JOINT CONCEPT FOR LOGISTICS

6 August 2010

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"The essence of flexibility is in the mind of the commander; the substance of flexibility is in logistics."
- RADM Henry Eccles, USN

To achieve national security objectives and help realize common goals with our partner agencies and nations, we must produce innovative, effective, and efficient solutions that increase our Joint Force Commanders' freedom of action. The Joint Concept for Logistics presents a common framework for providing logistics support to joint forces operating as described in the Capstone Concept for Joint Operations. It further introduces an enterprise solution as the means to integrate and synchronize DOD processes and capabilities with those of our interagency, multinational, nongovernmental/private volunteer organizations, and commercial partners. When fulfilled, it will optimize support to the planning, execution, control, and assessment of logistic operations in an increasingly complex global environment, and will ultimately enable the Joint Force Commander's freedom of action.

The Joint Concept for Logistics is a vision of "what" logistics support needs to look like in the future and it is the first of many steps in developing future logistics capability and doctrine. This concept is designed to ensure that we efficiently support future missions, throughout the range of military activities, while remaining the global leader in logistics. As such, it is meant to guide further study, experimentation, assessment, and development across the DOTMLPF and policy spectrum.

Developed through an extensive collaborative process and with unprecedented agreement from the logistics community, the Joint Concept for Logistics is a clear vision of where we are headed. Your task now is to discover "how" to get there. You have my full support in this important effort.

KATHLEEN M. GAINEY
Lieutenant General, USA
Director for Logistics, J-4

APPROVED

MICHAEL G. MULLEN
Admiral, U.S. Navy
Chairman, Joint Chiefs of Staff

"As we select our forces and plan our operations, ... we must understand how logistics can impact on our concepts of operation. . . . Commanders must base all their concepts of operations on what they know they can do logistically."
- Gen Alfred M. Gray, Jr, USMC

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Executive Summary

The future operating environment will be characterized by increasing uncertainty, rapid change, complexity, and persistent conflict. The Joint Force Commander (JFC) will conduct simultaneous global combat, security, engagement, and relief and reconstruction activities in this challenging environment. Joint Force Commands will become more reliant on multinational, interagency, nongovernmental, and contracted capabilities and partnerships. We will operate in a widening geopolitical environment with decreasing global access, prolific use of high-end anti-access weapons, sophisticated cyber threats and growing nuclear, biological and chemical capabilities in the hands of actors willing to employ them. To further complicate matters, the Department of Defense will continue to see an increase in the competition for scarce dollars as constraints on resources grow and other agencies also stake their claims for resources based on the whole of government approach to crisis management. While competition for resources is not new for the Defense Department, pressures will increase to assure that economies in the logistic arena become a reality in the future.

The above factors compel a need for an enterprise solution. The Joint Concept for Logistics (JCL) proposes the Joint Logistics Enterprise (JLEnt) to integrate our DOD capabilities (deployment and distribution, engineering, operational contracting support, logistics services, maintain, supply, and medical logistics) with those from the interagency, multinational, nongovernmental, and commercial world. The aggregate capabilities of these key global logistics providers facilitate a whole of government and global approach to problem resolution. The JLEnt role is to optimize logistic processes and capabilites, and allocate logistic resources according to national security needs to achieve common goals with our partners.

The JCL follows the Capstone Concept for Joint Operations (CCJO) template, and applies that framework to describe how the future joint force will perform logistic functions across the basic categories of military activity. It identifies the capabilities required to support these activities and the key attributes necessary to evaluate capability development. The JCL establishes a common framework for thinking about future joint logistic operations in the 2016-2028 timeframe. It guides the development of future logistic capabilities, doctrine, and force structure. The JCL is a source document designed to initiate further assessments, studies, experiments, and technology demonstrations. It establishes a conceptual foundation for subordinate joint concept development within the family of joint concepts. It highlights future capabilities that must be executed collectively as a logistic community.

The JCL poses the following problem statement: *How can Joint Force Commanders and DOD integrate or synchronize and optimize joint, interagency, multinational, nongovernmental, and contracted logistics to simultaneously establish and maintain multiple Joint Force Commanders' operational adaptability and freedom of action in the design, execution and assessment of concurrent combat, security, engagement, and relief and reconstruction missions in an environment characterized by increasing complexity, uncertainty, rapid change, and persistent conflict?*

The central idea (as indicated in the text below) is designed to provide the JFC freedom of action to plan, execute, and assess operations without undue logistic concerns. This can be accomplished if the JLEnt can:

- **INTEGRATE** or **SYNCHRONIZE** JLEnt processes and capabilities in order to **OPTIMIZE** support to the Joint Force Commander.
- Provide **UNITY OF EFFORT** across end-to-end logistic processes in support of the Joint Force Commander.
- **DELIVER**, **POSITION,** and **SUSTAIN** joint forces from any point of origin to any point of employment.
- **NETWORK** the JLEnt in a real-time global information system with accurate data, total requirement and resource visibility, common operational views, and shared perspective with intuitive decision support tools.

Then the result will be:

- **SUSTAINED JOINT LOGISTIC READINESS** delivered to the Joint Force Commander that enables operational adaptability and freedom of action.
- **IMPROVED TRUST AND CONFIDENCE** that the JLEnt will provide required capabilities and resources at the right time and place.

The JCL proposes operational guidance to future logistic forces on how they are to support joint forces operating as envisioned in the CCJO. The JCL operational guidance suggests a new way to plan, execute, control, and assess logistic operations. There are 10 Common Joint Logistic Operating Precepts adapted from the CCJO to show how logistic forces can apply CCJO precepts to their operations. Included in appendices to the JCL are functional descriptions for each logistics capability area.

Adopting this paper will result in extensive changes to Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities, and Policy (DOTMLPF-P). The collaboration required to establish a JLEnt with the responsibility and accountability to operate, shape, and leverage partner resources, processes, and capabilities will be very challenging.

The JCL anticipates a joint force with greater adaptability and versatility able to cope with the uncertainty, complexity, and persistent conflict that will characterize the future operating environment.

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1. Purpose

The Joint Concept for Logistics (JCL) presents a common framework for providing logistic support to joint operations in the 2016-2028 timeframe and guides the development of future logistic capabilities. The JCL is a source document designed to initiate further assessments, studies, experiments, and technology demonstrations. It establishes a conceptual foundation for subordinate Joint Concept development. Interagency, multinational, commercial, and nongovernmental (NGO) logistic providers may use this document to assess and develop their capabilities for interoperability, and help facilitate integration and synchronization opportunities within the global logistics community.

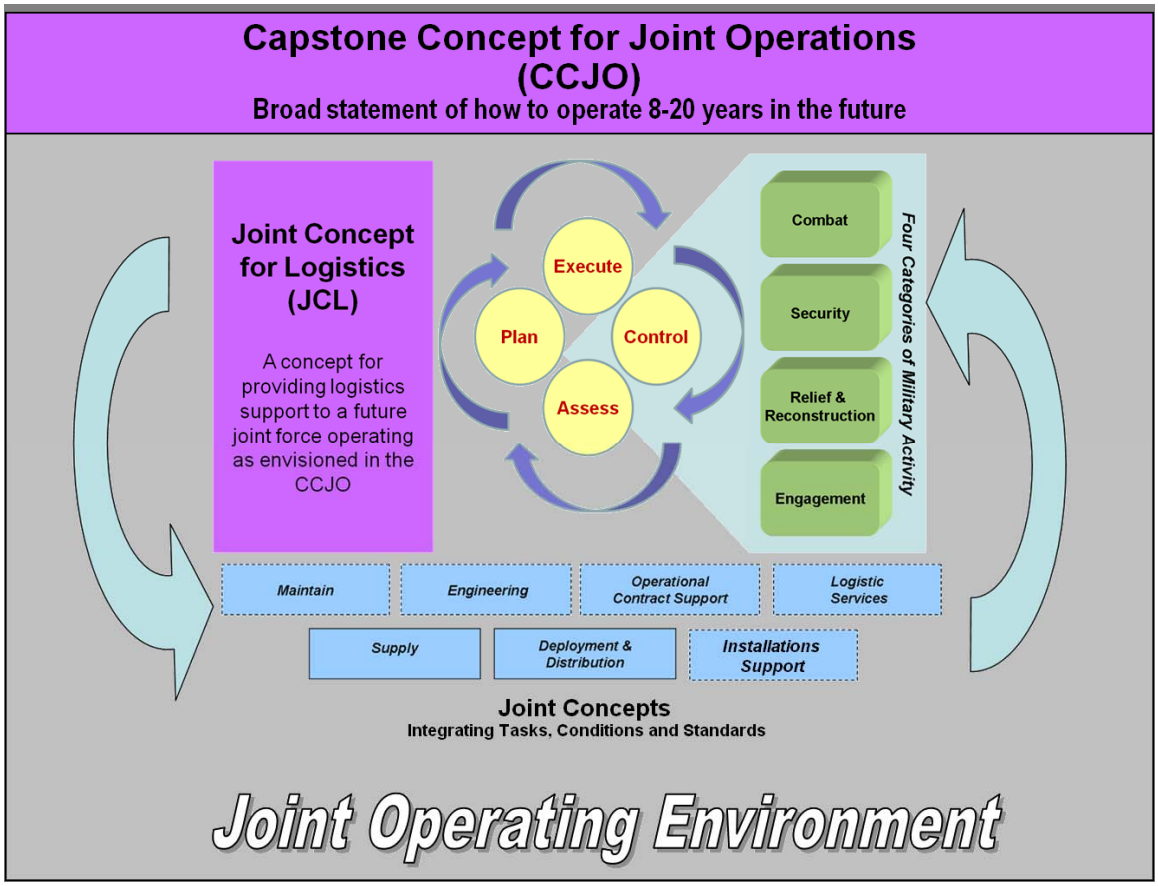

Figure 1 - JCL Relationship to Joint Operations Concept (JOpsC) Family[1]

Figure 1 illustrates how the JCL and subordinate Joint Integrating Concepts (JIC) correlate to the 15 January 2009 Capstone Concept for Joint Operations (CCJO). The term "Joint Concept" will replace JICs,

[1] The Joint Logistics (Distribution) Joint Integrating Concept version 1.0 was published 7 February 2006. The Joint Logistics (Supply) Joint Integrating Concept version 1.0 was published 31 March 2010.

JOCs, and Joint Functional Concepts (JFC) in 2010. The CCJO is the overarching concept of the family of joint concepts. Its purpose is to lead force development and experimentation by providing a broad description of how joint forces are expected to operate in the future.[2] It speaks in terms of broad precepts and ideas. The JCL applies elements of the CCJO solution to describe how the joint force will perform the enduring military function of logistics. The Logistic JICs (Joint Integrating Concepts) are guided by the JCL. They describe how each logistic capability area supports the JFC in execution of the four CCJO categories of military activity[3] (combat, security, engagement, and relief and reconstruction). The logistic organizations supporting these categories of military activity must address each challenge in its own unique context; be able to simultaneously execute and/or quickly transition between categories while continually assessing and adjusting their operations.

The JCL provides a development framework and gives guidelines to help determine *what* capabilities are needed to support the Joint Force Commander[4] and how logistic forces should operate. Who will be responsible for executing the various solutions that emerge from this paper, and how they will be executed will be born out in the many follow-on assessments, studies, and experiments that will follow. The JCL provides enough detail to serve its stated purpose as a source document and gives enough latitude to consider a wide range of alternatives. It requires experimental validation. It will lead to capability gap solutions and will eventually guide doctrinal evolution.

The stage for the JCL is set by the *Joint Logistics Compass* (see Appendix E). The Compass is broad guidance gathered from Logistic Directors across the Department of Defense. That guidance was compiled to create a vision of freedom of action for the Joint Force Commander enabled by sustained logistic readiness, integrated logistic capabilities, and shared resources. The bridge to this vision spans the 3 to 7 year timeframe and consists of three central ideas (planks). Those planks initiated a study on a common end-to-end framework and measurement system, a program to help logisticians work effectively in a joint, interagency and/or multinational environment, and life cycle management. The JCL takes the baton from the Compass and carries it into the future.

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[2] The JCL is based on the CCJO and JOE that was developed based on 2016 to 2028 projected operating environments.

[3] Humanitarian Assistance and Disaster Relief (HA/DR) are classified as a relief and reconstruction military activity.

[4] The JFC may be the supported commander in an operation or may be the supporting commander to another organization.

The logistic community must work together to develop the joint solutions proposed in this paper. Improvement in logistic capability, capacity, processes, and organizations are essential to continued military success in a future characterized by complexity, uncertainty, and change. Failure to advance logistic capabilities will become increasingly costly. Failure to optimize logistic effectiveness could potentially cost the lives of our Service men and women, and put our Nation's ability to execute its National Security Strategy at risk.

