (SJFHQ)
- Learn by doing
- Incorporates feedback into joint concept development
- Helps foster a culture of innovation

Partnerships in Prototyping

We have made enormous strides in developing partnerships with groups that are committed to strengthening military capability. A look at the Standing Joint Force HQ prototype shows how the partnership process is working.

PROTOTYPE	SERVICES	WORKING PARTNERS	
Standing Joint Force HQ	ALL	PACOM, SOUTHCOM, EUCOM, CENTCOM STRATCOM	NORTHCOM, TRANSCOM, SOCOM
Collaborative Information Environment	ALL	PACOM, SOUTHCOM, USFK, EUCOM NORTHCOM	CENTCOM, SOCOM, TRANSCOM
Operational Net Assessment	ALL	USFK, DARPA, NORTHCOM PACOM, SOUTHCOM SOCOM, JWAC	CENTCOM, EUCOM, TRANSCOM
Effects-based Operations	ALL	CENTCOM, USFK	NORTHCOM
Joint Interagency Coordination Group	USA, USN	PACOM, CENTCOM, USFK, SOUTHCOM, IDA-OED, DOS, DOJ, USAID, JS, OSD, NDU, TREASURY, DARPA	STRATCOM, TRANSCOM, SOCOM, NORTHCOM, EUCOM, HLS (USCG)
Joint Fires Initiative	ALL	PACOM, CENTCOM, SOCOM, USFK	STRATCOM, EUCOM
Joint Logistics (Common Relevant Operating Picture)	USA, USAF, USMC	TRANSCOM, USFK, PACOM, CENTCOM, EUCOM, JS	NORTHCOM

US Joint Forces Command is committed to delivering the Standing Joint Force HQ as a weapon system, completely integrated with its core concepts, training strategy and programs, standards, manning plan, and supporting materiel systems. To achieve this goal, we coordinate the efforts of each service, as well as other stakeholders, to make sure that materiel components are integrated in a manner that enables us to deliver this capability on time. As this weapon system is established and refined, we continuously introduce improvements that come from operational experience or experimental activity.

Developing Standards for Evaluating Prototypes

For a concept to complete its course on the prototype path, it must meet two conditions. First, it must show its value to the warfighter. Second, the concept must continue to improve incrementally as it is tested in the operational and exercise environments. US Joint Forces Command uses a set of standards or metrics, to evaluate the effectiveness of individual experiments we are conducting along the prototype path. These metrics measure our progress with experimentation, the value each prototype adds to our military capability, and the payoff and risk management associated with each product. The chart below depicts the prototype progress to date. As an example, this chart shows that 4 of 5 Regional Combatant Commands (RCC) have adopted Collaborative Information Environment (CIE) prototypes as of December 2003. By 2005, all RCCs are expected to have CIE prototypes. Status of the other prototypes is reflected accordingly.

	Regional Combatant Commands (5)	Functional Combatant Commands (4)	
	Aug 02	Dec 03	Dec 05
Standing Joint Force Headquarters			
- Collaborative Information Environment (CIE)	0/0	5/4	5/4
- Operational Net Assessment (ONA)	0/0	5/1	5/2
- Joint Fires Initiative (JFI)	0/0	3/2	5/3
- Joint Interagency Coordination Group (JIACG)	0/0	5/1	5/4
- Effects Based Operations (EBO)	0/0	1/2	5/4
- Logistics Common Relevant Operational Picture	0/0	2/2	5/3

As we complete prototype experimentation, we hand off specific recommendations via Transformation Change Packages. Additional information on the J9 Prototype Path may be found in Appendix B of this plan, or by visiting the J9 Campaign Plan "Virtual War Room" collaboration workspaces at https://j9raven.je.jfcom.mil/ .

IV. The Joint Concept Development Path

Using Continuous Experimentation to Enhance Warfighting Capabilities

Joint Concept Development and Future Capabilities

While the joint prototype path focuses on improving current military capability, the joint concept development path helps us improve future warfighting capabilities. To achieve these longer-term improvements, we rely on an iterative experimentation program that is based on small, more frequent experiments. This program represents a shift from our earlier practice of conducting fewer, more extensive experiments. Our concept development wargames and experiments use common scenarios to examine specific issues that relate to future and combined joint warfighting. Based on the observations, insights and implications generated by these experiments, US Joint Forces Command makes recommendations to the Chairman, Combatant Commanders, the Joint Chiefs, and other senior leaders. These recommendations affect the development of future programs, as well as the course of future experimentation.

Building a Body of Knowledge

To improve joint concept experimentation effectiveness, we use four common scenarios. These scenarios reflect current and future threats based on the geopolitical and military realities we see emerging between now and 2020.[21] This common set of scenarios encompasses most of the range of military operations and contains a variety of adversaries, from conventional enemies to adversaries who operate in the cusp between military combat and criminal activity. They were specifically developed to maintain consistency and correlation with defense planning scenarios, observe classification guidance, yet permit multi-national participation in experimentation. Each scenario presents a range of military challenges, and we have evaluated those challenges to determine which sets of issues call for more thorough experimentation.

Common Scenarios[22]

- **Major Combat Operations against an adversary with a global WMD threat and robust regional anti-access capability**
- **Joint operations in urban environment**.
- **Operations against a non-state actor with significant regional combat capability, access to WME, and ties to global terrorist organizations**
- **Operations in a faltering or failing state that has regional WMD/WME capability**

[21] US Joint Forces Command, "The Joint Operational Environment: The World Through 2020," Director of Intelligence, USJFCOM, 15 Aug 2003.
[22] Memorandum for the Joint Readiness Oversight Council (JROC), Subject: 17 April 03 JROC Minutes (JROCM 114-03), 20 May 03; approves Commander USJFCOM FY03-09 Joint Experimentation Campaign Plan (scenarios are unchanged).

The approved scenarios are conditions in which we investigate the major military challenges that the senior leaders of the Department of Defense, the Combatant Commands, and the Services have identified as our "experimental focus." In collaboration with our partners, we further decomposed these challenges into sets of joint issues.[23] The joint concept development path, through a distributed partnering methodology, serves as the integrating process for exploring these issues.

Joint Concept Development Focus

- **Achieving decision superiority:** generating and sustaining high-quality, shared situation understanding so that we can make decisions and take actions—at the strategic, operational, and tactical levels and within an interagency and multinational environment—faster than any adversary; proper decentralization in a global, distributed, and fully networked environment.

- **Creating coherent effects (lethal and nonlethal, kinetic and nonkinetic):** harmonizing military (conventional and special operations), interagency, and multinational activities at the strategic, operational and tactical levels against any type of adversary—from conventional enemies to those who operate in the cusp between combatant and criminal; developing adaptive leaders and organizations.

- **Conducting and supporting distributed operations:** planning, preparing, and executing (deploy, fight, command and control, and sustain) simultaneously in multiple theaters and widely distributed points of action within each theater—even if the theaters contain very immature infrastructures and when we must operate in a significant anti-access environment—while denying sanctuaries and protecting ourselves from homeland to point of action.

The Joint Operations Concepts (JOpsC) and its associated family of concepts is one of the main outputs of concept development experimentation. We encourage innovation through the use of alternative approaches and the competition of ideas. The concept development and experimentation program uses several joint approaches from the Combatant Commands and Services as a means to ensure the JOpsC and associated concepts include "best of breed" ideas. Concept development explores alternative concepts and does not rely on a "one point" solution that may run the risk of single point of failure, or leave the United States susceptible to strategic surprise.

The role of US Joint Forces Command is to work with those who have a stake in this process—Combatant Commands, Services, and other partners — to make sure that experimentation along the joint concept development path remains anchored to operational

[23] A more detailed discussion of the how specific issues for exploration are derived from the joint concept development focus is in Appendix C, p. C-5.

requirements. We also want to be certain that this joint approach is truly a joint, collective effort, not Service-centric, because it is through collaboration that we can resolve the challenges facing our military with innovative solutions.

Co-Evolution of Service & Joint Concepts – Providing a Joint Context

US Joint Forces Command serves as a focal point for experimental activities that occur along the joint concept development path. These activities bring the Services together using shared scenarios, modeling and simulation tools, analytical tools, and assessments.

A joint context is valuable for a number of key reasons. Joint context ensures that a joint perspective informs the creative process right from the start and allows the co-evolution of Service and joint concepts. This co-evolution ensures that joint capabilities are explored from the very beginning of the force development process. Capabilities that are meant to be fundamentally joint are best conceived jointly.

Taking a joint approach to problem solving reduces the likelihood of duplicating our efforts and helps reduce the number of experiments. This approach also allows partners to learn together throughout the process, and it can improve stability and predictability in scheduling as we leverage events for mutual benefit. The joint approach encourages an interactive and iterative joint environment that integrates the right Service, Combatant Command, multi-national and government agency participation.

This joint approach is best exemplified by how the Combatant Commands, the Services, the Joint Staff, and USJFCOM are collaboratively developing the Joint Operations Concepts (JOpsC) as well as the subordinate Joint Operating, Functional, and Enabling Concepts. The overarching JOpsC describes how the Joint Force will operate in a complex environment within the next 15 to 20 years and describes the coordinated development of Service and Combatant Command capabilities.[24]

Joint Operations Concepts – Core Capabilities

- **Achieve common understanding of all dimensions of the battlespace throughout the joint force.**
- **Make joint decisions and take action throughout the joint force faster than the opponent.**
- **Adapt in scope, scale, and method as the situation requires.**
- **Rapidly deploy selected portions of the joint force who can immediately transition to execution, even in the absence of developed infrastructure.**
- **Create and sustain continuous pressure throughout the battlespace for as little or as long as it takes to accomplish strategic or operational aims.**
- **Disintegrate, disorient, dislocate, or destroy any opponent with a combination of lethal and non-lethal means.**

[24] Joint Operations Concepts, JCS Version 1.0 for 2003, 3 Oct 03, pp. 12-16.