2. Scope

Logistics is 1 of 9 Tier I Joint Capability Areas[5] (JCAs) as shown in Figure 2. It is defined as the ability to project and sustain a logistically ready joint force through the deliberate sharing of national and multinational resources to effectively support operations, extend operational reach, and provide the Joint Force Commander (JFC) the freedom of action necessary to meet mission objectives. The JCL describes the subordinate Tier II JCAs of Maintain, Engineering, Operational Contract Support, Logistic Services, Supply, Deployment and Distribution, and facets of Installations Support.[6] Although not categorized as a logistics capability area, medical logistics, is addressed in the JCL because of its dependency on and close interface with many of the joint logistics Tier II capabilities, and because of the close proximity within the Joint Operating Area (JOA) that both Medical Logistics and Logistics are performed. The JCL's focus is on employing the full range of logistic processes and capabilities to support the JFC. The JCL identifies areas in which joint logistic operations and capabilities must evolve and adapt. It identifies future joint concepts and provides guidelines necessary to support activities executing national and departmental strategic guidance.

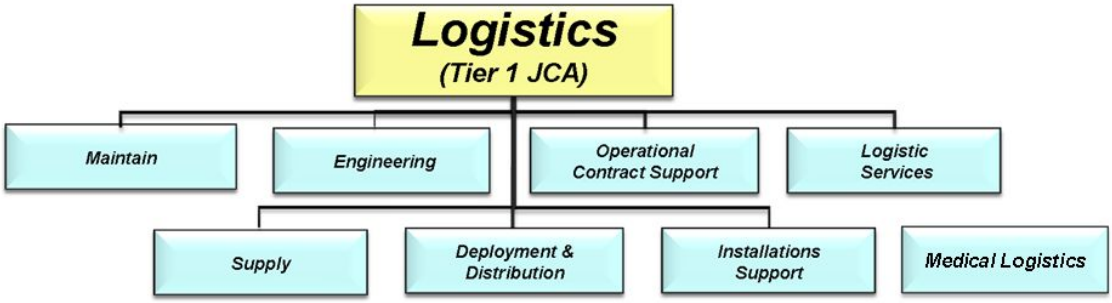

Figure 2 – Logistics Tier II Joint Capability Areas[7]

[5] For definitions and framework of JCAs, see Appendix C *Joint Capability Area Definitions.*

[6] The Installations Support capability area relates to garrison real property life cycle management and installation services that are not within the context of the JCL and are not discussed in the base document.

[7] Logistics is a Tier 1 Joint Capability Area (JCA). The remaining complement of Tier 1 JCAs are: Force Support, Battlespace Awareness, Force Application, Command and Control, Net-Centric, Protection, Building Partnerships, and Corporate Management and Support.

2.a. Military Function

Joint Publication 1-02, the *Department of Defense Dictionary of Military and Associated Terms*, defines logistics as planning and executing the movement and support of forces. It defines joint logistics as the coordinated use, synchronization, and sharing of two or more Military Departments' logistic resources to support the joint force. It includes aspects of military operations that deal with:

- Design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel
- Movement, evacuation, and hospitalization of personnel
- Acquisition or construction, maintenance, operation, and disposition of facilities, and/or
- Acquisition or furnishing of services.

The JCL proposes a perspective wider than the JP 1-02 definition of joint logistics. The future operating environment requires a broader view of joint logistics that includes partners outside the Department of Defense.

The JCL uses the term "joint" in a broad sense that is consistent with the Tier I JCA definition of Logistics: *The ability to project and sustain a logistically ready joint force through the deliberate sharing of national and multinational resources to effectively support operations, extend operational reach, and provide the Joint Force Commander the freedom of action necessary to meet mission objectives.*

2.b. Guiding Principles and Imperatives

Joint Publication 4-0 (JP 4-0) established *The Principles of Logistics* as a "guide for analytical thinking when assessing combatant commander (CCDR) courses of action." JP 4-0 also established the *Joint Logistics Imperatives* as desired attributes of systems, processes, capabilities, and organizations. The logistic community should use these principles and imperatives as a guide to assessing solutions derived from the JCL.

Principles of Logistics

- **Responsiveness** - providing the right support when and where needed
- **Simplicity** - a minimum of complexity in logistic operations
- **Flexibility** - the ability to improvise and adapt logistic structures and procedures to changing situations, missions, and operational requirements

- **Economy** - the amount of resources required to deliver a specific outcome
- **Attainability** - the assurance that the minimum essential supplies and services required to execute operations will be available
- **Sustainability** - the ability to maintain the necessary level and duration of operational activity to achieve military objectives
- **Survivability** - the capacity of organizations to prevail in the face of potential threats

Joint Logistic Imperatives

- **Unity of Effort** - the synchronization and integration of logistic capabilities focused on the commander's intent
- **Rapid and Precise Response** - the ability of logistic forces and organizations to meet the needs of the joint force
- **Enterprise-Wide Visibility** - assured access to logistic processes, capabilities, resources, and requirements to gain the knowledge necessary to make effective decisions

> *Military success in the future rarely will be the product of radically new ideas, but instead will typically result from adapting these [timeless] enduring truths to new requirements, conditions, and capabilities.*
>
> -ADM M.G. Mullen, CJCS
> Foreword to Capstone Concept for Joint Operations

The JCL anticipates that future logistic capabilities will not only be influenced by both evolutionary and revolutionary changes in policy, processes, and technology, but by the constantly changing operational environment and the ingenuity of the adversaries we will face. Regardless of type or degree of change, the aforementioned principles and imperatives provide a strong foundation for measuring success as described by the Chairman.

2.c. Strategic Guidance

This paper is derived from national and department-level strategic guidance. This includes the National Security Strategy (2010), National Defense Strategy (2008), National Military Strategy (2004), Capstone Concept for Joint Operations (2009), and Quadrennial Defense Review Report (2010).

2.d. Critical Assumptions

Below are some critical assumptions upon which the JCL is dependent:

- Logistic planks identified in the *Joint Logistics Compass* continue toward enabling JFC freedom of action.

- Fundamental tenets of current national strategy documents will remain applicable in 2016-2028.
- USJFCOM document, "The Joint Operational Environment—Into the Future," accurately describes the most likely security environment in the 2016-2028 timeframe.
- The United States industrial base will not have sufficient capacity to sustain joint forces for multiple simultaneous global combat, security, engagement, and relief and reconstruction operations and will require assistance from JLEnt partners.
- Airlift, sealift, prepositioning, forward presence, enroute infrastructure, and the ability to rapidly establish ground lines of communication in austere operating environments are essential ingredients that enable Department of Defense transportation capabilities to support deployment, employment, sustainment, and redeployment.
- DOD's robust partnership with the U.S. commercial transportation industry will continue. Other commercial, interagency, and multinational logistic support partnerships will be established and available when required.
- Forces will operate out of established locations, and will build capability and capacity at other land bases as required to assemble, sustain, and project the joint force.
- Seabasing will have a growing role in assembling, sustaining, and projecting the joint force.
- Cyber or space based threats will degrade, mislead, or defeat DOD Net Centric Enterprise Services and assured communications bandwidth.
- Current fossil fuel energy sources will not efficiently sustain the force.
- Sea lanes will generally remain open, but the seven ocean lane choke points will be subject to intermittent interdiction and will impact SEALOC operations.
- Future joint forces may consist of multinational and interagency organizations (each with disparate levels of capability), and may have to operate closely with nongovernmental organizations, other governments, and commercial partners.
- Constrained military budgets will require careful stewardship of funding for developing future capabilities; however, funding will be available for the key enablers of the JCL.
- Inter-organizational partners (intra- and inter-government agencies, nongovernmental organizations, commercial partners) will collaborate with the joint force to coordinate employment and sharing of resources and capabilities

3. Military Problem

This section establishes the military problem statement, references the operational environment in which logistic forces and organizations must operate in order to support the JFC, and introduces key indicators of the problem. The USJFCOM document, "The Joint Operational Environment-Into the Future" (JOE) provides detailed operating environment information that will not be repeated here.

3.a. The Military Problem Statement

How can Joint Force Commanders and DOD integrate or synchronize and optimize joint, interagency, multinational, nongovernmental, and contracted logistics to simultaneously establish and maintain multiple Joint Force Commanders' operational adaptability and freedom of action in the design, execution and assessment of concurrent combat, security, engagement, and relief and reconstruction missions in an environment characterized by increasing complexity, uncertainty, rapid change, and persistent conflict?

The problem statement presents a dilemma for the DOD and JFC. The JCL proposes ideas and provides guidelines in answer to the problem. The statement is deeply rooted in ideas presented in the CCJO and is intended to drive solutions. To elaborate, JFCs and DOD are equally responsible for resolving this problem because of the strategic to tactical (end to end) nature of logistic processes and capabilities. The terms integrate and synchronize are both employed to allow for processes or capabilities that cannot integrate, but can only be synchronized. *Integration* infers a level of control that may not be possible in every circumstance, particularly when discussing multinational, interagency, or nongovernmental operations. *Synchronization* is employed when integration is not possible. *Operational adaptability* is a quality that leaders and forces exhibit based on critical thinking, comfort with ambiguity and decentralization; and an ability to make rapid adjustments based on continuous assessment in order to conduct and freely transition among simultaneous combat, security, engagement, and relief and reconstruction activities. *Freedom of action*, a common operating precept in the CCJO, when placed in the context of the JCL, is the ability of the JFC to design and execute operations without undue logistic concerns.

3.b. Operational Environment

The future operational environment will be increasingly complex and dynamic with continually changing coalitions, alliances, partnerships, and new (both national and transnational) threats constantly appearing and disappearing. Joint logisticians will be

required to simultaneously support joint force(s) conducting interrelated military activities involving combat, security, engagement, and relief and reconstruction activities in a distributed operations environment. Joint operations will be multi-dimensional and will occur in urban terrain and cyberspace more than in past conflicts. Climate change may make the operating environment more complex. Competition for resources, particularly fossil fuels will impact our ability to sustain operations. Irregular warfare may be the norm rather than the exception. Operations will be conducted in an interconnected and an increasingly global environment. Adversaries will include a variety of actors from transnational organizations, states, ad hoc state coalitions, and individuals who come together based on common interests.

The environment may involve humanitarian assistance/disaster relief (HA/DR) crises where logistic support is the main effort and the Joint Force becomes the supporting force to a government agency. In addition to military forces and noncombatants, there will be a large number of other government agencies, independent, nongovernmental, or regional organizations in the operational area. Each of these entities will have an agenda that may complement or compete with another organization's activities or with overall joint operational objectives. These agencies or organizations support and are supported by coalition partners, other government agencies, contractors, indigenous forces, and local civilian populations and must be considered in any support concept.

The logistics challenge in the future operational environment will be to anticipate and meet all joint logistic requirements before they become operational shortfalls. This may require rearranging traditional joint logistic capabilities, developing new capabilities, taking advantage of existing Host Nation or multinational capabilities, and/or contracting specific capabilities. We must learn how the joint force can leverage its capabilities in such a way as to create intractable military and strategic dilemmas for adversaries so they avoid challenging the U.S. altogether or are swiftly defeated should they attempt to engage.

3.c. Key Indicators of the Problem

"DOD has not developed a coordinated and comprehensive management approach to guide and oversee implementation of joint theater logistics across the department. Efforts to develop and implement joint theater logistics initiatives have been fragmented among various DOD components due largely to a lack of specific goals and strategies, accountability for achieving results, and outcome-oriented performance measures—key principles of sound management. Further complicating DOD's ability to adopt a coordinated and comprehensive management approach to joint theater logistics are the diffused

organization of DOD's logistic operations, including separate funding and management of resources and systems, and changes in DOD's overall logistics transformation strategy…"[8]

Listed in Appendix B are well documented, generally recognized issues that must be addressed in order to provide logistic support to a future joint force applying the CCJO solution and generating operational effects across the basic categories of military activity. These issues were identified by the Government Accountability Office (GAO), Office of the Secretary of Defense, the Services, the Joint Staff, USTRANSCOM, USJFCOM, and DLA. The JCL intent is to drive resolution of these indicators through JLEnt process optimization, capability improvement, an improved JLEnt network, and increased distribution platform efficiency and capacity. Each of these gaps should be more closely addressed in subsequent productions of Joint Concepts to further define the requisite tasks, conditions, and standards necessary for repair.

4. Solution

The JCL calls for an Enterprise solution to resolve indicators of the problem and to execute points presented in the Central Idea (4.b). The JCL introduces an inclusive Joint Logistics Enterprise (JLEnt) that is expected to provide logistic partners an effective means to achieving common ends.

4.a. The Joint Logistics Enterprise (JLEnt)

Figure 3. Joint Logistics Enterprise (JLEnt)

[8] GAO-07-807 29 June 2007

The JLEnt is a multi-tiered matrix of key global logistics providers cooperatively structured to achieve a common purpose. It may be bound by an assortment of collaborative agreements, contracts, doctrine, policy, legislation, or treaties designed to make it function in the best interest of the JFC or other supported organization. Figure 3 is a depiction of the JLEnt with the JFC as the supported commander; this figure is not meant to imply that the JLEnt is solely represented by these organizations nor does it imply a particular structure or command relationship.