- **Conduct deployment and sustainment activities in support of multiple simultaneous, distributed, decentralized battles and campaigns.**
- **Accomplish all of the above in an inter-agency and multi-national context.**

Joint Operating Concepts (JOCs) further develop key areas of the JOpsC. Focusing at the operational-level, JOCs integrate functional and enabling concepts to describe how a Joint Force Commander (JFC) will plan, prepare, deploy, employ and sustain a joint force given a specific operation or combination of operations. The JOCs will also provide a detailed conceptual perspective for joint experimentation and assessment activities. Also developed collaboratively through this process, Functional Concepts utilize the JOCs to amplify a particular military function, while Enabling Concepts, the most specific of concepts, are descriptions of how particular tasks or procedures are performed within the context of broader functional areas.[25] The concept development path creates a set of venues in which those concepts can be explored, examined, and refined. The venues are especially important because of the competition of ideas that results from the variety of participants: Services, Combatant Commands, multi-national, and interagency experts.

Involving Senior Leadership

Senior leader participation is critical to creating a value-added product from the concept development path. Senior leaders are directly involved in planning and in output. As we plan the activities within the concept development path, joint experimentation guidance, operational lessons learned, and other strategic directives shape the direction and content of the campaign plan and supporting events. As they did with prototyping activities, senior leaders approve the experiment focus for all concept development activities.

Immediately following major concept development events, we report emerging or preliminary observations to senior representatives of the organizations involved and to other invited senior leaders. As an example, following Unified Quest 03, a joint wargame co-sponsored by the US Army and US Joint Forces Command, key senior leaders from across the Department of Defense were present for discussions on the preliminary observations, insights, and lessons learned.

Unified Quest 03
USJFCOM – US Army Joint Service Co-Sponsored Wargame
Senior Leader Participation in UQ03 National Security Seminar
National Defense University, May 03

- **Deputy Secretary of Defense – The Honorable Paul Wolfowitz**
- **Under Secretary of Defense for Personnel and Readiness – The Honorable David Chu**
- **Asst. Secretary of State for Political Military Affairs – The Honorable Lincoln Bloomfield**
- **Deputy Asst. Secretary of Defense for Plans and Resources – Dr. Chris Lamb**
- **Director, OSD Net Assessment – Mr. Andrew Marshall**
- **Vice Chairman of the Joint Chiefs of Staff – General Peter Pace**

[25] See Appendix C for additional details.

- **Chief of Staff, US Army – General Eric Shinseki**
- **Chief of Naval Operations – Admiral Vernon Clark**
- **Commandant, US Marine Corps – General Michael Hagee**
- **Commander, US Joint Forces Command – Admiral Edmund Giambastiani**
- **Vice Chief of Staff, US Air Force – General Robert Fogelsong**
- **Commanding General, US Army Training and Doctrine Command – Gen. Kevin Byrnes**
- **Commanding General, US Army Forces Command – Gen. Larry Ellis**
- **Representing Commander, US Northern Command – MajGen Raymond Rees**
- **Representing Commander, US Transportation Command – LtGen Gary Hughey**
- **Supreme Allied Commander, Atlantic – Admiral Ian Forbes, KCB, CBE**
- **Director, OSD Office of Force Transformation – Vice Admiral (R) Arthur Cebrowski**

Unified Quest 03 Senior Leader Seminar Attendance – continued

The Chairman, the Joint Chiefs, Combatant Commanders and other senior leaders set our experimentation focus. These discussions are particularly important as they can provide mid-course guidance as we improve our understanding of the issues.

Finally, approximately every six months, as we synthesize knowledge across major co-sponsored events, Service events, Joint events, and non-DOD research we will provide a set of recommendations supported by experimentation data. Senior leadership then provides appropriate guidance on experimentation or investment.[26]

Developing Standards for Evaluating Concepts

We currently use a set of metrics to assess individual experiments along the joint concept development path and to assess the risk and payoff of various concepts. These metrics also let us know if we have assigned the correct priority to each experiment. While we assess payoff and risk for experiments conducted along the joint prototype path, we take a different look at those two factors on the joint concept development path. Here, we must investigate novel concepts that could bear high payoff, regardless of the risk involved. The metrics we develop let us know that we are innovative, yet mindful of risk, and that we use experimental failure as a signal to explore alternatives. We are also developing metrics that tell us when a concept is ready to Transition to the Joint Prototype Path. Once a concept is "ready to prototype," we present our recommendations to the Chairman, Joint Chiefs of Staff, for approval. His approval initiates prototyping activity.

Additional information on the J9 Concept Development Path may be found in Appendix B of this plan, or by visiting the J9 Campaign Plan "Virtual War Room" collaboration workspaces at https://j9raven.je.jfcom.mil/.

[26] Future versions of this set of recommendations will be submitted as the "Joint Concept Development and Experimentation Status Report and Recommendations."

The Future Challenge

"Our challenge in this new century is a difficult one. It's really to prepare to defend our nation against the unknown, the uncertain and what we have to understand will be the unexpected. That may seem on the face of it an impossible task, but it is not. But to accomplish it, we have to put aside the comfortable ways of thinking and planning, take risks and try new things so that we can prepare our forces to deter and defeat adversaries that have not yet emerged to challenges."

Secretary of Defense Donald Rumsfeld
Remarks at the National Defense University
Washington, DC
31 January 2002

Appendices

A- Joint Experimentation Definitions

B- Current Joint Prototyping Efforts

C- Current Efforts in Joint Concept Development

D- Criteria for Successful Experimentation

E- Collaboration Groups and Points of Contact

Appendix A
Joint Experimentation Definitions[27]

Analytic Study — The study is a structured examination of a bounded sub-component of a concept, using quantitative measures to answer specific research questions. It provides modeling to refine concepts and shape experiment design and execution. It also provides modeling to conduct sensitivity analysis, baseline extrapolation, and investigate causality.

Exercise — A military maneuver or simulated wartime operation involving planning, preparation, and execution. It is carried out for the purpose of training and evaluation. It may be a multinational, joint, or single-Service exercise, depending on participating organizations.

Integration Milestone (IM) — A developmental test of the technical architecture for an event focused on ensuring the proper technical functioning of the system components and adherence to the relevant technical standards.

Joint Warfighting Experiment — The application of scientific experimentation procedures to substantiate the effects of proposed joint warfighting capabilities. Experiments can be further characterized as:

*Wargame Experimen*t — Employs a MAPEX or simulated environment with human-in-the-loop decision making.

Constructive Experiment — Employs simulated forces in a simulated environment conducted with force-on-force modeling.

Virtual Experiment — Employs simulated forces in a simulated environment with human-in-the-loop interactive real-time participation.

Field Experiment — Employs real forces in an operational field exercise environment.

Additionally experiments may be characterized by the role they play within an experimentation campaign (Chap 3, *Code of Best Practice for Experimentation*, ASD (C3I)):

Discovery Experiment — Involves introducing novel systems, concepts, organizational structures, technologies, or other elements to a setting where their use can be observed and catalogued.

Hypothesis Testing Experiment — The classic type used to advance knowledge by seeking to falsify specific hypotheses or discover their limiting conditions. Also used to test whole theories or observable hypotheses derived from such theories.

Demonstration Experiment — Used to show operational organizations that some innovation can, under carefully orchestrated conditions, improve the efficiency, effectiveness, or speed of a military activity.

[27] Definitions in this appendix from, Alberts, David S, et. al., Code of Best Practice Experimentation (Washington, DC: DOD Command and Control Research Program), 2002.

Joint Experimentation Definitions cont.

Limited Objective Experiment (LOE) — The limited objective experiment is a narrowly scoped, analytically focused concept assessment or prototype validation event. It provides final dress rehearsal of a concept or major component of a concept prior to its final validation in a full joint warfighting experiment.

Seminar — The seminar is a special purpose-training event to prepare senior concept developers and other supporting personnel for participation in an experimentation event.

Spiral Test — An operational test of the technical architecture for an event to ensure the system meets the user requirements set for the event.

Wargame — There are two categories of wargames:

Exploratory Wargame — The exploratory wargame is a critical examination of a concept under limited operational conditions to further concept development. It provides the first opportunity to explore a concept in a competitive environment, subject to opposing concepts, actions, and counter-actions to identify shortfalls and gaps and plan subsequent concept refinement.

Scrubbing Wargame — The scrubbing wargame is a robust test of a concept in a simulated operational environment to support quantitative analysis. It provides a rigorous examination of a maturing concept under conditions supporting structured analysis of outcomes to formulate final concept maturation strategy.

Workshop — There are two categories of workshops:

Exploratory Workshop — The exploratory workshop is an initial structured discussion to bound the parameters of an emerging concept or concept element. It provides initial concept scoping, framing of related issues, and early coordination with related concepts and other concept development organizations and activities.

Development Workshop — The development workshop is a follow-on facilitated, tool-supported discussion to further concept understanding and develop the concept-to-reality plan of action. It provides a more comprehensive understanding of all aspects of a concept, its relationship to other concepts, and formulates preliminary strategies for moving the concept to reality.