Figure 4 depicts the JLEnt and JFC as a supporting capability to organizations outside DOD. Joint Force Commanders are key JLEnt

> ***Dynamic Logistics Nothing Constrained - - Everything Possible***
>
> *Joint Staff, J-4 Vision*
> *Joint Logistics Strategic Plan 2010-2014*

partners because they control DOD logistical processes, capabilities, and resources at the point of need or employment. The JLEnt is a multi-tiered matrix in the sense that its partners will have varying levels of participation and that each situation will template different partners based on the nature and scale of operations. For example, a homeland disaster relief scenario will employ vastly different JLEnt partners than overseas combat operations. Improving integration or synchronization among partners is critical to the solution. Various militaries, agencies, and industry come to the "fight" with differing perspective and responsibility on the best way forward (i.e. the priority for security, versus development, versus engagement). Partners must have a shared view on priorities and end state in order to synchronize efforts and manage results. The fundamental challenge in creating a JLEnt is determining how to integrate, synchronize, and optimize organizations, processes, capabilities, and resources that are outside the DOD.

Key to success in this environment is to collectively agree on who is supported versus who is supporting. In a combat operation (particularly initial stages) where security is paramount, the JFC and other military forces are typically seen as the supported force. As an operation evolves and the balance shifts to increasing engagement and development, then interagency, NGOs, and industry will see an increasing importance to their mandate. Synchronization or integration have to speak to joint or integrated planning. If the planning is joint and integrated then the tools and resources needed to accomplish the mission are better able to be coordinated. This allows the collaboration, agreements and contracts to be put in place, consistent with contingency planning and/or operating concepts.

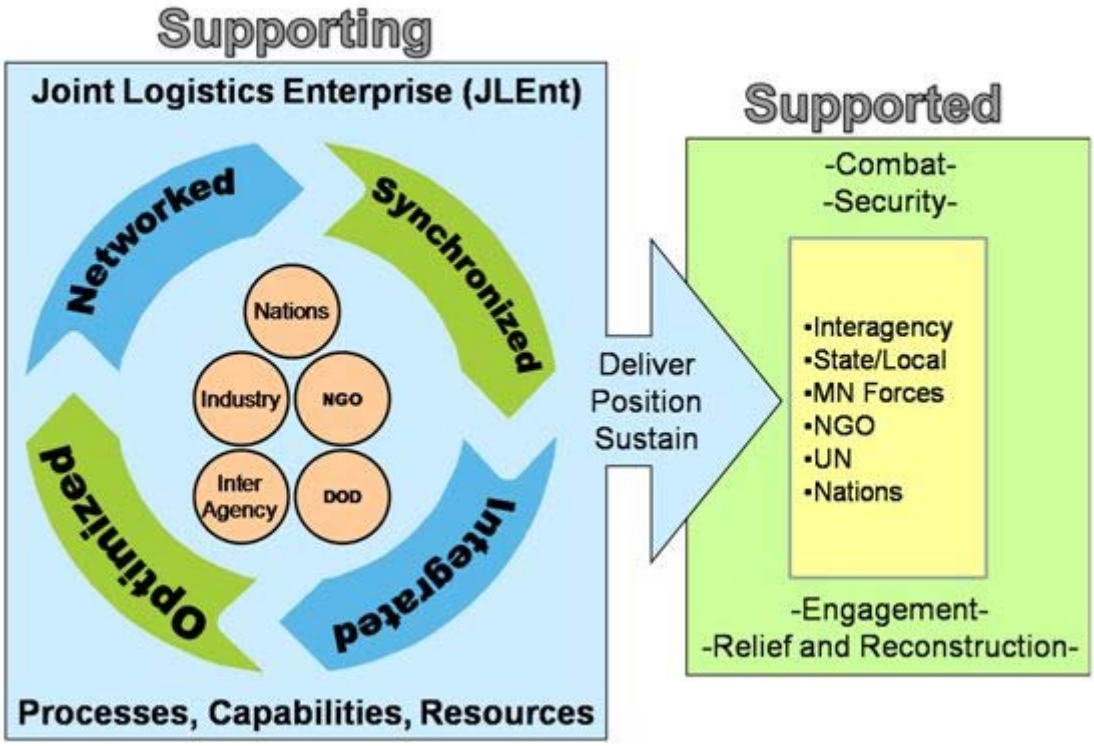

Figure 4 – JLEnt as a supporting organization

It is envisioned that members of the JLEnt will include organizations and partnerships from the military services, combatant commands, joint task forces, other government agencies, and nongovernment organizations. Commercial partners will play a vital role in virtually all aspects of the JLEnt. To function on a global scale and to provide comprehensive, end-to-end capabilities, JLEnt membership will also be drawn from multinational partners. Participants will operate across the strategic, operational, and tactical continuum - many will be affiliated with either supported or supporting commands, and they will operate under a variety of command relationships. While this paper does not prescribe specific organizational constructs for the JLEnt, it does recognize the need for the JLEnt to manage, shape, and leverage partner processes, capabilities, and resources. This paper envisions the attainment of a scalable joint capability that serves to enhance the planning, executing, controlling, and assessing of the full range of partner logistic processes and capabilities in order to produce an outcome of increased JFC effectiveness. The Joint Logistics Enterprise introduced in this document operates within the Joint Logistics Environment described in Joint Publication 4-0. The Joint Logistics Environment exists within the operational environment and consists of the conditions, circumstances, and influences that affect the employment of logistic capabilities.

Understanding the roles, responsibilities, and authorities of JLEnt partners is essential to planning, executing, controlling, and assessing logistic operations. JLEnt partners must collaborate to ensure the coordinated employment, and sharing of capabilities and resources. They must agree to integration or synchronization of processes supporting HA/DR and military activities. The JLEnt must be underpinned by common procedures and language, joint training and doctrine, interoperable equipment, authoritative and reliable information, and the adaptive leadership necessary to conduct joint logistic operations.

Unity of effort within the JLEnt is critical to providing sustained logistic readiness; and giving the JFC the trust and confidence to plan, execute, and assess operations without undue logistic concerns.

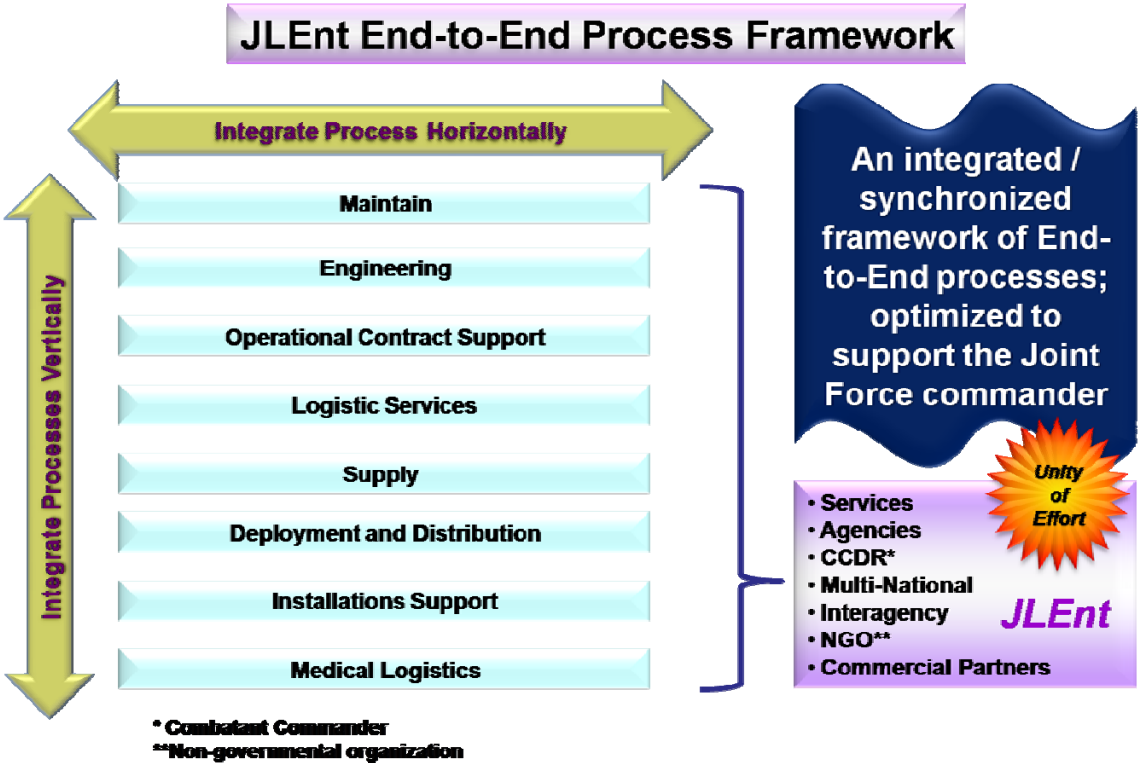

Figure 5 - JLEnt End-to-End Process Framework

The JLEnt consists of a framework of logistic processes and capabilities that when optimized becomes more capable "than the sum of its parts and can provide an unassailable strategic advantage."[9] This framework of processes and capabilities supports the JFC, and includes the processes and capabilities under the operational control of the JFC. Figure 5 depicts that framework. Understanding the JLEnt framework

[9] CCJO, Pg IV.

facilitates holistic end to end analysis of all joint logistic capabilities, across all boundaries, in order to determine the cause-and-effect events that impact effectiveness and efficiency. Appropriate integration or synchronization, both vertically across capability areas and horizontally within a capability area, permits process and capability optimization. This framework allows the JLEnt to support decisions based on the most effective means at the lowest cost without regard to process or capability owner, Service, or agency. The JCL proposes further study to map logistic processes, identify integration or synchronization points, and apply metrics that lead to a commonly agreed upon optimized outcome for the JFC. This study must contribute to a common understanding of the term "end-to-end" as noted below and reiterated in the *Joint Logistics Compass*.

To ensure a more common understanding of terminology, "End-to-End," in the context of this document, it is the continuum of JLEnt partner capabilities which must be optimized in support of the JFC from sourcing to point of employment. While Joint Logistic processes and capabilities are acknowledged to be under the authority of multiple partners, it is the individual and collective responsibility of all the JLEnt partners to cooperate in a collaborative manner to monitor, measure, execute, optimize, and be accountable for their processes and capabilities based on how they maximize the JFCs effectiveness.

> *Overall joint logistics capability is "the capability to build effective, responsive, and efficient capacity into the deployment and sustainment pipeline; exercise control over logistics from* ***end-to-end****; and provide certainty to the supported joint force commander that forces, equipment, sustainment, and support will arrive where needed and on time." To succeed, these joint logistics capabilities must be fully integrated. Further, they must support future joint operations that are continuous and distributed across the full range of military operations.*
>
> GAO-07-807 Report in DEFENSE LOGISTICS (JUNE 2007)

In order to achieve the desired end state, the JLEnt processes, business system (data) integration, and resourcing must be addressed. As force providers, the Services must participate in a JLEnt wide venture to establish a joint capability. Operations must be designed to ensure support to the lowest level activity with the mission and resources to maintain, generate, and apply combat power.

4.b. JCL Central Idea (Implementing the JLEnt)

The purpose of the JCL Central Idea is to answer the question presented in the military problem statement. Much like the Joint Logistics Compass, the Central Idea in Figure 6 depicts logistic capability areas as a unified road to providing freedom of action to the JFC. To gain that freedom of action the JFC must have trust and confidence that

the JLEnt will provide sustained logistic readiness. To achieve sustained logistic readiness, a networked JLEnt must have unity of effort to integrate or synchronize its processes and capabilities to optimize them to best deliver, position, and sustain the JFC to the point of employment.