DESCRIPTOR	WORKSHOP (Exploratory)	WORKSHOP (Development)	ANALYTICAL STUDY	WARGAME (Exploratory)	WARGAME (Scrubbing)	LOE
OPERATIONAL						
Event Description	This workshop is an initial structured discussion to bound the parameters of an emerging concept or concept element.	The development workshop is a follow-on facilitated, tool-supported discussion to further concept understanding and develop the concept-to-reality plan of action.	The study is a structured examination of a bounded sub-component of a concept, using quantitative measures to answer specific research questions.	The exploratory wargame is a critical examination of a concept under limited operational conditions to further concept development.	The scrubbing wargame is a robust test of a concept in a simulated operational environment to support quantitative analysis.	The limited objective experiment is a narrowly scoped, analytically focused concept assessment or prototype validation event.
Purpose	Provide initial concept scoping, framing of related issues, and early coordination with related concepts and other concept development organizations and activities.	Provide a more comprehensive understanding of all aspects of a concept, its relationship to other concepts, and formulate preliminary strategies for moving the concept to reality.	Provide modeling to refine concepts and shape experiment design and execution. Provide modeling to conduct sensitivity analysis, baseline extrapolation, and investigate causality.	Provide first opportunity to explore a concept in a competitive environment, subject to opposing concepts, actions, and counter-actions to identify shortfalls and gaps and plan subsequent concept refinement.	Provide a rigorous examination of a maturing concept under conditions supporting structured analysis of outcomes to formulate final concept maturation strategy.	Provide final dress rehearsal of a concept or major component of a concept prior to its final validation in a full joint warfighting experiment.
Concept Phase	Concept Exploration	Concept Exploration/Refinement	Concept Refinement/Assessment	Concept Assessment	Concept Assessment	Concept Assessment/Prototype Validation

DESCRIPTOR	WORKSHOP (Exploratory)	WORKSHOP (Development)	ANALYTICAL STUDY	WARGAME (Exploratory)	WARGAME (Scrubbing)	LOE
Product	Workshop report with summary observations.	Workshop report with detailed observations and specific recommendations supporting concept refinement.	Study report presenting quantitative analysis of outcomes justifying specific conclusions and/or recommendations.	Wargame summary report with summary analysis of observations and limited lessons learned.	Wargame report with quantitative analysis of specific measures assessing the event hypothesis in support of a concept.	Formal post-experiment report presenting analysis of outcomes justifying specific conclusions and/or recommendations.
Methodology	Facilitated discussion focused on discovery.	Facilitated discussion focused on discovery, supported by process modeling	Multiple trials using a closed-form constructive simulation.	Opposing force, competitive execution of a hypothesized military operation	Opposing force, competitive execution of a hypothesized military operation	JExCG-controlled, MSEL-driven wargame
Venue	DCEE Lab	DCEE Lab	JFL Simulation Analysis Center	JFL SAC/DCEE	DCEE	DCEE
Participants	Concept developers, analysts, and red team	Concept developers, analysts, red team, and process modeler	Concept developers, analysts, red team, and JWARS engineers	Experiment audience, OPFOR, controllers, concept developers, analysts, and limited technical staff	Experiment audience, OPFOR, Svc/CC response cells, concept developers, controllers, analysts, and technical staff	Experiment audience, OPFOR, Svc/CC response cells, concept developers, controllers, analysts, and technical staff
Planning Horizon	14 days	14 days	30 days	30 days	60 days	90 days
Planning Days	7 days	7 days	10 days	10 days	30 days	50 days
Execution Days	3 days	5 days	5 days	10 days	10 days	14 days
Post-ex Analysis	10 days	10 days	15 days	25 days	35 days	40 days

DESCRIPTOR	WORKSHOP (Exploratory)	WORKSHOP (Development)	ANALYTICAL STUDY	WARGAME (Exploratory)	WARGAME (Scrubbing)	LOE
TECHNICAL						
M&S Support			JWARS or other suitable constructive simulation	Manual adjudication or limited, stand-alone simulation	Reduced Joint Experimentation Federation	Base Joint Experimentation Federation
KM Support	Simple collaborative tool	Simple collaborative tool		Simple collaborative tool	Collaborative toolset	Full collaborative environment
IT Support	Limited A/V + admin ADP	A/V + admin ADP		A/V + admin ADP	A/V + full desktop office suite	A/V incl VTC + full desktop office suite
C4I/XC4I				Limited C4I (C2PC)	Larger C4I suite (XC4I if SJFHQ participation)	Full C4I/XC4I environment
Networks	Simple internal LAN	Simple internal LAN	Connectivity to SAC LAN	Multiple internal LANs	Multiple internal LANs + possible WAN connectivity	Multiple internal LANs and WAN connectivity to distributed sites
Process Modeling		G2 model + developer	Optional	G2 model + developer	Optional	Optional
CROP				Limited	Yes	Yes
ONA					Limited ONA	Yes
Facilities	Medium conference area/room	Large conference room + breakout rooms	JWARS work area	Lab area within DCEE	JFL SAC + DCEE	JFL SAC + DCEE

Appendix B
Current Joint Prototyping Efforts and Major Events

Standing Joint Force Headquarters.[28]

Description: A Standing Joint Command and Control element. The Standing Joint Force Headquarters (SJFHQ) is a team of operational planners and information command and control specialists. This team of experts forms the backbone of the joint task force command structure. During day-to-day operations the SJFHQ element is assigned to a Combatant Command and is embedded in his staff. When a JTF is required, the SJFHQ forms the core of the JTF staff. The SJFHQ is not designed as a standing joint task force, but rather as a standing element that focuses on a Combatant Commander's operational trouble spots. The SJFHQ is the highest priority of the Chairman of the Joint Chiefs of Staff for joint concept development and experimentation. Prototyping efforts directly associated with the SJFHQ are:

- Collaborative Information Environment (CIE)[29]

Description: The CIE is a means to provide common situational awareness and understanding to decision-makers across strategic to tactical levels of the battlespace, without today's time and space limitations. It will provide a means to effectively tailor and rapidly update individual information requirements to significantly increase the pace and quality of planning, coordinating, directing and assessing for Regional Combatant Commander (RCC) and Joint Task Force (JTF) operations.

- Operational Net Assessment (ONA)[30]

Comment [k1]: Now that the Primers are out for each one of these, I would make a reference in each of the prototype paragraphs where to find the primers. This has the whole description.

Description: The ONA is a continuous, dynamic, analysis of the overall operational environment as well as adversary's total war-making capability. The ONA provides the joint force a comprehensive analysis of the extended battlespace. It is conducted through reach-back to a national network of centers of excellence. This national network will give the Combatant Commander access to the full capabilities of US interagency community, non-governmental and possibly, to allied and coalition partners. It identifies those capabilities, assets, connections, loyalties, networks, and other assets (both physical and non-physical) that are important and most valuable to the adversary. It includes all of the elements of national power that a commander may leverage: government, industry, academia, and private organizations. The ONA provides the commander with a set of effects-based courses of action from which to choose or modify.

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[28] Chairman JCS Memorandum for Commander, USJFCOM, Subject: Guidance for USJFCOM Joint Experimentation (CM635-02), 26 Nov 02. (Endorsed by Memorandum for Joint Requirements Oversight Council (JROCM 146-02), 13 Aug 02.)
[29] Memorandum for the Joint Requirements Oversight Council, Subject: Collaborative Information Environment (JROCM 036-03), 5 Feb 2003.
[30] Memorandum for Commander, USJFCOM, Subject: Operational Net Assessment (JROCM 227-03), 8 Dec 03.

- Effects-Based Operations (EBO)[31]

Description: The EBO concept describes how processes, organizations and tools can be combined to improve how we conduct coherently joint operations. EBO incorporates the diplomatic, information, military and economic aspects of a campaign or major operation in a collaborative environment. An effects-based operation also brings to bear the complete suite of coalition capabilities in a series of actions arranged in time and space to rapidly alter an adversary's behavior and ability to continue effective operations. EBO enables the joint force commander to compartmentalize key facets of the adversary's capabilities to achieve specific effects on that adversary. EBO aims to isolate and enemy's tactical operations, paralyze his decision-making and command processes and collapse his diplomatic and economic functions consistent with the assigned strategic objectives. EBO simultaneously improves unity of effort across the joint and combined force to maximize the coalition's asymmetric capabilities of knowledge, speed, precision and lethality. EBO also increases adaptability and flexibility via a shared understanding of the ends-to-means relationships that guide planning for and execution of any operation.

- Joint Interagency Coordination Group (JIACG)[32]

Description: The JIACG is a multi-functional advisory element on the Combatant Commander's staff that facilitates information sharing across the interagency community. Through habitual collaboration, the JIACG is a means to integrate campaign-planning efforts between the strategic and operational levels across all U.S. government agencies. The JIACG participates in theater strategic engagement, and deliberate, crisis action, and transition planning, informing the Combatant Commander and JTF of civilian agency campaign planning, sensitivities and support requirements, capabilities, and limitations. Additionally, it informs civilian agencies of Combatant Command and JTF operational requirements, concerns, capabilities and limitations, yet does not infringe on current staff responsibilities, or bypass existing agency lines of authority or communications.

- Joint Fires Initiative (JFI) [33]

Description: JFI coordinates the efforts of various DOD and Service fires and fire support efforts towards a single jointly interoperable set of functionalities and processes from operational to tactical levels. The initiative encompasses products that describe a jointly integrated interoperable fires and fire support prosecution capability. This includes concepts, tactics, techniques, procedures, technologies, and command and control architectures that support the joint force across the full spectrum of military operations. JFI integrates joint fires and fire support capabilities from the operational to tactical levels with a common set of automated functionalities and processes. It pursues interoperability of Joint Intelligence, Surveillance, and

[31] Memorandum for Commander, USJFCOM, Subject: Guidance for USJFCOM Joint Experimentation (CM635-02), 26 Nov 02.
[32] Memorandum for Commander, USJFCOM, Subject: Joint Interagency Coordination Group (JIACG) (JROCM 226-03), 8 Dec 03.
[33] Memorandum for the Joint Requirements Oversight Council, Subject: Joint Fires Initiative (JROCM 158-03), 6 Aug 2003.

Reconnaissance (JISR), and command and control (people, processes and technology) architectures into a singular fires prosecution mechanism.

- Joint Logistics Common Relevant Operating Picture (Log CROP)

Description: Log CROP is a tool used to manage volumes of logistical information and to develop a shared understanding of the battlespace among commands. This virtual warehouse is not a single application or system, but is integrated, customizable, and tailored to be relevant to the user. It facilitates collaborative planning and assists all echelons to achieve situational logistical awareness. It includes: top to bottom information access, decision support tools used to transform information knowledge, and situational awareness in a shared environment. It's greatest benefit is the consolidation of volumes of information into a usable form to expedite the decision-making process through collaboration.

Other Prototyping Activities.

Joint Intelligence, Surveillance, and Reconnaissance (JISR)[34]

Description: A network-centric approach that transforms inter-agency, all source intelligence, surveillance, and reconnaissance to support the knowledge demands emerging from joint, component, service, and multinational needs. JISR transforms the current ISR processes by changing business practices, integrating assets, capabilities and products into a coherent picture. It includes tools and procedures that:

- Expand to meet increased and unique needs of effects assessment including longer-term and all source surveillance and analysis of the battlespace.

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- Efficiently and effectively meets the Standing Joint Force Headquarters expanded requirements of situational understanding and early effects based planning

- Provides networked, Commander-focused direction of Intelligence, Surveillance, and Reconnaissance assets through a comprehensive, effects based collection plan

- Enables ISR /Operations, and collaborative collection management of Intelligence, Surveillance, and Reconnaissance capabilities.

Joint Deployment Process Prototype. [35]

Description. USJFCOM's Joint Deployment Process Owner (JDPO) is leading a collaborative effort to transform joint deployment processes to improve joint, multinational, and interagency operations. JDPO initiatives which support deployment transformation over the near and mid-term include:

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[34] Memorandum for Commander, USJFCOM, Subject: Guidance for USJFCOM Joint Experimentation (CM635-02), 26 Nov 02.

[35] Memorandum for Commander, USJFCOM, Subject: Deployment and Mobilization Process Reform (CM 907-03), 23 April 2003; and Dept. of Defense Directive 5158, 12 Nov 2001. This initiative is closely coordinated with USTRANSCOM in their role as the Joint Distribution Process Owner.

- Quick Wins for the Warfighter: solutions to 'lessons-learned' from current operations worked and delivered to the joint warfighter within 90 days.

- Multi-National Integration and Interoperability: initiatives focused on improving integration and interoperability with multi-national or coalition partners

- Reengineering: streamlining existing deployment processes to create greater speed, accuracy, agility and visibility in joint deployment planning and execution.

- Joint Deployment Process Improvement (JDPI) Data Base: Proof of concept demonstration to show how data can be exposed earlier in the joint deployment process in order to improve the situational awareness at the strategic and operational levels.

- Joint Capabilities Requirements Tool (JCRT): Prototype effort that debuted as a proof of concept during MC02. Will provide common capabilities definitions to joint war planners to speed the process of building force requirements and improve communications during the sourcing process.

- Joint Force Projection (JFP) Advanced Concept Technology Demonstration (ACTD): An ACTD proposed for FY05 start. This ACTD will provide end-to-end integration of the family of systems that support Joint Force Projection in the US Military. It is targeted to provide the Force Projection Mission Capability Package as defined in the Joint Command and Control (JC2) Operational Requirements Document (ORD).

- Joint Deployment Employment and Sustainment (DES) Lab: Development of a laboratory environment for the assessment, prototyping, and experimentation of solutions to improve the Joint Deployment Process. (Done via partnership with the Joint C4ISR Battle Center (JBC).)

- Joint Deployment Monitor (JDM) prototype. The JDM will provide web enabled access to tactical level Service deployment data earlier than is possible today. This applies the “post before processing” tenet of net-centric data management. Today, for contingency operations, this data is only available after processing and updating in JOPES. Earlier access to “raw” deployment data, and continuous visibility of the data as it “matures” through the Service process will provide at least 4 benefits.
  - Planners at all levels will have more accurate data to plan and conduct early feasibility assessments.
  - Service deploying/redeploying units can more easily collaborate on availability of equipment to deploy or retain. Receiving units have early visibility of what is coming.
  - Earlier visibility recognizes the level of activity Services are undergoing to prepare for deployment.
  - Status reporting is more accurate and more easily automated. The data can be viewed independent of a particular software application or hardware configuration.

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Major Prototype Path Events FY04-06

As of 15 Dec 03

This appendix presents a 24-month snapshot of major events on the Prototype Path. Detailed information on the FY04-11 Joint Concept Development and Experimentation Campaign Plan is available at https:// j9raven.je.jfcom.mil, in the USJFCOM Campaign Plan "Virtual War Room," and on JFCOM Knowledge Today (www.jfcom.smil.mil). The schedule reflects only major events; details on planning conferences, preparatory workshops, etc., may be found at the above links, or by contacting the USJFCOM J9 Campaign Planning Team (Appendix E).

Events/Focus	Partner	Date
Terminal Fury	PACOM	3-12 Dec 03
JDPO Deployment-Sustainment WS	CCs/Services	16-18 Dec 03
JDPO Quick Wins WS	CCs/Services	20-23 Jan 04
Theater EBO Warfighter Conference	CCs/Services	2-6 Feb 04
Multinational Experiment III	MN/CCs/Services	2-20 Feb 04
Agile Response /JIACG	EUCOM	8-25 Mar 04
JDPO Quick Win WS	CCs/Services	23-25 Mar 04
Theater EBO WS	CCs/Services	26-29 Apr 04
JDPO Quick Win WS	CCs/Services	20-23 Apr 04
SJFHQ Forming Event	EUCOM	2-21 May 04
Cobra Gold	PACOM	19-25 May 04
JNTC – CJTFEX Training	CCs/Services	13-19 Jun 04
SJFHQ Forming Event (T)	CENTCOM	14-25 Jun 04

Events/Focus	Partner	Date
Theater EBO WS	CCs/Services	12-16 Jul 04
Unified Endeavor CPX JNTC Event	SOUTHCOM	21-30 Jul 04
JDPO Quick Win WS	CCs/Services	19-23 Jul 04
Determined Promise	NORTHCOM	4-11 Aug 04
JISR WG II	CCs/Services	9-31 Aug 04
JDPO Re-engineering WS	CCs/Services	24-26 Aug 04
Multi National LOE IV CDC	MN/CCs/Services	31 Aug-2 Sep 04
Unified Endeavor JNTC Event	SOUTHCOM	14-24 Sep 04
Prototype LOE	CCs/Services	7-24 Sep 04
JDPO Quick Win WS	CCs/Services	21-23 Sep 04
Internal Look	CENTCOM	1-8 Nov 04
Flexible Leader	EUCOM	4-22 Nov 04
JDPO Quick Win WS	CCs/Services	15-19 Nov 04
Theater EBO WS	CCs/Services	18-21 Jan 05
JDPO WS	CCs/Services	24-28 Jan 05
Theater EBO Warfighter Conf.	CCs/Services	7-11 Feb 05
JDPO WS	CCs/Services	14-18 Feb 05
Prototyping Event (T)	USFK	1-31 Mar 05
JDPO WS	CCs/Services	15-18 Mar 05

Events/Focus	Partner	Date
Future CIE Prototype LOE	CCs/Services	11-22 Apr 05
JDPO WS	CCs/Services	19-21 Apr 05
JDPO WS	CCs/Services	16-20 May 05
JDPO WS	CCs/Services	11-15 Jul 05
FY06-12 Campaign Plan Staffing	CCs/Services	15 Jul 03
MN LOE IV	MN/CCs/Services	11-29 Jul 05
Prototyping Event (T)	USFK	1-31 Aug 05
JDPO WS	CCs/Services	15-19 Aug 05
JDPO WS	CCs/Services	13-15 Sep 05

FY 06-11 Prototype Path Events

Jan 06 – Sep 11 -- Prototype path events are closely tied to Combatant Command exercises in order to leverage existing opportunities without adding new events. The same level of activities and resource commitments is expected through September 2011.

Abbreviations (see Appendix A for description of wargame, LOE, etc.): **T** – Tentative Event
SJFHQ – Standing Joint Force Headquarters **CIE –** Collaborative Information Environnent
JFI – Joint Fires Initiative **JISR-** Joint Intelligence Surveillance and Reconnaissance
JDPO – Joint Deployment Process Owner **CC** – Combatant Commands **EBO** – Effects Based Operations
CENTCOM— U S Central Command **EUCOM**—U S European Command
JNTC—Joint National Training Capability **MN**--Multinational **NORTHCOM**—U S Northern Command
PACOM—U S Pacific Command **USFK** – US Forces Korea **WS** - Workshop
SOUTHCOM—U S Southern Command **CJTFEX –** Combined Joint Task Force Exercise
TRANSCOM—U S Transportation Command **LOE** – Limited Objective Experiment

Appendix C
Current Efforts in Joint Concept Development and Major Events

Joint Operations Concepts (JOpsC)[36]

Description: This concept describes how the Joint Force intends to operate within the next 15 to 20 years. It provides the operational context for the transformation of the Armed Forces of the United States by linking strategic guidance with the integrated application of Joint Force capabilities. The JOpsC provides the conceptual framework to guide future joint operations and joint, Service, combatant command and combat support defense agency concept development and experimentation. The JOpsC also provides the foundation for the development and acquisition of new capabilities through changes in doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTMLPF). JOpsC provides the operational context for military transformation in sufficient detail for the development of subordinate joint operating, functional and enabling concepts.