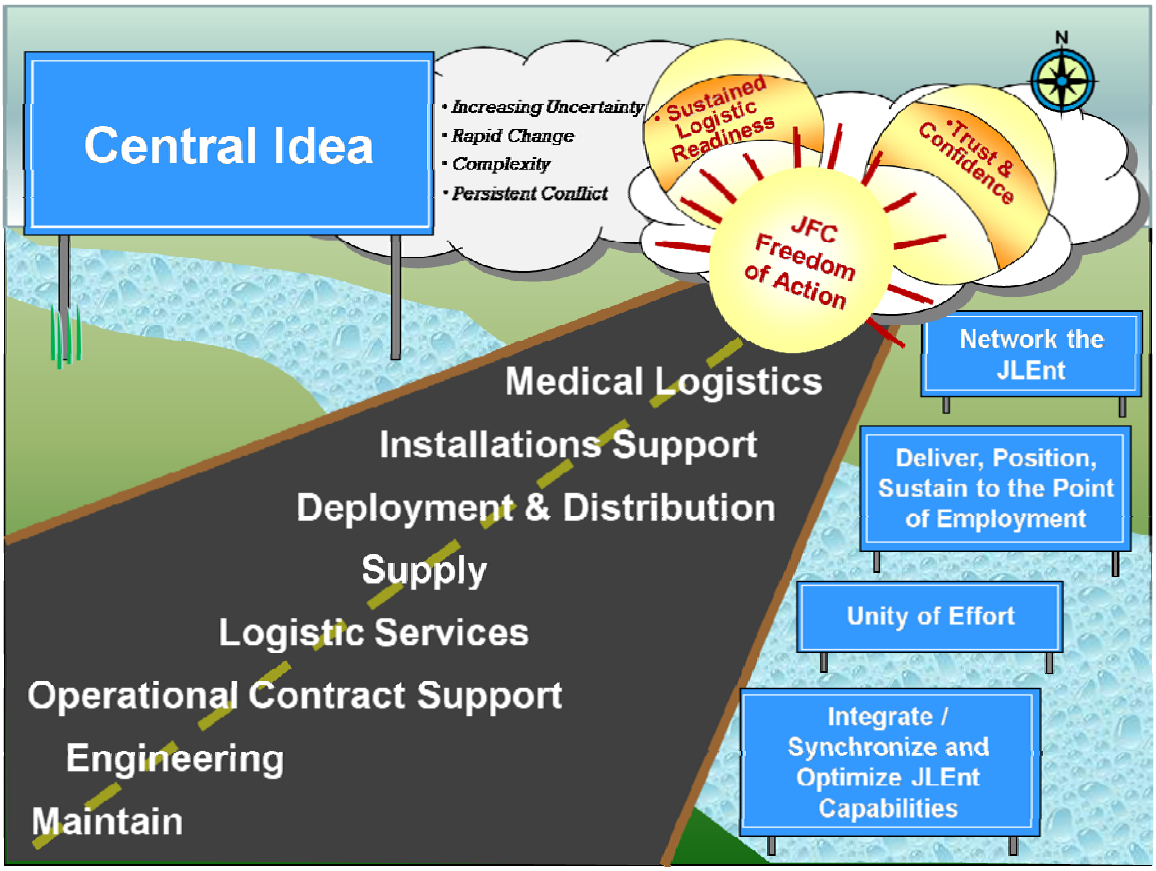

Figure 6 – JCL Central Idea

The most important facet in the Central Idea is optimizing JLEnt processes and capabilities. Integrating or synchronizing processes and capabilities is not an end in itself. They are a prerequisite to optimization. Nothing is gained if the JLEnt accomplishes integration or synchronization and it does not also lead to optimizing outcomes for the JFC. There are enormous challenges associated with integrating or synchronizing DOD, interagency, multinational, nongovernmental, and commercial processes and capabilities. Joint operations, as currently defined in JP 1-02, will be insufficient to meet future operations as envisioned in the CCJO and articulated in the Joint Operating Environment (JOE).

The JCL Central Idea is a two-part if-then proposition. If the JLEnt can execute the below tasks according to the Principles of Logistics listed in Chapter 2.b., the JFC will have the logistic support necessary to enable and sustain freedom of action and operational adaptability.

If the JLEnt can:

- **INTEGRATE** or **SYNCHRONIZE** JLEnt processes and capabilities in order to **OPTIMIZE** them to best support the JFC
- Provide **UNITY OF EFFORT** across end-to-end logistic processes in support of the Joint Force Commander
- **DELIVER**, **POSITION** and **SUSTAIN**[10] joint forces from any point of origin to any point of employment
- **NETWORK** the Joint Logistics Enterprise in a real-time global information system with accurate data, total requirement and resource visibility, common operational views, and shared perspective with intuitive decision support tools

Then the result will be:

- **SUSTAINED JOINT LOGISTICS READINESS** delivered to the Joint Force Commander that enables operational adaptability and freedom of action
- **IMPROVED TRUST AND CONFIDENCE** that the JLEnt will provide required capabilities and resources at the right time and place

4.b.1 Integrate or Synchronize and Optimize the JLEnt

Full optimization of the Joint Logistics Enterprise requires a global view of all logistics requirements, all logistics capabilities and resources, and a process to mitigate global risk by allocating resources to fit national strategies instead of regional priorities.

The lack of integration or synchronization across the JLEnt end-to-end process framework inhibits JLEnt optimization. It is an obstacle to fully enabling the supported JFC. Integration or synchronization and subsequent optimization must include common metrics, business rules, and standardization. Our peacetime processes must easily transition to our wartime processes. Implementing these process improvements will result in better measures of performance that ensure the JLEnt operates seamlessly from end-to-end and provides the supported JFC with sustained logistic readiness. This will necessitate that all of the JLEnt JCAs interface seamlessly and use Enterprise-wide business rules, processes, financial standards/enablers, data standards, shared decision-making, and performance metrics.

There must be recognition of the need for and challenges associated with interoperability across the JLEnt. New methods to

[10] Retrograde, redeployment, and return of material are inherently part of deliver, position, and sustain and require continued studies to identify and optimize process roles, responsibilities and authorities.

improve interoperability with multinational and interagency partners must be found. Barriers that prevent the joint force from achieving benefits of cooperative actions with the national response framework, other nations, and industry must be removed. A way must be found to improve and widen integration with industry. To achieve this vision, there must be reviews of the policies, procedures, doctrine, and law that hinder opportunities. Logistic operations will require changes in culture, human capital development, and training in contingency and adaptive planning. The joint community must modernize its training and development paths to develop increasingly skilled planners, then provide them with tools that enable effective, agile, and adaptive planning.

Logistic operations must be better integrated into the DOD planning process. Currently, the analytical agenda for long-term force planning scenarios (Defense Planning Scenarios (DPS) and related Multi-Service Force Deployment (MSFD) products) do not consider logistics as an obstacle to operations. It is typical for logistics to be assumed away in the defense planning process. Future planning processes must design analytical agenda products and experiments that consider logistics capabilites and the impact of diminished logistics capabilities. They must also consider the role of the private sector in providing logistic capability.

The CCJO also recognizes an enduring need for America's military to project power rapidly and sustain operations globally. This capability remains critically dependent on sufficient lift and freedom of movement over the global commons. The implication for joint logistics, as a vital imperative in future joint force design, is to ensure capability efforts focus on the ability to project and sustain forces globally.

In certain situations, multinational treaty organizations may serve as important future logistic enablers; not simply as coalition partners, but as organizations with the ability to provide common doctrine, policy, processes, and standardization that makes future multinational logistic operations more efficient and effective.

People are fundamental to successful enterprise operation. This premise accentuates the importance of understanding JLEnt partner career patterns and providing joint training. Skill enhancing career assignments become increasingly critical as logisticians learn to think about and understand the complex and dynamic challenges of operating the JLEnt. Joint logisticians (civilians, officers, and enlisted) must understand how to plan, coordinate, execute, leverage, assess, and gain synergy from capabilities inherent in Service, interagency, multinational, nongovernmental and commercial organizations. Logisticians must be capable of speaking a shared language based on core common processes. They must be trained to be agile and knowledgeable of the common core

processes, joint information technology tools, and the Service unique tools regardless of component. Joint logistic education and development must be imbedded in joint, Service, agency, professional military, civilian career courses, and functional schools. The outcome will be a trained logistician capable of operating within a common joint frame of reference and lexicon.

Future joint logistic forces must be prepared to operate as the military element of an integrated national or multinational task force or at least in close coordination with other agencies of government.[11] They must be able to affordably integrate or synchronize logistic capabilities with new and varied partners at lower echelons than ever before. The need to understand and engage the private sector is critical when viewed from this lens as the vast majority of government agencies do not have an inherent logistic capability but rely on the private sector. This requires rethinking the role of oversight and collaboration to deliver logistic capability more effectively and efficiently, and in the integrated and synchronized manner intended in the JCL. A key component for successful support to joint forces is affordability. Joint logisticians must understand the cost drivers in their logistic solutions, and be constantly aware of the balance between cost efficiency and mission effectiveness.

4.b.2 Unity of Effort

Unity of effort is the coordination and cooperation toward common objectives, even if the participants are not necessarily part of the same Service, nation, or organization.

Unity of effort is the integration or synchronization of JLEnt partners for the purpose of optimizing their logistic processes and capabilities in support of common objectives. Gaining unity of effort requires identification of roles, responsibilities, and authorities for organizations planning, executing, and controlling tasks along the end-to-end framework, while building agreement around process outcomes. In the future, where DOD may not be the lead agency, coordination and cooperation across the JLEnt is essential to improved logistic support. The doctrine, processes, cultures and capabilities of each Service, agency, nation, or organization must be skillfully aligned to ensure success.

Unity of effort also requires integrated or synchronized processes to transcend the strategic, operational, and tactical levels. At the strategic level, legislators, agencies, and defense planners must establish policies, authorities, funding methods, and agreements to enable flexible

[11] CCJO, pg 6.

operational and tactical execution. The strategic level must also be capable of rapidly responding to changing needs at the operational and tactical levels. The operational level logistician must anticipate tactical requirements and be able to communicate them to the strategic level. The diverse set of capabilities offered by all partners must be integrated in a cohesive concept of support. At the tactical level, logistics must be modular, tailorable, and scalable to ensure JFC freedom of action. The three levels of operations are inseparable, and must have streamlined communications horizontally (among partners) and vertically (among the levels).

Joint logisticians must adapt command, control, and coordination processes to the mission and to the capabilities of partners. Unity of effort means JLEnt partners must integrate disparate processes and capabilities from a variety of sources into a cohesive force and communicate, collaborate, and execute operations in a decentralized environment.

4.b.3 Deliver, Position, and Sustain

The joint logistician of 2016-2028 must simultaneously meet the global needs of one or more JFCs operating across the four basic categories of military activity. The ability to deliver, position, and sustain joint forces is also challenged by a future with a globalized American industry, costly resources, and diminishing overseas support for military operations. To be successful, the JLEnt will be charged with ensuring that joint forces and logistic enablers are rapidly delivered to the point of need and/or employment; precisely positioned and re-positioned before, during, and after actions; and provided sustained logistic readiness.

Maintaining global access for the joint warfighter is critical to ensuring the JFC freedom of action and is a basic part of engagement as seen in the CCJO. Our force posture can deter an adversary or at least complicate his actions and diminish his probability of success.

The ability to deliver, position, and sustain is critical to providing the JFC, as a supported commander, the means to prevail. It is also essential to ensuring success of relief and reconstruction missions where the JFC may be the supporting commander.

Logistic forces must be able to fight and survive on the battlefield. The distributed battlefield of the future presents a special challenge for the logistician. Our ground and air distribution platforms must be more survivable and simpler to operate. Unmanned platforms used in logistics and logistics-related mission profiles must be fully investigated to determine value to future operations. Outposts and operating sites must have the ability to quickly establish and recover a defensive capability

with minimal manning that safely allows personnel to execute operations.

Future logistic capabilities must support fully integrated, expeditionary, modular, and networked joint forces that conduct operations that are both continuous and distributed across the four basic categories of military activity. Logistic capabilities must also be developed to support small dispersed regular and irregular units with little to no logistic footprint. Logistic forces must be interdependent, interoperable, and share common processes for core logistic functions.

Pre-positioned materiel and forces must be mobile, accessible, and responsive with an optimized process to expedite employment and determine content. They must be designed to support combatant commander theater security cooperation and HA/DR missions, not just contingency combat operations.

Logistic capabilities must be developed to support small dispersed regular and irregular units with little to no local logistics footprint.

Future logisticians and warfighters share the responsibility for reducing the logistic footprint. We need new ways to decrease the requirements for our three biggest bulk commodities; fuel, water, and ammunition. We must research innovative technologies to eliminate our dependence on fossil fuels. We must take advantage of the many methods to locally produce and recycle water for individual and bulk consumption. New technology may offer opportunities to reduce bulk ammunition distribution requirements and optimize support to the Joint Force without sacrificing capability.

DOD is the world's single largest consumer of energy, using more petroleum-based products per day than over 100 countries. Historically, experts and policymakers have cast energy efficiency as an environmental issue, but it must now be recognized as a national security priority. Our forces' immense energy dependency not only carries huge budgetary implications, but also presents severe logistical challenges that increase the burden on operations in the field and cost troops' lives. We must shift expensive and unsustainable energy practices to more strategic and cost-effective energy policies. Development of a true energy strategy that guides planning for the years ahead should seek to save budget money and reduce our operational footprint.

An essential part of sustaining our national response capacity is the ability to retrograde, redeploy, and return materiel. It is vitally important that studies and experiments continue to define the many facets of this problem then devise and implement process solutions. Our

planning process and doctrine must embrace retrograde and redeployment as a capability as vital as force projection.

4.b.4 Network the Joint Logistics Enterprise

To exist in the future computing environment, the JLEnt must adapt to, and leverage, radical changes. Global computing will radically alter the world and the JLEnt must adapt to, and leverage, these advances.

The JLEnt will interface with the commercial domain (.com), the Federal Information Sharing Environment (ISE),[12] and the Global Information Grid (GIG) Enterprise Information Environment (EIE)[13] to include Multinational Information Sharing (MNIS).[14] DOD will provide assistance to JLEnt partners outside DOD so they have the ability to interface with information networks compliant with the DOD Information Enterprise Transition Plan (DIETP)[15] without compromising system security.

JLEnt information and command and control systems must have the ability to capture, store, and convert data into actionable information. It must dynamically support redirection of material in financial processes and applications. The JLEnt network environment must be open, sharable, and filterable to fit the needs of the user.

It is critical that we continue evolving concepts, capabilities, and procedures for operating in a degraded or defeated C2/network environment.