Joint Operating Concepts (JOC) [37]

Description: JOCs will further develop key areas of the JOpsC. Focusing at the operational-level, JOCs integrate functional and enabling concepts to describe how a JFC will plan, prepare, deploy, employ and sustain a joint force given a specific operation or combination of operations. The JOCs will also provide a detailed conceptual perspective for joint experimentation and assessment activities. JOCs will be developed with a narrow scope to guide and describe the development of desired operational capabilities. These capabilities must be examined in terms of assumptions, attributes and metrics in order to identify tasks for the future joint force. The JCS-directed initial JOCs, Stability Operations and Major Combat Operations, form the current baseline of the USJFCOM Joint Concept Development path. USSTRATCOM and USNORTHCOM are each developing a CJCS-assigned JOC, Strategic Deterrence and Homeland Security respectively, in coordination with this CPLAN. The CJCS-approved Joint Operating Concepts are:

Major Combat Operations (MCO)[38]

Description: Major Combat Operations achieve objectives by removing an adversary's ability to conduct military operations and creating acceptable political conditions for the cessation of hostilities and the imposition of US will. At the direction of the President, the Joint Force will simultaneously "swiftly defeat" two efforts, and, if necessary, win one of those efforts decisively. MCO are conducted in a campaign consisting of sequential, parallel and simultaneous actions distributed throughout the physical, information and cognitive domains of the global battlespace. Operations will attempt to sustain an increased tempo, placing continuous pressure on the adversary, and will harmonize military action with the application of

[36] Joint Operations Concepts, JCS Version 1.0 for 2003, 3 Oct 03, pp. 18-21
[37] Ibid (JOC description), assignment of JOC development: Memorandum for the Joint Requirements Oversight Council (JROC), Subject: Minutes of 20 Feb 03 JROC Meeting (JROCM 061-03), 12 Mar 03.
[38] Joint Operations Concepts, JCS Version 1.0 for 2003, 3 Oct 03, pp. 18-21

other instruments of national power. The campaign is designed to dismantle an adversary's system of offense and defense, preempt freedom of action, destroy critical capabilities, and as rapidly as possible, isolate enemy forces. Thereby, the joint force will deny the adversary sanctuary, the ability to maneuver and reconstitute, and defeat or destroy it through the integrated application of air, ground, maritime, space and information capabilities.

Stability Operations (SO)[39]

Description: Stability operations are military operations in concert with the other elements of national power and multinational partners, to maintain or re-establish order and promote stability. These consist of global and regional military operations that establish, shape, maintain and refine relations with other nations. Included are operations to ensure the safety of American citizens and US interests while maintaining and improving the US ability to operate with multinational partners to deter hostile ambitions of potential aggressors. Stability operations help ensure unhindered access by the US and its allies to a global economy. These operations may include a wide array of tasks from combat operations - in order to remove isolated pockets of resistance to peace enforcement, or security cooperation activities.

Homeland Security (HLS)[40]

Description: The highest priority of the United States is HLS. The military mission sets are homeland defense, civil support and emergency preparedness. Homeland defense will be the primary focus of the Homeland Security JOC. Military forces may execute assigned missions in circumstances of emergency, routine or extraordinary nature. The mission sets for homeland defense are aerospace, land and maritime defenses. These are operationalized through attack operations, active defense, passive defense and C4I. The mission sets for civil support are military assistance to civil authorities, military support to civilian law enforcement agencies and military assistance for civil disturbances. Commander US Northern Command is developing this concept in accordance with the JOpsC and other guidance memoranda.

Strategic Deterrence (SD) [41]

Description: Strategic deterrence encompasses the range of DOD efforts and capabilities to discourage aggression or coercion by potential adversaries. Strategic deterrence provides the President with a range of military options and capabilities intended to deter aggressors while requiring only modest reinforcement of forward-deployed and stationed forces from outside the theater. Strategic deterrence includes joint counter-proliferation, defense against weapons of mass destruction, overseas presence, peacetime military engagement and nuclear and non-nuclear strike capabilities enhanced by global intelligence. Commander US Strategic Command is developing this concept in accordance with the JOpsC and other guidance memoranda.

[39] Ibid.
[40] Ibid (JOC description), assignment of JOC development: Memorandum for the Joint Requirements Oversight Council (JROC), Subject: Minutes of 20 Feb 03 JROC Meeting (JROCM 061-03), 12 Mar 03.
[41] Ibid.

Joint Functional Concepts[42]

Description: Functional Concepts amplify a particular military function, utilizing the Joint Operations Concepts and JOCs for their operational context. They apply broadly across the Range of Military Operations. The Joint Chiefs of Staff have identified five initial functional concept categories of Joint Command and Control (JC2), Battlespace Awareness, Force Application, Focused Logistics, and Protection. Development of these concepts remains the responsibility of the CJCS. Functional concepts will be evaluated and tested through Joint Experimentation once a level of maturity is achieved.[43]

Joint Enabling Concepts[44]

Description: Enabling concepts are the most specific of all military concepts. Enabling concepts are descriptions of how particular tasks or procedures are performed within the context of broader functional areas. Enabling concepts must be developed, experimented on and validated with sufficient specific detail to directly link capabilities to military tasks. Although not the only enabling concepts, information, interagency, and multinational operations are integral enabling concepts that are intertwined throughout all operations. They crosscut functional and operating concepts.[45]

Other Concept Development Activities

Joint Urban Operations (JUO)[46]

Description: Due to the growing complexity and ubiquity of urban areas in the future operational landscape, Joint Urban Operations is a concept which does not fit into any specific category. JUO applies the principles of what we do in rolling and open terrain to urban operations. First, see and understand. Move out of contact – maneuver. Act with precision engagement (lethal and non-lethal) at the time and place of our choosing. JUO focuses on the operational level of war and the application of operational art by a joint force commander. It is applicable across the range of military operations (war and military operations other than war, combat and non-combat) and is based on the principles of maneuver or indirect approach to operations, in contrast to attrition (or direct) approach.

Joint Forcible Entry Operations (JFEO)[47]

Description: The Joint Forcible Entry Operations enabling concept addresses the anti-access and area denial capabilities and strategies the future adversary may employ to preclude friendly forces from having the freedom of action necessary to generate desired effects in the battlespace. The concept enables a combined force to deploy to, and if necessary, fight to gain access to geographical areas controlled by hostile forces. It is intended to take the battle to the enemy, disrupt his plans, and confront the worst threats before they emerge. It will allow a combined force to mount forcible entry

[42] Ibid.
[43] Joint Operations Concepts, JCS Version 1.0 for 2003, 3 Oct 03, pp. 18-21.
[44] Ibid.
[45] Joint Operations Concepts, JCS Version 1.0 for 2003, 3 Oct 2003, pp. 18-21.
[46] Memorandum for the Joint Requirements Oversight Council (JROC), Subject: JUO (JROCM 094-02), 14 Jun 02.
[47] Memorandum for Commander, USJFCOM and Director JS J8 (et al), Subject: Joint Forcible Entry Operations Study (JROCM 199-03), 20 Oct 03.

operations and, without pausing, maneuver rapidly to seize key centers of gravity, often located deep in enemy territory.

Joint Deployment, Employment, and Sustainment (JDES).[48]

Description: USJFCOM's Joint Logistics Transformation Center (JLTC) is experimenting with a future concept which is based upon operational lessons learned, senior leader guidance, and experimental evidence. This concept, a single, coherently joint deployment, employment and sustainment concept, enables seamless projection and indefinite sustainment of a future joint force. The JDES concept is an operational level concept that merges planning and execution of deployment, employment, and sustainment of military forces within a single construct, as required by the JOpsC.[49] US Transportation Command, with its role as Distribution Process Owner, is a key and essential partner in the development of this future concept.[50] As experimental evidence has shown, a future distributed force, maneuvering at an increased tempo, requires fully integrated, globally synchronized, agile sustainment. This calls for a shift from supply-based logistics and regionally focused, service-centric planning to a sustainment system that is precise, flexible and responsive to sustaining tailored forces operating in a dynamic environment. It consists of the assembly, configuration, movement, positioning, support and maintenance of tailored joint operational capabilities. Empowered by knowledge-centric planning and operations, JDES applies to global action (including CONUS) throughout the range of operations in a complex strategic construct. Development of this concept is conducted in close coordination with the Office of the Secretary of Defense, USTRANSCOM, the Services, multi-national partners, and the JCS Focused Logistics Functional Capabilities Board.

[48] JCS Memorandum for Commander, US Joint Forces Command, Subject: Deployment and Mobilization Reforms (CM907-03), 23 Apr 03.

[49] Joint Operations Concepts, JCS Version 1.0 for 2003, 3 Oct 2003, p. 15.

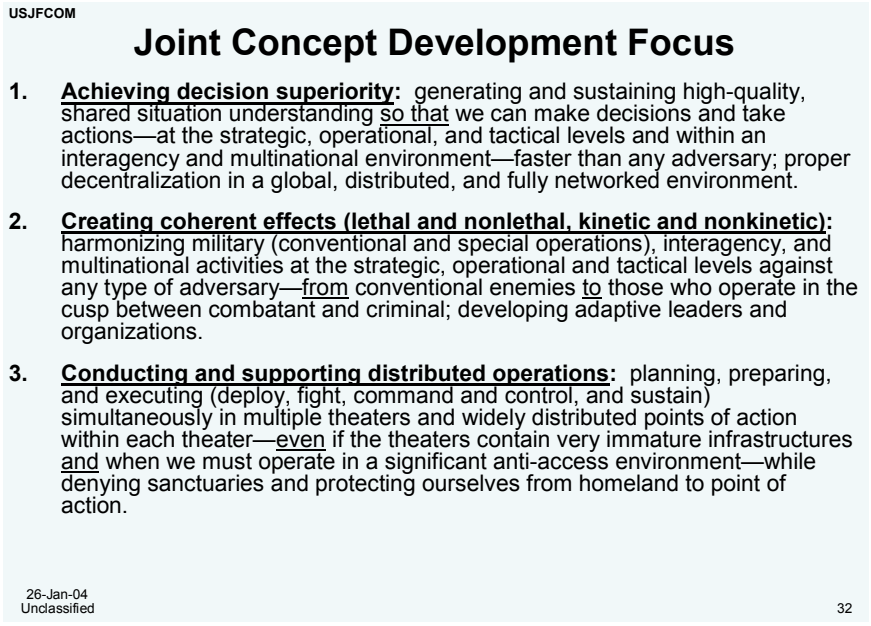
[50] TRANSCOM's designation as Distribution Process Owner is designed to improve the overall efficiency and effectiveness of distribution related activities in peace and war. The Distribution Process Owner receives oversight and guidance from the Defense Logistics Executive (DLE) via the Defense Logistics Review Board. In coordination with the Joint Deployment Process Owner (JFCOM), the Distribution Process Owner is tasked to lead a collaborative effort to:

- Direct and supervise the execution of the Strategic Distribution System
- Improve distribution related activities for deployment, sustainment, and redeployment.
- Bring together all partners in the end-to-end distribution system to determine process improvement
- Streamline distribution and designate an information technology backbone for distribution.