The JLEnt must adapt to a network environment that increasingly connects every aspect of our digital lives. The proliferation of semantic markup and web services will make the web smarter—enabling intelligent data searches based on natural language so the joint logistician can find information without first knowing where to look for it or even knowing that the knowledge is required. Best of breed applications and technology must

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[12] The President established the Office of the Program Manager for the ISE (PM-ISE) currently under the Office of the Director of National Intelligence (ODNI), to coordinate the development of a common National Response Framework which outlines how information is to be shared in response to all incidents.

[13] The GIG 2.0 transforms the GIG to a single information infrastructure, standardized across all DOD components, with unity of command and singular Governance processes. The GIG 2.0 focuses on providing access to resources and services in accordance with the mission of the user, or organizational unit. The GIG 2.0 supports joint command and control (C2) and the ability to operate in a Joint manner in the cyber-domain; it aligns the DOD requirements Information Enterprise with our joint warfighting strategy.

[14] MNIS provides community of interest (COI) services and applications for the future GIG EIE to facilitate collaboration among DOD components and foreign nations in support of planning and executing military operations, as well as HA/DR.

[15] The DOD CIO publishes the DIETP on an as-needed basis and each release of the DIETP provides a snapshot in time during which the Department measures transformation progress in achieving the priorities of the DIEA. The DIETP effort fosters collaboration among Defense Information Enterprise priority leads and Components.

be used to develop intuitive joint decision support tools and provide visibility over logistic requirements, resources, processes, and capabilities. Consequently, the JLEnt must closely monitor advances in defense, government, commerce and academic arena technology, and experimentation in order to leverage advancing technologies and rapidly adopt new capabilities.

In order to create an information management or exchange system that works across the JLEnt we must establish and enforce protocols that enable routine and safe sharing of logistic information. In order to maximize accessibility, it must facilitate data exchange with subscription services to a logistic gateway capable of serving multiple data standards. It must be tailored for use by each combatant command and agency. We must think broadly in terms of decision rights, information flows, and motivators as drivers of the structure to achieve an effective data strategy. DOD needs to find a solution to cross-domain (classified-to-unclassified) information sharing to fully integrate interagency, nongovernmental, multinational, and commercial partners.

Key to successfully optimizing JLEnt processes and capabilities will be the development of an adaptive logistics network (ALN). As shown in Figure 7, this is not a command and control system, but a collaboration and information sharing capability available to JLEnt partners, nations, NGOs, and commercial entities. A notable difference between the traditional paradigm of military-centric logistic support and support managed under an ALN concept is that ALN will emphasize and enable close collaboration, cooperation, and mutual support across the JLEnt.

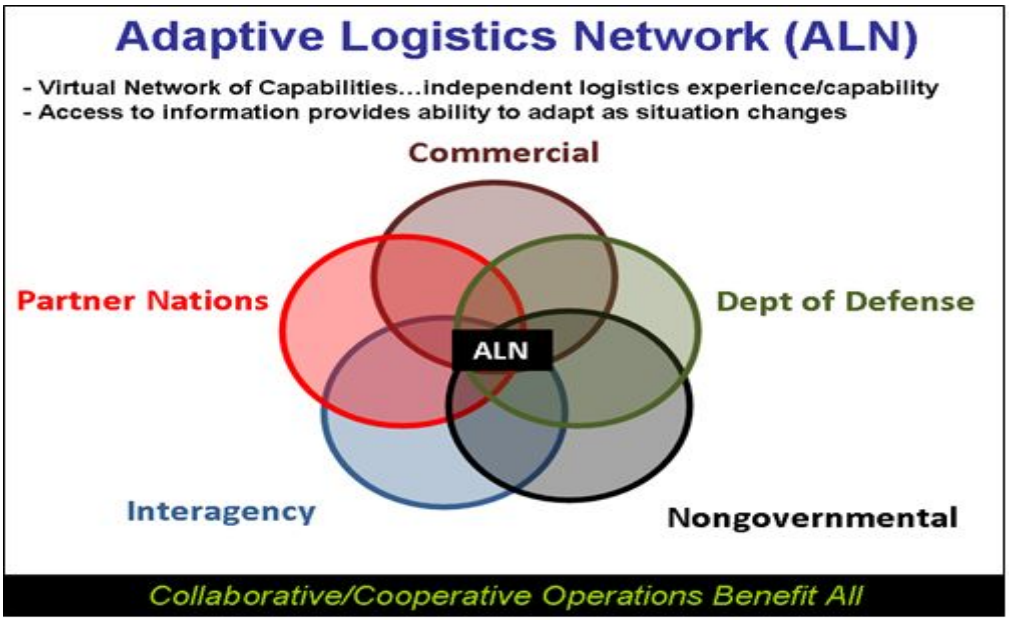

Figure 7 - Adaptive Logistics Network

Its most unique characteristic will be its ability to allow JLEnt partners to more easily access resources provided by local economies. It will reflect a shift towards a more collaborative means of supporting cooperative security or a national response framework, while minimizing military involvement. The ALN concept may portray a collection of communications processes, data and information sources, management tools, and authorities to enable the effective and efficient sharing of information to support agile and adaptive logistic operations. It should also be a central component of logistic planning and support management. It must be designed to reduce the cost of support operations by providing access to logistic information and resources. ALN must support a collaborative approach to logistics for future joint operations.

The JLEnt has to be designed to produce capability and has to have full endorsement of all participants. ALN needs to be a web based unclassified tool, able to link industry, governments, agencies, and respective services or militaries. Industry is a huge resource. Many companies are already operating in the global environment. The JLEnt needs to be seen as understanding the full range of capabilities industry offers and how best to leverage their capabilities. The JLEnt solution has to be wedded to the ability to fuse or link information to build international situational awareness.

While the JLEnt may not be a directive command and control environment, it must nevertheless demand technological solutions with high reliability and resilience. Increasing threats from cyber and space domains can imperil the JLEnt. Cyber resilience, counterattack, and forensics will be essential capabilities to develop. We must develop a self-forming, self-healing network, able to dynamically reconfigure itself without operator intervention and sustain itself under attack.

Logistic operations in the future will have to be grounded on a common understanding of mission, and intent that will be managed through a common operating picture and collective agreement on how to best synchronize and integrate the limited logistic resources.

The JLEnt network is comprised of more than just technology; it is also people and processes. The joint logistician must possess the ability to operate the JLEnt effectively even in the absence of a technology-dependent decision support environment. Therefore, it is equally vital to invest in the professional development of joint logisticians through education, training, certification, and experience.

5. Outcomes

A network enabled JLEnt that is working to optimize processes and capabilities in order to best deliver, position, and sustain the Joint Force Commander will provide the following outcomes:

5.a. Sustained Joint Logistic Readiness

Sustained joint logistic readiness for the Joint Force Commander must be undeterred by operational transitions, distance, irregular warfare, distributed forces, cyber attack, limited global access or any challenge presented in the projected joint operating environment.

Sustained joint logistic readiness achieves all the *Principles of Logistics* and *Logistics Imperatives* listed in Chapter 2b, and is characterized by the following attributes:

- Predictive and predictable
- Delivers right-sized logistic capability where and when needed
- Adjusts to operational transitions and tempo
- Uninterrupted, continuous, and consistent
- JLEnt processes and capabilities optimized to JFC needs.

Sustained Joint Logistic Readiness provides the JFC freedom of action and a level of operational adaptability not available to the current force.

5.b. Improved Trust and Confidence

Operations move at the speed of trust!

The culmination of Joint Logistics Enterprise support to the joint warfighter will be improved trust and confidence that the Joint Logistics Enterprise will provide required resources at the right time and place. That confidence will give JFCs a measure of assurance that will provide operational adaptability and freedom of action. Integrating or synchronizing JLEnt processes and capabilities in order to optimize them will mitigate variations in performance to increase reliability. Increased JLEnt reliability and responsiveness in delivering, positioning, and sustaining to the point of employment enhances the supported JFC's ability to plan, execute, and assess with confidence. Reliability instills trust and confidence in the customer and provides certainty that the Enterprise will meet warfighter demands. If the JFC has accurate knowledge and confidence that the JLEnt will deliver, position, and sustain, then the JFC can freely adjust to changing conditions. Increasing the degree of

certainty when logistic requirements will be satisfied decreases operational risk.

To gain and maintain trust with our JLEnt partners we must ensure that assigned missions will be consistent with their intrinsic capabilities and limitations.

6. JCL Operational Guideline

The national security challenges depicted in the JOE require a new way to plan, execute, and assess operations. The call out box in this section provides an operational guideline for how the JLEnt should address those challenges. JLEnt partners and subordinate organizations can apply them to specific situations at tactical as well as operational levels.

The CCJO central thesis comprises three interrelated ideas that together broadly describe how the joint force will operate:

• Address each situation on its own terms, in its unique political and strategic context, rather than attempting to fit the situation to a preferred template.

• Conduct and integrate a combination of combat, security, engagement, and relief and reconstruction activities according to a concept of operations designed to meet the unique circumstances of that situation.

• Conduct operations subject to a continuous assessment of results in relation to expectations, modifying both the understanding of the situation and subsequent operations accordingly.

The JCL adapts the CCJO central thesis to an operational guideline for the JLEnt in order to keep logistic forces synchronized with the JFC. Both the CCJO central thesis and the JCL operational guideline describe a process to manage the complexity, uncertainty, and change that will define the future operating environment. They apply to all logistic operations even though the ways and means of accomplishing operations may vary widely according to the situation.

1. Address each logistics challenge on its own terms, in its unique context, rather than attempting to fit the situation to a preferred template.

2. Provide and integrate support into a combination of combat, security, engagement, and relief and reconstruction activities with a logistics plan designed to meet the unique circumstances of that situation.

3. Conduct logistic operations subject to continuous assessment in relation to expectations; modify both the understanding of the situation and subsequent operations accordingly.

When designing joint operations, the JLEnt must understand each operational situation on its own terms and apply its operational plan to the specific conditions of each situation. That concept of operation cannot be based on a rigid template, but instead must reflect the specific conditions of the situation. This has significant implications for doctrine, training, and education.

In framing a concept of operations conforming to this situational understanding, the Joint Force Commander and JLEnt must be prepared to continually assess and evolve their plan as the operation or campaign unfolds. Plans must incorporate explicit means of continuously assessing the results of operations in relation to expectations. It is important to note that operations will not occur in regular or distinct phases. Instead, it is likely that military activities will occur and transition simultaneously across the operational area.

In the future, joint operations become an adaptation based on learning about the situation through action. Executing and supporting operations become continuous activities informed by feedback. See Figure 8. Regardless of the mission, the more quickly and appropriately the JLEnt can adapt itself to its situation, the more successful it will be.

Figure 8 - Operational Guidance

7. Common Joint Logistics Operating Precepts

These common joint logistics operating precepts build on ideas presented in the CCJO and JCL to help focus joint logistics capabilities

and operations to better support the future joint force. Regardless of the combination of combat, security, engagement, and relief and reconstruction activities, these broad precepts will underlie all successful future joint operations. These precepts should be used with the JCL Operational Guidelines. None is fundamentally new, although the emphasis each receives and how it is implemented in the future may change. Subordinate Joint Concepts will apply these precepts in greater detail to more specific situations.

Achieve and maintain JLEnt unity of effort. Delivering, positioning, and sustaining the joint force is more important and difficult than ever before given the requirement to operate in multiple domains simultaneously and in conjunction with other national agencies, international partners and nongovernmental organizations. The complex challenges of the future will require joint logistic forces to achieve an unprecedented level of unity with other governmental and nongovernmental actors. The JLEnt will integrate with partners whom they have never integrated before and at lower echelons than ever before. In many cases the JLEnt will need to integrate with partners who are technologically less advanced. These non-standard relationships will require the joint logistician to be extremely flexible.

These precepts will underlie future joint operations:

- Achieve and maintain JLEnt unity of effort.
- Plan for and manage operational transitions over time and space.
- Focus on the achievement of operational objectives that produce the broadest and most enduring results.
- Combine joint capabilities to maximize. complementary rather than merely additive effects.
- Avoid combining capabilities where doing so adds complexity without compensating advantage.
- Drive synergy to the lowest echelon at which it can be managed effectively.
- Operate directly and indirectly through partners to the extent that each situation permits.
- Ensure operational freedom of action.
- Maintain operational and organizational flexibility.
- Inform domestic audiences and influence the perceptions and attitudes of key foreign audiences.

Two basic situations apply. Where DOD is the lead agency, the JLEnt will have to collaborate with its interagency, nongovernmental and multinational partners to integrate or synchronize partner capabilities and processes in order to optimize support to the JFC. Where DOD is not the supported agency, some other government agency or nation likely will integrate the national effort into theirs. The JLEnt may have to adapt itself to another agency's or nation's procedures. In this case, DOD logistics elements, because of their resources and well established planning methods, will continue to provide significant support. Both basic situations will have implications for communications, organization, procedures, and training.

Plan for and manage operational transitions over time and space. This precept calls for the JLEnt to be able to continuously adapt to changing circumstances. The ability to transition from one military activity to another is essential to operational success. The future joint logistic force will have to recognize and transition quickly and smoothly in response to abrupt changes. The JLEnt must recognize that transitions may not occur uniformly across an operational area. For example, combat operations and relief and reconstruction activities can occur simultaneously in the same battle space. Each military activity requires a dramatically different logistical support solution. The JLEnt's ability to quickly support transitions or concurrent military activity can allow the JFC to seize the initiative in a situation and garner favorable results.

These transitions can involve transfer of authority from one organization to another, either within the joint force or between the joint force and another U.S. or international agency. They may involve organizational rotations, but almost always will require some reorienting of existing logistic forces.

Transitions must be planned. Precise timing of the shifts cannot be predicted and surprises inevitably will occur. This will require efforts to anticipate potential situational transformations. Key to this effort will be developing mechanisms for quickly reorienting logistic forces despite the natural inertia of ongoing operations. Retaining key commanders and commands in place during transitions to avoid abrupt breaks in operational continuity will be especially vital.

Focus on the achievement of operational objectives that produce the broadest and most enduring results. Just as the JFC focuses its efforts on a center of gravity, the JLEnt must focus on those logistical tasks most essential to achieving operational objectives. In the case of relief and reconstruction, it would mean focusing on those tasks that would most efficiently create or restore some basic level of functionality in local institutions and infrastructure. The future operating environment will not be conducive to simply overwhelming an operation with material superiority. The economic environment is expected to be austere. JLEnt partners must understand cost drivers and achieve operational objectives with the most effective and cost-wise solutions. The JLEnt must anticipate the effects of its logistic action.

Combine joint capabilities to maximize complementary rather than merely additive effects. JLEnt partners have a diverse set of capabilities. The essence of joint operations is to match each partner to its proper situation to contribute most effectively to success and combine capabilities to gain synergy and compensate for vulnerabilities.

Achieving synergy requires an understanding of the particular capabilities and limitations that every member of the JLEnt brings to the operation. It requires the ability to visualize operations holistically in order to identify preconditions that enable each JLEnt partner to optimize its impact and determine how they might contribute. It requires the ability and willingness to compare alternative JLEnt partner capabilities from the perspective of combined effectiveness, unhampered by preconceived notions.

Achieving joint logistic effect requires mutual trust, across the Enterprise, that assigned missions will be consistent with partner intrinsic capabilities and limitations; and that JLEnt partner obligations once accepted will be executed as promised.

Avoid combining capabilities where doing so adds complexity without compensating advantage. Joint synergy is not a natural outcome of creating the JLEnt. It requires explicit effort and is achieved only at a cost in increased complexity and greater requirements for training, technical and technological interoperability, liaison, and planning. When a task is suited to the capabilities of one or two JLEnt partners, involving other partners merely increases complexity without adding benefit. Joint synergy should be a means to greater operational effectiveness and not an end in itself. The joint logistician must recognize the limits to joint synergy in any given situation and optimize joint effectiveness within those limits.

Drive synergy to the lowest echelon at which it can be managed effectively. The complex challenges of the future operating environment will demand a more distributed logistic capability, which in turn will require joint synergy at lower echelons of command. Joint integration must be achieved routinely at lower echelons—down to every contributing process. Technological advances make it increasingly possible to integrate or synchronize processes and capabilities at lower echelons without incurring the risks and inefficiencies associated with allocating assets and capabilities. Continued movement towards lower echelon joint synergy will require JLEnt education and training and continued development of flexible and adaptable joint planning and coordination mechanisms. Joint synergy at the lowest levels becomes more effective through sharing common goals and encouraging subordinate initiative.

Operate directly and indirectly through partners to the extent that each situation permits. The essence of the JLEnt is to operate directly and indirectly through and with partners. The employment of local logistic partners is also an essential part of building local national capacity. The JLEnt can achieve its sustainment objectives through enabling and supporting various partners on its behalf. The JLEnt will

be challenged to determine how to support elements outside the confines of a U.S. military force and its organic support structure.

Ensure operational freedom of action. The JOE points out a number of potential adversaries that will have the capability to contest U.S. supremacy in the air, maritime, land, space, and cyberspace domains. Future joint forces may increasingly find themselves fighting for local and temporary superiority as a prerequisite to undertaking decisive operations. The challenge this presents to the JLEnt is how to deliver, position, and sustain the force during these engagements to establish domain supremacy. The JLEnt must enable the JFC freedom of action during periods of cyber interdiction and/or during a break in lines of communication. This applies to both the area of operations and in the global commons. Joint logisticians are fundamental to enabling JFC freedom of action and must gain synergy from across the Enterprise to establish and maintain JFC freedom of action, to operate successfully, and survive where we don't have domain supremacy.

Maintain operational and organizational flexibility. The JOE envisions a wide variety of potential challenges mandating an equally wide variety of potential organizational solutions. The JLEnt will have a modular structure that can routinely and smoothly aggregate and disaggregate into temporary joint formations in response to the nature and scale of operations. This requires logisticians to train as they will fight and create more flexible modular organizations with supporting doctrine, procedures, and technology.

Inform domestic audiences and influence the perceptions and attitudes of key foreign audiences as an explicit and continuous operational requirement.[16] In the globalized, information-intensive environment described in the JOE, gaining the support of key audiences for U.S. policies and actions will be critical to success in practically any situation. Because every action sends a signal, the JLEnt will plan and execute every operation not only for the logistical effect, but also for its effect on the perceptions and attitudes of key audiences. Logisticians play a major role in influencing perceptions because of their interaction with host nation support and local logistics providers.

[16] The U.S. Information and Educational Exchange Act of 1948 (Public Law 402), popularly referred to as the Smith-Mundt Act, prohibits domestic distribution of information intended for foreign audiences.

8. Implications of Adopting the Joint Logistic Framework

In keeping with the CCJO, the JCL anticipates a joint force with greater adaptability and versatility able to cope with the uncertainty, complexity, and persistent conflict that will characterize the future operating environment. The JCL has significant implications for the way DOD organizes, trains, and equips its logistic forces. These include:

Build a balanced logistics force. While combat will always remain a foremost military activity, future joint logistic forces must improve their capability and capacity to accomplish a wide variety of potential missions. Joint logistic organizations can become the "supported" operation, with their units acting as the "maneuver" forces to conduct engagement or relief and reconstruction missions. These activities are every bit as important as combat in successfully meeting the security challenges of the future. The expected frequency and duration of these activities will increase and has a potentially dramatic impact on the required future logistic force structure.

In order to ensure balanced forces, we must have the proper mix of missions given to Active, Reserve, National Guard, civilian expeditionary, and contractor workforces. Joint Force Commanders must have the means to rapidly access each of the aforementioned forces. Another balancing consideration is redundancy. While an amount of redundancy adds depth and flexibility to the JFCs options, it should not be confused with unnecessary duplication.

Institutional implications of adopting this paper include:

- Build a balanced logistics force.
- Improve knowledge of and capabilities for supporting irregular warfare and conducting operations in a nuclear environment.
- Improve knowledge of and capabilities for supporting security, engagement, and relief and reconstruction activities.
- Improve the ability to use logistics technology to full advantage
- Create logistic forces capable of independently providing support at increasingly lower echelons.
- Maintain the capability to project and sustain military power over global distances and within theaters.
- Improve the ability to support in urban environments.
- Increase language and cultural capabilities and capacities.
- Institute mechanisms to deliver, position, and sustain general-purpose forces to quickly change missions.
- Improve the ability to integrate with other U.S. agencies and other partners.
- Develop innovative and adaptive logisticians down to the lowest levels who are masters of joint logistics.
- Develop senior leaders who are experts not only in the operational employment of joint logistic forces, but also in how joint logistics affects the development and execution of national strategy.
- Improve Service and institutional adaptability to deal with rapid change.
- Improve capability to plan and manage operational transitions over time and space.

A balanced logistic force must be:

- *Versatile* – possess a balanced mix of multipurpose capabilities and sufficient logistics capacity to provide support across all four categories of military activity.

- *Expeditionary* – able to operate, immediately upon arrival, in austere and unfamiliar physical and cultural environments.

- *Agile* – possess the physical ability and mindset to rapidly shift from one military activity to another with minimal delay or degradation of services.

- *Sustainable* – physically available, in the right place at the right time, and properly equipped with the right tools to support the JFC.

- *Interoperable* – able to build unity of effort with other government agencies, indigenous forces and international partners.

The importance of balance applies to force posture as well as to force composition. The geographical shifting of political and economic interactions critical to U.S. interests implies the need to shift U.S. global military posture. The JLEnt relies heavily on globally postured logistic capabilities and enroute infrastructure to deliver, position, and sustain the JFC.

Balancing our Service logistic forces drives us to address the question of self-sufficiency versus interdependence. While the Services necessarily depend on one another, both intrinsically and as a byproduct of limited resources, the inherent friction and uncertainty of the operating environment also requires that military units maintain some level of self-sufficiency to survive and operate during periods when cross-domain support is unavailable.

Optimizing the balance of the logistic forces has significant DOTMLPF implications that will require thorough analysis and experimentation.

Improve knowledge of and capabilities for supporting irregular warfare and conducting operations in a nuclear environment. The JOE forecasts that joint forces will not have the luxury of contemplating future warfare free of nuclear conflict. We must have a level of logistic expertise that allows us to survive and sustain in a nuclear environment. Similarly, we must also be prepared to deal with the growing chemical and biological capabilities in the hands of elements prepared to employ them.

Improve knowledge of and capabilities for supporting security, engagement, and relief and reconstruction activities. Logistics forces should take advantage of considerable historical experiences with these activities to seek improvement in doctrine, tactics, techniques and

procedures for conducting them. The JLEnt will have to address these noncombat, but equally vital, activities with force structure, doctrine, processes and capabilities.

Improve the ability to use logistics technology to full advantage. Logistics information systems yield an unprecedented shared awareness of joint force logistic processes, capabilities, requirements, and resources. Decision support tools, empowered with this shared awareness, enable well-prepared logistic professionals to effectively plan, execute, control, and assess joint logistics in a dynamic environment.

Create logistic forces capable of independently providing support at increasingly lower echelons. Logistic forces will possess attributes like agility, speed of command and control, cultural sensitivity, and the ability to operate independently at lower echelons while possessing access to all the resources of the JLEnt.

Maintain the capability to project and sustain military power over global distances and within theaters. The ability to operate indefinitely at the end of long lines of operation has been a historical requirement for U.S. forces. Joint forces will have a mix of air and sea strategic and operational lift capable of staging and delivering forces and materiel to their destinations. These destinations will include a combination of traditional airfield and port facilities, but will not be limited to them. They will have the ability to open airfields and ports, and construct the expeditionary infrastructure needed to support operations from land or sea in an austere theater. The JLEnt will have access to a robust intra-theater distribution capability that can deliver, position, and sustain the force to the point of need or employment.

Improve ability to support in urban environments. Logistic forces will have an improved ability to face the challenges of urban combat. Studies and experimentation will provide capabilities to mitigate the heavy toll urban combat places on ground troops and equipment. The capabilities and precepts in the JCL will help the JLEnt confront urban environments that are complicated by dense populations under duress and that interact in a myriad of social, economic, religious and other patterns in a complex infrastructure.

Increase language and cultural capabilities and capacities. Increased emphasis on security, engagement, and relief and reconstruction activities implies more extensive contact and interaction with indigenous agencies and populations than does combat. Joint logistic forces will have a greater language and cultural proficiency. This higher level of cultural attunement will facilitate acquiring resources from non-traditional coalition, multinational, local, nongovernment, and commercial sources. Future logistic forces will have a capability to

rapidly assemble liaison teams with the requisite expertise to effect multinational cooperation. Educational institutions will conduct targeted language and cultural familiarization courses for logistic leaders.

Institute mechanisms to deliver, position, and sustain general-purpose forces to quickly change missions. Logistic forces, developed as proposed in the JCL, will be able to support joint and Service general-purpose forces to transition quickly among fundamentally different types of operational activities. For example, units that have been engaged in combat may need to transition to a security mission. The JLEnt will have standing mechanisms that facilitate and accelerate these transitions to dramatically improve the adaptability of joint forces. They will have pre-configured logistic capability packages designed to rapidly assemble and integrate into joint forces to significantly improve transition responsiveness as forces move from one military activity to another.

Global pre-positioning of unit equipment sets and materiel will be mobile, accessible, and responsive with an optimized process to expedite employment and determine content. They will be designed to support combatant commander theater security cooperation and HA/DR missions, not just combat operations.

Improve the ability to integrate with other U.S. agencies and other partners. The JLEnt will function in integrated national and multinational operations. They will execute operations that require close cooperation, in a variety of standard and nonstandard relationships, among partners with dissimilar organizational processes and cultures. The JLEnt will develop capabilities, processes, business rules, financial interfaces, and systems that will enable the effective execution of logistics from a joint perspective. Efficiencies and economies will be gained through the adoption of common flexible processes and procedures. The JLEnt will have organizational procedures and technologies that improve collaboration within ad hoc groups of diverse, often geographically dispersed, members. The JLEnt will frequently train with partners in "whole of government" exercises to help improve the ability to integrate partners and to develop and practice common procedures. They will train as they intend to support.