Joint Concept Development Path Experimentation Methodology

This section of Appendix C is intended to describe the joint concept development experimentation methodology in greater detail.

Building a body of knowledge for joint concept development and experimentation is an essential first step, and continues throughout the campaign.[51] Early and continuous involvement by the Senior Leadership is an integral element of this campaign's strategy and methodology. The campaign's focus comes directly from analysis of the major challenges facing joint warfighters today. These challenges resulted from direct input from Combatant Commanders and the strategic guidance of civilian and uniformed leadership of the Department of Defense. It was approved on 17 April 2003.[52]

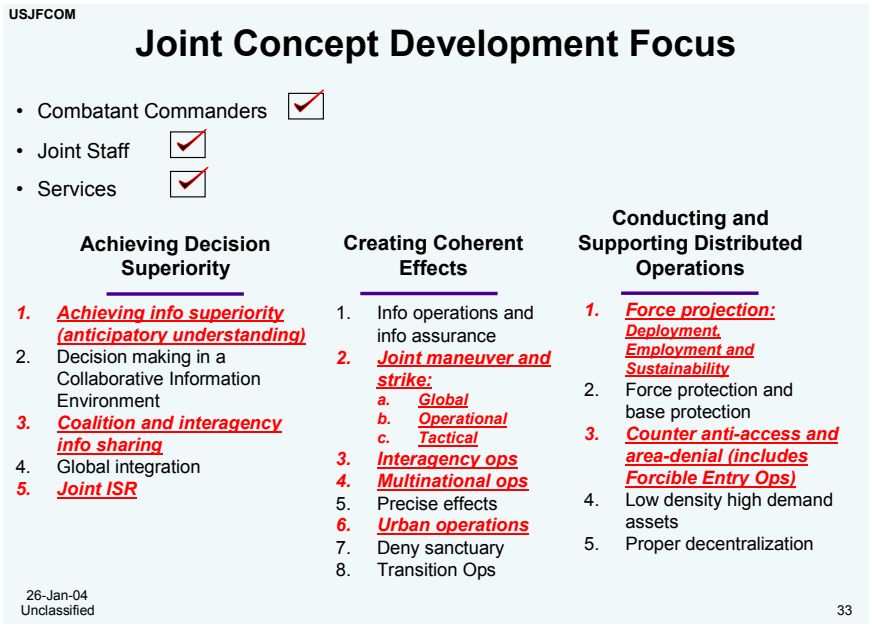


Through further analysis and collaboration with the Joint Staff, Combatant Commands, and Services, we have disaggregated the Joint Concept Development Focus into 18 critical issues for joint experimentation.

The 18 critical issues and the priority with which they are addressed in this campaign were approved by the Chairman, Joint Chiefs of Staff on 23 January 2003, by the Combatant Commanders on 31 January 2003, and by the Joint Requirements Oversight Council (JROC)

[51] See "Building the Body of Knowledge", pp. 21-22.
[52] Memorandum for the Joint Readiness Oversight Council (JROC), Subject: 17 April 03 JROC Minutes (JROCM 114-03), 20 May 03; approves Commander USJFCOM FY03-09 Joint Experimentation Campaign Plan (concept development focus and issues are unchanged).

on 17 April 2003.[53] The slide below shows the 18 JROC-approved issues for joint concept development experimentation (priorities are depicted in red and underlined below).



Joint Concept Development Focus – 18 Critical Issues

Joint concept development takes place through a series of iterative experiments, co-sponsored by US Joint Forces Command, the Services, and the Combatant Commands. These experiments use a "common joint context" to address the 18 critical issues across a set of realistic, plausible scenarios derived from Defense Planning Guidance and the needs of the combatant commands. This joint context, as illustrated in the chart on the next page, provides a shared vision for future joint operations and a common starting point for service concept and force development.

Common Joint Context

- **Use of Joint Operations Concepts (JOpsC)**
- **The Joint, Interagency, and Multinational Warfighters' community is represented to ensure 'Born-Joint' concept development**
- **Uses common, consistent and transparent joint data, tools, service, joint analysis and metrics.**
- **Uses one or more of the approved common set of scenarios**

[53] Memorandum for the Joint Readiness Oversight Council (JROC), Subject: 17 April 03 JROC Minutes (JROCM 114-03), 20 May 03; approves Commander USJFCOM FY03-09 Joint Experimentation Campaign Plan (concept development focus and issues are unchanged).

These co-sponsored experiments comprise an integrated pathway of near-continuous experimentation. Approximately four major experiments conducted each year provide an integrated environment to enable the co-evolution both joint and service concepts. In 2003 these experiments were primarily discovery events to identify potential alternative solutions to our warfighting issues.

Joint Concept Development Path

Method

		Joint Concept Development Focus																
		Achieving Decision Superiority					Creating Coherent Effects								Conducting and Supporting Distributed Operations				
		1	2	**3**	4	**5**	1	**2**	**3**	**4**	5	**6**	7	8	**1**	2	**3**	4	5
SCENARIOS	Major Combat Operations against an adversary with a global WMD threat and robust regional anti-access capability	PI_{03} GE_{VII}	SV_{04}			GE_{VII}		PI_{03} UC_{04} GE_{VII} SV_{04}		GE_{VII}	GE_{VII}	JUO			PI_{03} UC_{04} GE_{VII} SV_{04}		PI_{03} UC_{04} SV_{04}		
	Joint operations in an urban environment	JUO JUW UQ_{04}		JUO JUW UQ_{04}	UQ_{04}	JUO JUW UQ_{04}	UQ_{04}	JUO JUW UQ_{04}	JUO JUW UQ_{04}	JUO JUW UQ_{04}	JUO JUW UQ_{04}	JUO JUW UQ_{04}	JUW UQ_{04}	JUW UQ_{04}	UQ_{04}	JUO	UQ_{04}		JUW
	Operations against a non-state actor with significant regional combat capability, access to WME, and ties to global terrorist organizations	UQ_{03} TH UQ_{04}	TH	UQ_{03} TH UQ_{04}	TH	UQ_{03} TH	TH	UQ_{03} UC_{04} UQ_{04}	UQ_{03} UQ_{04}	UQ_{03} UQ_{04}	UQ_{03} UQ_{04}	UQ_{03}	UQ_{04}	UQ_{04}	UQ_{03} UC_{04} UQ_{04}		UQ_{03} UC_{04} UQ_{04}	TH	UQ_{04}
	Operations in a faltering or failing state that has regional WMD/WME capability	TH	TH	TH	TH	TH	TH											TH	
Real World Contingency			MN3 MN3						MN3 MN3						MN3				

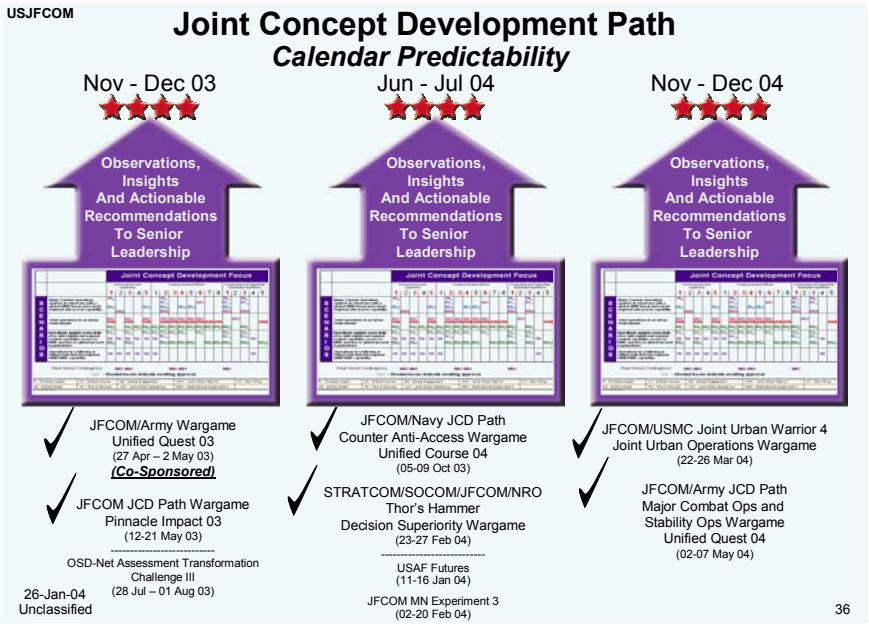
::::: - Shaded boxes indicate awaiting approval

PI - Pinnacle Impact	UC - Unified Course	GE - Global Engagement	JUW - Joint Urban Warrior	SV – Sea Viking
UQ - Unified Quest	TH – Thor's Hammer	JUO - Joint Urban Operations	MN3 – Multinational Experiment 3	

Developing Future Capabilities: 2004 Priority Issue in Experimentation

The slide above shows how the 18 critical issues are integrated and cross-matrixed into existing experimental venues to allow for examination and analysis. The numbers across the top of the matrix are the concept development focus issues, identified on the previous illustration. (see 'Joint Concept Development Focus – 18 Critical Issues' on C-6). As noted, red highlights on both illustrations indicate the priorities for FY04 experimentation.). The 18 critical issues, examined over time in a series of iterative experiments with common joint context and using the approved common scenarios, build the collective body of knowledge.

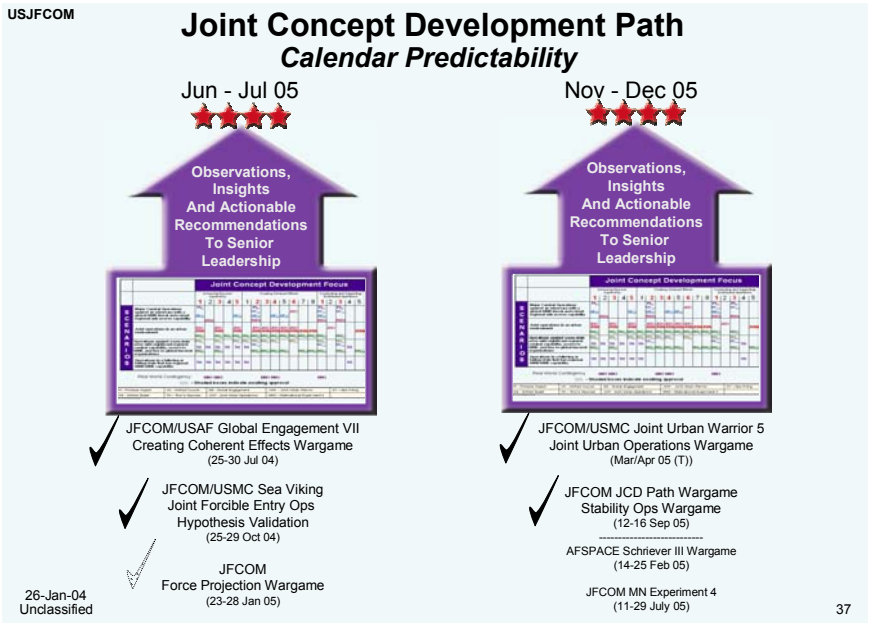
The joint concept development methodology further enables a battle rhythm for joint concept development experimentation, providing numerous opportunities for senior leaders to provide guidance and mid-course correction while continuously building the body of knowledge. The slide below demonstrates how observations, insights, and actionable recommendations for changes to the joint warfighting critical areas (doctrine, organization, training, material, leadership, personnel, and facilities) are developed and submitted to the senior leadership.



Joint Concept Development Path FY04 Battle Rhythm

The slide above shows that USJFCOM will report observations and insights developed during FY03's Unified Quest and Pinnacle Impact joint co-sponsored wargames to the senior leadership in the December 03 timeframe. That report will generate guidance on future experimentation, which will be factored back in to the body of knowledge. That process repeats in FY04 as Thor's Hammer and Unified Course are used to further expand the body of knowledge. Observations and actionable recommendations, in the form of the "Joint Concept Development and Experimentation Status Report and Recommendations," will be submitted to the senior leadership in the June-July 2004 timeframe. That battle rhythm continues into FY05 with the Joint Urban Warrior and Unified Quest wargames (see slide, next page).

In 2004 emphasis will begin to transition to hypothesis-based experiments that will assess in greater detail the most promising potential concepts. Participants in these experiments represent unique service and combatant command perspectives on the 18 critical issues, in a common experimental environment. This collaboration enables an objective competition of ideas from which recommendations emerge upon which the nation's senior leadership can base decisions on the future joint force.



Joint Concept Development Path FY05 Battle Rhythm

Major Concept Development Path Events FY 04-06

As of 15 Dec 03

This appendix presents a 24-month snapshot of major events on the Concept Development Path. Detailed CPLAN Information is available at https://j9raven.je.jfcom.mil in the USJFCOM Campaign Plan "Virtual War Room," and on JFCOM Knowledge Today (www.jfcom.smil.mil). The schedule reflects only major events; details on planning conferences, preparatory workshops, etc., may be found at the above links, or by contacting the USJFCOM J9 Campaign Planning Team (Appendix E, p. E3).

Event/Focus	Partner(s)	Dates
Investment Recommendation WS Human Element	CCs/Services	12-13 Nov 03
National Security Seminar	CCs/Services	12-13 Nov 03
Joint Shaping Concept Seminar	CCs/Services	17-21 Dec 03
Multi-National Experiment III	CCs/Services/MN	2-20 Feb 04
Thor's Hammer WG Decision Superiority Wargame	STRATCOM, NRO, SOCOM	23-27 Feb 04
Thor's Hammer SLS		10 Mar 04
Joint Urban Warrior 4 WG	USMC	22-26 Mar 04
Investment Recommendations WS	CCs/Services	13-15 Apr 04
Major Combat Operations WG	CCs/Services	19-23 Apr 04
Unified Quest 04 Major Combat Operations / Stability Operations Wargame	USA	2-7 May 04
Investment Recommendation WS	CCs/Services	25-27 May 04
Stability Operations CDC	CCs/Services	8-10 Jun 04
Human Element WS	CCs/Services	7-9 Jul 04
Major Combat Operations WS	CCs/Services	13-15 Jul 04
Global Engagement VII WG Creating Coherent Effects Wargame	USAF	25-30 Jul 04
Joint Urban Operations WGs	CCs/Services	21-22 Sep 04 28-29 Sep 04
Major Combat Operations WG	CCs/Services	27 Sep-1 Oct
Investment Recommendations WS	CCs/Services	5-7 Oct 04

Event/Focus	Partner(s)	Dates
Sea Viking WG Joint Forcible Entry Operations Hypothesis Validation	USMC	25-29 Oct 04
Force Projection Wargame	TBD	23-28 Jan 05
Human Factors WS	CCs/Service	15-17 Mar 05
Stability Operations WS	CCs/Services	11-15 Apr 05
Investment Recommendations WS	CCs/Services	13-15 Apr 05
Joint Urban Warrior 5 Wargame (T)	USMC	Mar - Apr 05
Joint Operating Concept 3 WS	CCs/Services	10-12 May 05
Joint Urban Ops WG Shaping the Battlespace	CCs/Services	16-27 May 05
Investment Recommendations WS	CCs/Services	31 May-1 Jun
Human Factors WS	CCs/Services	21-23 Jun 05
Multi-National Experiment IV	CCs/	
Shriever III Wargame	AFSPACE	14-24 Sep 05
JCD Path -Stability Operations WG	CC/Services/JS	12-16 Sep 05
Investment Recommendation WS	CCs/Services	11-13 Oct 05

FY06-11 Concept Development Path Events

Jan 06 – Sep 11 -- The Joint Concept Development and Experimentation program is a fully funded program through the FYDP. This finding is to allow steady pace of experimentation from year to year. Based on experience and the scope and frequency of experiments required to advance concepts and prototypes in FY04 and FY05, we forecast an annual event tempo of 2-4 limited objective experiments plus associated workshops, as well as to 3-4 joint service co-sponsored wargames with associated planning conferences and workshops. The exact content of each experiment, wargame, and other activities is determined by senior leader directive, as well as the refinement of concepts and prototypes. [54]

Abbreviations (see Appendix A for description of wargame, LOE, etc.): **T** – Tentative Event

MCO-Major Combat Operations **SO-**Stability Operations **HLS-**Homeland Security

CC— Combatant Command **IDA**—Institute for Defense Analysis **SD-**Strategic Deterrence

[54] See discussion on page 8.

JUO—Joint Urban Operations **MCO**—Major Combat Operations **MN**--Multinational

NRO—National Reconnaissance Office **STRATCOM**—U S Strategic Command

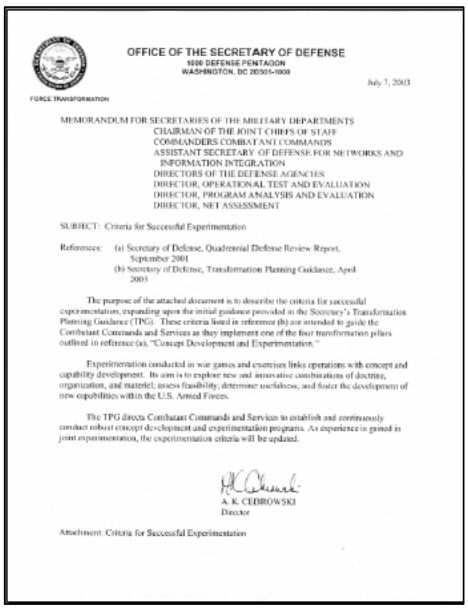
TRANSCOM—U S Transportation Command **USN**-US Navy **SOCOM** – US Special Operations Command

USMC – US Marine Corps **USA** – US Army **WS** – Workshop **WG** – Wargame

CDC – Concept Development Conference **JFEO** – Joint Forcible Entry Operations **SLS** – Senior Leader Seminar

Appendix D
Criteria for Successful Experimentation

War fighting experimentation is a process of exploring the unknown, discovery, and the creation of new knowledge and learning. Experiments are designed to evaluate new warfighting concepts, capabilities, and organizations and provide results that help inform and refine those concepts. Experimentation has the potential to produce profound increases in capabilities needed to enhance and broaden our war fighting competitive advantage.