Develop innovative and adaptive logisticians down to the lowest levels who are masters of joint logistics. The quality of our joint logistic leaders will be the enduring advantage of joint forces. The broadened range of situations that joint forces will confront will put a premium on the need for all levels of joint logisticians that are able to respond quickly, flexibly, and jointly, to the unexpected. The U.S. training and education system will produce those joint logisticians.

Courses will be developed to help key interagency logistics partners understand the roles, responsibilities, and authorities of the JLEnt. Further we will train logistics personnel on how logistic jointness supports the National Strategic Plan and its connection to the National Response Framework (NRF). We will employ our education system to benefit all JLEnt partners. The implication is that Service and Joint schools as well as contracted training and education programs, and American universities and colleges will have adjusted, revised, and coordinated their curriculums to train and educate joint logisticians that understand and can operate in the joint environment.

Develop senior leaders who are experts not only in the operational employment of joint logistic forces, but also in how joint logistics affects the development and execution of national strategy. In a future requiring integrated national effort, senior joint logisticians will focus on more than achieving assigned operational objectives; their joint logistic experience will contribute to the development of strategic objectives as well. They will be knowledgeable about the JLEnt role in the use of the military and all other instruments of national power. The senior joint logistician will know how the instruments of power interact with military or logistic forces. Development of this broader strategic understanding will begin early in the military education process and continue throughout every military officer's professional development. Incorporation of issues requiring strategic dialogue with civilian decision–makers will be routine in every major joint operation.

Improve Service and institutional adaptability to deal with rapid change. Logisticians must be agile in effectively addressing new DOTMLPF requirements and lessons learned to support joint forces. This broad implication will require a more responsive logistic governance structure. Specifically, it requires one with an Enterprise level perspective, appropriate directive authority, and commensurate resource allocation authority.

Improve capability to plan and manage operational transitions over time and space. The key to planning and managing operational transitions resides in providing commanders at all echelons with a common operational picture (COP) over the logistic environment. A joint logistic COP, visible to all commanders at all echelons, will expedite the decision making process and enhance the ability to quickly adapt. At the National/Strategic level, a real time COP capability over the logistic Enterprise will enhance oversight and facilitate planning and preparation for transitions. JLEnt integration into JFC planning processes will facilitate decisions at the operational and tactical level to prepare logistic capabilities for operational transition.

9. Risks of Adopting the Joint Logistic Framework

Adopting the framework proposed in this paper carries potential risks.

- **Governance ambiguity**. Establishing appropriate Enterprise-wide horizontal and vertical process integration across Services, agencies, combatant commands, interagencies, multinational entities, and governmental and nongovernmental organizations may blur command authorities and responsibilities for outcomes.
- **Cyber Risk**. This paper proposes a continued great reliance on networked automated information systems. The increasing dependence of DOD on information technologies forebodes catastrophic consequences given disruption or destruction of those technologies.
- **Globalization Induced Shortfalls**. The JLEnt in this paper encourages a global Enterprise solution to sourcing JFC requirements. Continued globalization of the defense industrial capacity may cause logistics shortfalls as products and services migrate to low cost production centers decreasing supply and increasing competition. Continued globalization of defense industrial capacity should be tested for vulnerabilities to political and geographic disruption.
- **Potential Lack of Flexibility**. A logistic Enterprise that emphasizes precision sustainment, trades information for inventory, and focuses too much on efficiency in planning and executing logistics could lead to developing an inflexible force. This poses a risk that future logistic capabilities could lack the depth to support protracted conflicts and the agility to support distributed operations.
- **Protection and Survivability Risks**. The JLEnt that includes interagency, commercial, and nongovernmental partners poses greater susceptibility to attack because of its disparate to non-existent self-defense capabilities.
- **Disparate Multinational and Interagency Capability**. The approach presented here emphasizes unified action with multinational and interagency partners. However, integrating multinational and interagency partners into logistic support efforts presents challenges. Few multinational partners can logistically support their contingents in expeditionary operations. There is risk that the JFC will create unrealistic demands on the logistic capabilities of some JLEnt partners.
- **Potential Impact of Agility on Unity of Effort.** The JLEnt calls for logisticians and logistic forces to react and respond to emerging capabilities and operate at the lower echelons with agility. This poses a risk to unity of effort and JLEnt optimization. Excessively agile

forces will respond rapidly at the potential expense of enterprise coordination and may lead to unnecessary and redundant services and capability.

None of the foregoing risks can be wholly eliminated—they are an inescapable byproduct of the future operating environment. They can be mitigated by application of balanced judgment to the institutional implications discussed above, and especially by education and training that prepare leaders and those they lead for the challenges these risks present.

10. Conclusion

In an environment characterized by increasing uncertainty, rapid change, complexity, and persistent conflict, logistic capabilities must be prepared to not only exceed today's performance standards, but to do so in an era of reduced manning, measured materiel resources, and constrained funding. Future logistics capabilities must deliver, position, and sustain fully integrated, expeditionary, modular, and networked joint forces that conduct operations that are continuous and distributed across the four basic categories of military activity. The uncertain future will require technical improvements or adaptations to logistic capabilities that we cannot foresee. Therefore, we must be vigilant in monitoring the future environment to anticipate and rapidly address capability shortfalls.

The JLEnt is the means to achieving improvement. To enable seamless JLEnt interaction it must be networked in a real-time global information system with available, reliable, and accurate data, total requirement and resource visibility, and common operational views that provide a shared perspective. The way to achieve the desired vision of improvement is to integrate or synchronize JLEnt processes and capabilities in order to optimize support to the JFC. This requires further study to map logistics processes from end-to-end, identify integration/synchronization points and apply metrics that lead to a common, optimized outcome. This paper proposal suggests that a networked JLEnt with optimized processes and capabilities will have the unity of effort to effectively and efficiently deliver, position, and sustain joint forces from any point of origin to any point of employment.

Appendix A

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Appendix B

Key Indicators of the Military Problem

Listed below are well documented, generally recognized issues that must be successfully addressed in order to provide logistic support to a future joint force in applying the CCJO solution and in generating operational effects across the basic categories of military activity. Issues were identified by the Government Accountability Office, Office of the Secretary of Defense, the Services, the Joint Staff, USTRANSCOM, USJFCOM, and DLA. It is the intent that ideas in the JCL will drive resolution of these indicators through JLEnt optimization of processes, improvements in logistic technology, an improved JLEnt network, and increased efficient platform capacity. Each of these gaps should be addressed in subsequent production of Joint Concepts to further define the requisite tasks, conditions, and standards necessary for repair.

Insufficiently integrated logistic processes, organizations, and planning capabilities.

- Lack of clear definition of the extent of integration required
- Lack of common definition of "end-to-end"
- Lack of Department-wide strategic and operational process descriptions and business rules to guide logistic operations
- Insufficient performance measurement capabilities and standards
- Lack of integrated logistic planning across DOD components, other government agencies, other nations, and nongovernmental organizations
- Insufficient preparedness to operate with other government agencies, and multinational partners.
- Insufficient ability to generate and manage interagency, multinational, and coalition logistic requirements.
- Poorly integrated and inaccurate supply and demand planning
- Limited capability to determine and integrate end-to-end movement requirements for forces and sustainment
- Insufficient guidance and ability to plan and support common user logistic requirements in an expeditionary environment for special operations, interagency, and multinational forces

Insufficient rules, tools, and authorities to exercise joint logistics

- Limited ability to manage integrated and aggregated joint logistic requirements

- Less than optimal joint logistic control structure, organization, and associated authorities
- Lack of modeling and simulation tools for logistic planning and execution

Shortage of logisticians trained in joint processes and operation

- Lack of organized approach to education and training to develop logistic planning competency
- Lack of trained logisticians to perform movement control and container management functions
- Lack of logisticians trained in joint logistic operations and designated for joint logistic operations.

Insufficient joint materiel management

- Insufficient commonality and standardization in materiel acquisition
- Lack of commonality and standardization of Service assets
- Redundant stock levels between wholesale and retail levels and between the Services
- Inability to source critical or urgent requirements from other units (possibly from other Services) in proximity to point of employment, where practicable
- Lack of storage capability during contingency operations (both expeditionary and rotational environments) impact supply chain operations and container management operations.

Deficiencies in policies and processes

- Redundant and inconsistent logistic policies
- Ad hoc retrograde, reconstitution, and return processes
- Widely divergent maintenance processes and capabilities below depot
- Widely divergent business rules supporting logistic functions
- COCOMs and Services lack appropriate guidance, tools, and processes necessary to execute Contract Support Integration and Contractor Management, to assess risk, and to dynamically plan assigned missions.
- Deployable contracting and contractor management work forces are undersized, and guidance, tools, and processes are immature.

Limitations in distribution capabilities and capacity

- Limitations in inter-theater lift, including ability to operate through austere ports
- Limitations in intra-theater lift, including vertical lift
- Limitations in land transportation

- Limitations in ability to manage and protect lines of communication (LOCs)
- Lack of joint modular distribution system consisting of containers and platforms to allow for the rapid distribution of supplies from port to user

Insufficient expeditionary materiel management capabilities

- Lack of theater, regional or joint operating area approach to supply and inventory management
- Lack of a flexible and adaptive warehousing and distribution network
- Lack of a DOD comprehensive approach to War Reserve Materiel and pre-positioned stocks
- Insufficient accountability, visibility, and transparency in container management

Limitations in capabilities to manage and execute processes

- Insufficient capacity to receive and support combat forces during early stages of a conflict
- Lack of an integrated multi-modal common discrete requirement capability
- Limited ability to control distribution flows
- Ineffective process for prioritizing cargo for delivery, precluding effective use of scarce theater transportation assets
- Limited ability to produce a lift-capacity assessment (including assets, LOCs and terminals) coupled with limited ability to discern and act on capacity-based movement demands

Insufficiently interoperable or integrated C2, logistics management, and financial systems

- Lack of network enterprise services
- Logistic systems used to order, track, and account for supplies not well integrated and cannot provide the essential information to effectively manage theater distribution
- Inability to provide net-centric C2 that is interoperable with joint and select multinational systems, scalable to mission requirements and easily deployable
- Multiple and unwieldy financial systems, structures

Insufficient visibility over requirements, assets, and processes

- Lack of a common operational picture (COP)
- (Army) Sustainment units lack capability to monitor real time, networked situational awareness which is supported by a COP at the platform level. This prevents the logistic operator from rapidly

reacting to deviations to the plan and limits the ability to reduce the logistic footprint

- (Navy) Limited cross-DOD logistic visibility and in-transit visibility of all logistic commodities (read Navy need for Logistic COP to include capability mapping)
- Lack of logistic visibility into requirements, assets (in process, in storage, in transit), and processes
- Lack of policy, process, and procedures for intra-theater in transit visibility

Limited communications between logisticians

- Limited communications between various logistic systems
- Distances too great for supply activities to effectively transmit data by radio
- Lack of bandwidth to satisfy all system users

Appendix C

Joint Capability Area Definitions

Joint Capability Areas (JCAs) are collections of like DOD capabilities functionally grouped to support capability analysis, strategy development, investment decision making, capability portfolio management, and capabilities-based force development and operational planning.

JCAs were first proposed in the 2003 Joint Defense Capabilities Study. The study called for dividing the Department of Defense's (DOD) capabilities into manageable capability categories (later called areas) as an essential early step to implementing a capabilities-based approach.

The study recommended dividing capabilities along functional lines because there were fewer of them; they were more enduring, and less likely to change due to new technologies or emerging threats; they minimized redundancies in capability decomposition; provided clearer boundaries to assign systems; and improved management ability to develop and implement capabilities planning.

The study further stated that the categories adopted by the DOD must enable all Services, Defense Agencies, and combatant commands to orient their planning on capabilities, vice platforms or units.

This original framework was comprised of 22 tier 1 JCAs, 240 subordinate JCAs, and corresponding definitions. These initial JCAs were divided into four distinct capability categories; operational, functional, domain, and institutional.

To improve the framework, the Deputy's Advisory Working Group (DAWG) approved (22 June 2007) the replacement of the original tier 1 JCAs with nine new functional tier 1 JCAs (Force Application, Command and Control, Battlespace Awareness, Net-Centric, Influence [later changed to Building Partnerships], Protection, Logistics, Force Support, and Corporate Management and Support).

Below are definitions of the JCAs:

- (Logistics Tier 1) **Logistics**—The ability to project and sustain a logistically ready joint force through the deliberate sharing of national and multinational resources to effectively support operations, extend operational reach and provide the Joint Force Commander the freedom of action necessary to meet mission objectives.