OFFICE OF THE SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

July 7, 2003

FORCE TRANSFORMATION

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
COMMANDERS COMBATANT COMMANDS
ASSISTANT SECRETARY OF DEFENSE FOR NETWORKS AND INFORMATION INTEGRATION
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTOR, OPERATIONAL TEST AND EVALUATION
DIRECTOR, PROGRAM ANALYSIS AND EVALUATION
DIRECTOR, NET ASSESSMENT

SUBJECT: Criteria for Successful Experimentation

References: (a) Secretary of Defense, Quadrennial Defense Review Report, September 2001
(b) Secretary of Defense, Transformation Planning Guidance, April 2003

The purpose of the attached document is to describe the criteria for successful experimentation, expanding upon the initial guidance provided in the Secretary's Transformation Planning Guidance (TPG). These criteria listed in reference (b) are intended to guide the Combatant Commands and Services as they implement one of the four transformation pillars outlined in reference (a), "Concept Development and Experimentation."

Experimentation conducted in war games and exercises links operations with concept and capability development. Its aim is to explore new and innovative combinations of doctrine, organization, and materiel; assess feasibility; determine usefulness; and foster the development of new capabilities within the U.S. Armed Forces.

The TPG directs Combatant Commands and Services to establish and continuously conduct robust concept development and experimentation programs. As experience is gained in joint experimentation, the experimentation criteria will be updated.

A. K. CEBROWSKI
Director

Attachment: Criteria for Successful Experimentation

Experimentation Criteria:

Scientific Method: This method involves critical inquiry characterized by objectivity, rigor, and usefulness. It includes robust and creative data collection. Successful Defense experimentation must apply the scientific method in its transformation strategy.

Experimentation in Exercises and Operations: Every operation that the U.S. armed forces conduct involves innovation in processes, organizational relationships, and technology. Operations Iraqi Freedom, Enduring Freedom, and Allied Force provide many recent examples. The ability to adapt rapidly to the character and particular needs of a conflict confers significant competitive advantages upon a U.S. force.

Experimentation with Virtual Capabilities and Threats:
The Joint National Training Capability and Distributed Continuous Experimentation Environment support training and experimentation with a mix of live, virtual, and constructive (LVC). The infrastructure for augmenting real forces with constructive and virtual capabilities for exercises also supports experimentation with constructive and virtual capabilities in gaming venues to explore mid and far term transformational possibilities. The Distributed Continuous Experimentation Environment is specifically designed to support continuous Combatant Command and Service experimentation.

Experimentation with Aggressive Threats:

Red Teams and Information Assurance. Given the importance of information, experiments should normally employ Red teams to discover weak points in defenses designed to provide information assurance.
Risk Assessment. Risk assessment requires a mix of experimentation with expected threats and more aggressive threats that include asymmetric capabilities, the possibility of technological breakthroughs, and that span a variety of environments.

Scope of Scenarios. Scenarios used in experimentation should span from the specific need to inform current war-planning efforts to the more future and conceptual range of possibilities for the far term, including aggressive threats.
Reset the play. Where the skillful play of the opposition force or Red team adversely affects experimental objectives, it is appropriate to reset the play as long as responsible authorities take action to address the challenge demonstrated by the opposition.

Capturing and Sharing Experimental Results:

Achieving results of joint experimentation requires sharing and archiving results from Combatant Command and Service experimentation in forms that allow progress in addressing challenges made in one command to be employed by others that must perform or participate in the same joint tasks.

Appendix E
Joint Concept Development and Experimentation Peer Groups
As of 15 Dec 03

Coordination of this Joint Concept Development and Experimentation partnership falls to a set of Service and Combatant Command General and Flag officers. This list is dynamic, as we seek to expand the experimentation ground to obtain the widest possible inputs to the program. By encouraging a culture of collaboration, creativity, and intelligent risk taking, Joint Forces Command can help transform our military into a force that meets new and unexpected challenges with a rich assortment of resources and innovative capabilities. USJFCOM Joint Concept Development and Experimentation Campaign Plan points of contact are at the conclusion of this appendix.

Service Peers

1. Army
a. BG (P) Fastabend, Director, Concept Development and Experimentation, Training and Doctrine Command (TRADOC)
b. BG Ryan, Strategy, Plans and Policy (DAMO-SS), Army G3
2. Navy
a. RADM Route, Naval War College
b. RADM Kelly, Navy Warfare and Development Command
c. RDML Mauney, Policy and Strategy Division, Navy Staff (N51)
d. RDML Winnefeld, Warfare Programs and Readiness Division, Commander Fleet Forces Command (CFFC)
3.Air Force
a. Maj Gen Jones, Air Combat Command
b. Maj Gen Gould, Ops, Plans and Joint Matters, Air Staff (XOX)
c. Maj Gen Bath, Plans and Programs, Air Staff (XP)
d. Maj Gen MacGhee, Air Force Doctrine Command
4.Marine Corps
a. BrigGen (S) Schmidle, Expeditionary Force Development Center
b. BrigGen Waldhauser, Marine Corps Warfighting Lab
5.Coast Guard
a. RADM Hathaway, Operations Policy, HQ USCG
b. RADM Olson, Operations Capability, HQ USCG

Combatant Command Peers

1. US Special Operations Command (USSOCOM)
RDML Maguire, SORR
2. US Strategic Command (USSTRATCOM)
Brig Gen Shelton, J5/PR
3. US Northern Command (USNORTHCOM)
Mr. Henry, J8
4. US Pacific Command (USPACOM)
MajGen Gardener, J3

5. US Central Command (USCENTCOM)
Ms. Grant, CCJ8
6. US European Command (USEUCOM)
Brig Gen (S) Vecker, ECJ6
7. US Southern Command (USSOUTHCOM)
Maj Gen (S) Dyches, SCJ7
8. US Transportation Command (USTRANSCOM)
RDML Ames, TCJ5
9. US Forces Korea (USFK)
MG Higgins

Other Experimentation Peers

1. Brig Gen Catton, Director, Joint Staff J7
2. BG (P) Hunzeker, Joint Warfighting Capabilities, Joint Staff J8
3. Dr. Chris Lamb, Office of the Secretary of Defense (Plans and Resources)
4. Mr. Bob Shields, Office of the Secretary of Defense
5. Dr. Tom Hone, Office of the Secretary of Defense, Office of Force Transformation

Multi National Peers

1. United Kingdom
Air Vice Marshall McNicoll, Director, Joint Doctrine and Concepts, Ministry of Defense (MOD)
2. Germany
Brig Gen Engerhardt, Division Chief Fue. V. S., MOD
3. Canada
MG Lucas, Assistant Deputy Chief, Defense Staff, National Defense Headquarters
4. Australia
Air Vice Marshall Blackburn, Director, Policy Guidance and Analysis
5. France
Vice Adm D'Escadre, Deputy to the Joint Chiefs of Staff for Operations
6. Allied Command Transformation
RDML Mauer, DACOS, JEEA.

High Level Peer Collaboration – Past and Future
Service 2 Star Conferences: 6 Dec 02, 2 Jan 03, 12 Mar 03, 23 Apr 03, 17 Jun 03, 14 Oct 03*, 24 Oct 03*, 17 Nov 03* –Campaign Plan Issue Resolution
Combatant Commander 2 Star Conferences: 12 Feb 03, 22 May 03, 14 Oct 03 (IWS), 24 Oct 03*, 28 Oct 03*, 25 Nov 04* – Campaign Plan Issue Resolution
Multinational 2 Star Conferences: 23-24 Sep 02, 25-26 Jun 03
Combatant Command 2 Star Conference working - mid Jan 04
Service 2 Star Conference working – mid Jun 04
Multinational 2 Star Conference: 15-16 Jun 04
* Sessions conducted via Defense Collaborative Tool Suite enhanced (Information Work Space (IWS)).

J9/Combatant Commander Engagements

Date	Venue	Topic	Combatant Commander Attendees
12 Feb 2003	Face to Face Conference	Campaign Plan; J9 Update	COL Touzinski (EUCOM), Mr. Henry (NORTHCOM), MG Lowe (PACOM), RDML Maguire (SOCOM), Ms. Grant (CENTCOM)), Col Janushkowsky (STRATCOM), Maj Gen Stenner (SOUTHCOM), LTC Butts (TRANSCOM)
22 May 2003	VTC	Campaign Plan; J9 Reorganization	MG Kohler (EUCOM), Mr. Carpenter (NORTHCOM), MG Gardner (PACOM), COL Montgomery (SOCOM), Ms. Grant (CENTCOM)), RADM Byrd (STRATCOM), Maj Gen Stenner (SOUTHCOM), Ms. Young (TRANSCOM), MG Higgins (USFK), Dr. Hanley (OSD-OFT), RADM Gallagher (ACT)
20 Aug 2003	IWS	Review of C-Plan	MG Kohler (EUCOM), Mr. Reeves (NORTHCOM), MG Lowe (PACOM), COL Montgomery (SOCOM), Ms. Grant (CENTCOM)), Mr. Hall (STRATCOM), Lt Col Garnish (SOUTHCOM), RDML Ames (TRANSCOM), MG Higgins (USFK), COL Maffey (Joint Staff J7), COL Corwin (ACT)
14 Oct 2003 (Joint with Service Peers)	IWS	Joint Concept Development and Experimentation Status Report and Recommendations	COL (P) Verbeck (EUCOM), Mr. Carpenter (NORTHCOM), BG Miyagi (PACOM), RDML Maguire (SOCOM), Ms. Grant (CENTCOM)), Brig Gen Shelton (STRATCOM), BG Dyches (SOUTHCOM), RDML Ames (TRANSCOM), MG Higgins (USFK), RDML Mauer (ACT)

Peer Participation in Campaign Plan Collaboration Sessions

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