- (Logistics Tier 2) **Maintain**—the ability to manufacture and retain or restore materiel in a serviceable condition.
    - (Logistics Tier 3) Inspect—the ability to determine faults or verify repairs or determine condition of an item of equipment based on established equipment maintenance and serviceability standards.
    - (Logistics Tier 3) Test—the ability to evaluate the operational condition of an end item or subsystem thereof against an established standard or performance parameter.
    - (Logistics Tier 3) Service—the ability to conduct preventive maintenance checks and scheduled maintenance to detect, correct or prevent minor faults before these faults cause serious damage, failure, or injury.
    - (Logistics Tier 3) Repair—the ability to restore an item to serviceable condition through correction of a specific failure or condition.
    - (Logistics Tier 3) Rebuild—the ability to recapitalize an item to a standard as nearly as possible to its original condition in appearance, performance, and life expectancy.
    - (Logistics Tier 3) Calibration—the ability to compare an instrument with an unverified accuracy to an instrument of known or greater accuracy to detect and correct any discrepancy in the accuracy of the unverified instrument.
- (Logistics Tier 2) **Engineering**—the ability to execute and integrate combat, general, and geospatial engineering to meet national and JFC requirements to assure mobility, provide infrastructure to position, project, protect, and sustain the joint force, and enhance visualization of the operational area, across the full spectrum of military operations.
    - (Logistics Tier 3) General Engineering—the ability to employ engineering capabilities and activities, other than combat engineering, that modify, maintain, or protect the physical environment. Examples include: the construction, repair, maintenance, and operation of infrastructure, facilities, lines of communication and bases; terrain modification and repair; and selected explosive hazard activities.
    - (Logistics Tier 3) Combat Engineering—the ability to employ engineering capabilities and activities that support the maneuver of land combat forces and that require close support to those forces. Combat engineering consists of

three types of capabilities and activities: mobility, countermobility, and survivability.

- (Logistics Tier 3) Geospatial Engineering—the ability to portray and refine data pertaining to the geographic location and characteristics of natural or constructed features and boundaries in order to provide engineer services. Examples include: terrain analyses, terrain visualization, digitized terrain products, nonstandard tailored map products, facility support, and force bed down analysis.

- (Logistics Tier 2) **Operational Contract Support**—the ability to orchestrate and synchronize the provision of integrated contract support and management of contractor personnel providing that support to the joint force in a designated operational area.
  - (Logistics Tier 3) Contract Support Integration—the ability to synchronize and integrate contract support being executed in a designated operational area in support of the Joint Force.
  - (Logistics Tier 3) Contractor Management—the ability to manage and maintain visibility of associated contractor personnel providing support to the joint force in a designated operational area.
- (Logistics Tier 2) **Logistic Services**—the ability to provide services and functions essential to the technical management and support of the joint force.
  - (Logistics Tier 3) Food Service—the ability to plan, synchronize and manage subsistence support to the joint force to include dining facility management, subsistence procurement and storage, food preparation, field feeding and nutrition awareness.
  - (Logistics Tier 3) Water and Ice Service—the ability to produce, test, store and distribute bulk, packaged and frozen water in an expeditionary environment.
  - (Logistics Tier 3) Basecamp Services—the ability to provide shelter, billeting, waste management and common user life support management in an expeditionary environment.
  - (Logistics Tier 3) Hygiene Services—the ability to provide laundry, shower, textile and fabric repair support.
- (Logistics Tier 2) **Supply**—the ability to identify and select supply sources, schedule deliveries, receive, verify, and transfer product and authorize supplier payments. It includes the ability to see and manage inventory levels, capital assets, business rules, supplier

networks and agreements (to include import requirements) as well as assessment of supplier performance.

  - (Logistics Tier 3) Manage Supplies and Equipment—the ability to maintain accountability and set retention levels of materiel and equipment.
  - (Logistics Tier 3) Inventory Management—the ability to control, catalog, forecast requirements, schedule procurement, manage distribution and overhaul (direct exchange/repairable exchange), and disposal of materiel.
  - (Logistics Tier 3) Manage Supplier Networks—the ability to source requirements from the industrial base to meet routine and surge requirements.

- (Logistics Tier 2) **Deployment and Distribution**—The ability to plan, coordinate, synchronize, and execute force movement and sustainment tasks in support of military operations. Deployment and distribution includes the ability to strategically and operationally move forces and sustainment to the point of employment and operate the JDDE.
  - (Logistics Tier 3) Move the Force—the ability to transport units, equipment and initial sustainment from the point of origin to the point of employment and provide JDDE resources to augment or support operational movement requirements of the JFC.
  - (Logistics Tier 3) Sustain the Force—the ability to deliver supplies, equipment and personnel replacements to the joint force.
  - (Logistics Tier 3) Operate the JDDE—the ability to control, conduct and protect JDDE operations and accomplish necessary JDDE capability development activities to operate across the strategic, operational, and tactical continuum with integrated, robust, and responsive physical, information, communication and financial networks.

- (Logistics Tier 2) **Installations Support—**the ability to provide installation assets and services necessary to support U.S. military forces.
  - (Logistics Tier 3) Real Property Life Cycle Management—the ability to provide for the acquisition, operation, sustainment, recapitalization, realignment, and disposal of real property assets to meet the requirements of the force.
  - (Logistics Tier 3) Installation Services—the ability to deliver selected services not related to real property (or personnel

services) to meet the requirements of the installation population and mission.

Appendix D

Joint Logistics Attributes and Definitions

This appendix describes JCA attributes used to assess capability and process improvements. These attributes were approved by the Logistics Senior Warfighter Forum (SWarF) in 2008. Attributes are not developed for the Installations Support JCA because they were aligned under the Force Support capability area when the logistic attributes were developed. These attributes are followed by JCL terminology definitions.

Common Attributes

- *Economy*—the amount of resources required to deliver a specific outcome. Economy is achieved when support is provided using the fewest (or most cost-effective) resources within acceptable levels of risk. At the tactical and operational levels, economy is reflected in the number of personnel, units and equipment required to deliver support. Among the key elements of the logistic principle of economy is the identification of unnecessary duplications and redundancies.
- *Effective*—the ability to produce the intended effect or end state via the application of the most suitable and efficient means.
- *Precision*—the ability to control the accuracy with which delivery of forces, requirements, and materiel occurs at the right time, the right place, and the right amount. Precision also addresses the ability of the JDDE to minimize deviation from acceptable standards as it reacts to dynamically changing conditions and requirements.
- *Responsive*—able to reply or react or answer to queries or requests with timeliness appropriate to the situation.
- *Responsiveness*—providing the right support when it's needed and where it's needed. Responsiveness is characterized by the reliability of support and the speed of response to the CCDR needs.
- *Survivability*—the capacity of the JDDE to prevail in the face of potential destruction. To ensure continuity of support critical deployment and distribution assets and infrastructure must be identified and plans developed for its protection. Survivability is directly affected by protective equipment, dispersion, design of operational logistic processes and the allocation of forces to protect critical deployment and distribution assets and infrastructure. Examples of critical JDDE assets and infrastructure includes aircraft, ships, trucks, trains, airfields, seaports, railheads, LOCs, bridges, intersections, movement operations centers, and installations.

Deployment and Distribution

- *Capacity*—the ability to control the physical quantity, size, mix, configuration, and readiness of JDDE assets and infrastructure.

Capacity is not a static attribute; it includes the flexibility to expand or contract Enterprise elements in response to dynamic mission and requirements changes.

- *Reliability*—the ability to provide the degree of assurance or dependability that the JDDE will consistently meet its support requirements to specified standards. Reliability instills trust and confidence of the customer in the certainty that the Enterprise will meet warfighter demands under clearly established and recognized conditions.
- *Velocity*—the ability to control the speed and direction requirements are fulfilled by the JDDE. Requirements must be fulfilled at the right speed. This means that synchronization of the speeds of the various aspects of the distribution process is required in order to maximize effectiveness. Velocity also incorporates the ability of elements of the JDDE to forecast, anticipate, and plan distribution execution. A JDDE that has sufficient velocity meets performance expectations and satisfies mission requirements as defined by the supported commander's concept of operations.
- *Visibility*—the ability to determine the status, location, and direction of flow for all forces, requirements and materiel in the JDDE. Joint end-to-end visibility is required over operational capabilities and capability packages, organizations, people, equipment, and sustainment moving through the pipeline. It also includes the organic military mobility forces and commercial augmentation that move people and things through the pipeline, the financial transactions that support them, and the nodes and links comprising the pipeline. Visibility requires the availability of timely, accurate, and usable information essential to the maintenance of a COP within the overall distribution Enterprise information network.

Supply, Maintain, Logistic Services, and Operational Contract Support

- *Attainability*—the assurance that the minimum essential supplies and services required to execute operations will be available. Attainability is the point at which the CCDR or JFC judges that sufficient supplies, support, distribution capabilities, and LOC capacity exist to initiate combat operations at an acceptable level of risk. It is also that point at which logistic capabilities exist at a level that will allow the transition of operations between phases. Some examples of minimal requirements are inventory on hand (days of operations), critical support and service capabilities, theater distribution assets (surge capability), combat service support sufficiency and force reception throughput capabilities.

- *Flexibility*—the ability to improvise and adapt logistic structures and procedures to changing situations, missions and operational requirements. Flexibility is reflected in how well logistics respond in an environment of unpredictability. The logistician's ability to see and predict requirements in an ever changing environment gives the joint logistician more options in supporting operational needs.
- *Simplicity*—a minimum of complexity in logistic operations. Simplicity fosters efficiency in planning and execution, and allows for more effective control over logistic operations. Clarity of tasks, standardized and interoperable procedures, and clearly defined command relationships contribute to simplicity.
- *Sustainability*—the ability to maintain the necessary level and duration of operational activity to achieve military objectives. Sustainability is a function of providing for and maintaining those levels of ready forces, materiel, and consumables necessary to support military effort. Sustainability is focused on the long-term objectives and requirements of the supported forces. Sustainability provides the CCDR with the means to enable freedom of action and extend operational reach. Effective sustainment influences the depth to which the joint force can conduct decisive operations allowing the CCDR to seize, retain and exploit the initiative.

Engineering

- *Enduring/Persistence*—the ability to accomplish missions and functions over extended time without degrading productivity, capacity, and effectiveness.
- *Precise*—the ability to provide the required capability (or mix of capabilities) at the required time and location.
- *Tailorable*—able to be modified or adjusted within a certain range to better meet the needs or demands of the circumstances.
- *Agile*—the ability to react quickly and adapt to dynamic conditions and missions, scalable to provide the required capacity and effects.
- *Expeditionary*—organized and postured for rapid global deployment and employment. Capable of strategic and operational movement via air, sea, rail and at times land, followed by immediate employment in support of forward deployed elements.
- *Integrated*—composed of elements that function together seamlessly with unity of effort. Capable of substitution without loss of capability or effectiveness.
- *Networked*—the ability to access and use information from all sources in order to create and share a COP. Able to synchronize across many links to plan, control, move, and execute through coordinated action.

Force Health Protection

- *Accessible*—readily obtained, used, seen, or known.
- *Acceptable*—able to satisfy a need, requirement, or standard.
- *Accurate*—reflecting reality correctly; in exact conformity to fact; errorless.
- *Adaptable*—able to change or adjust to different circumstances or conditions.
- *Appropriate*—suitable or fitting for a specific purpose or use.
- *Complete*—whole or intact, with all needed parts and elements.
- *Comprehensive*—inclusive of all relevant factors, issues, and capabilities.
- *Decentralized*—possessing lower echelon elements that are empowered to function quickly, independently, or autonomously when appropriate in order to take advantage of short duration opportunities to advance mission accomplishment.
- *Deployable*—structured in such a way as to be able to be transported to the field environment and rapidly readied for function in accomplishing its mission.
- *Durable*—able to accomplish its functions over time without significant deterioration.
- *Ergonomic*—able to maximize productivity and minimize chronic injury by reducing operator fatigue and discomfort through intelligent workplace equipment design.
- *Flexible*—able to adapt or be modified in order to effectively meet changing conditions or requirements.
- *Interchangeable*—capable of substitution without loss of function and effectiveness.
- *Interoperable*—composed of systems, capabilities, and organizations that are functional in harmony across all joint force elements. Able to exchange knowledge and services among units and commands at all levels.
- *Intuitive*—able to be understood accurately through sensing and perception rather than by objective observation and hard, rational logic.
- *Practical*—able to use common sense, judgment, and reason to find a simple, direct, and efficient path to the desired end.
- *Predictive*—capable of knowing or predicting future conditions in order to be prepared to operate effectively when they arrive.
- *Persistent*—capable of extended functioning in an environment and delivering intended effects—even in adverse circumstances.

- *Relevant*—able to have a practical, germane, and substantial effect on the matter at hand.
- *Reliable*—able to be used for an extended time under specified operating conditions without loss of critical function or capability.
- *Safe*—secure from liability, harm, injury, danger, or risk of mishap or error.
- *Scalable*—designed to be capable of being modified in magnitude according to the needs of the circumstances.
- *Secure*—the ability to protect or ensure the privacy or secrecy of a system. Implies the ability to guard from danger, risk, or loss from danger or harm and to make safe from penetration or interception by unauthorized persons.
- *Shared*—held in common (whether conceptually or in electronic or other media) among individuals, groups, or organizations.
- *Standardized*—conforming to established criteria of size, weight, quality, strength, or functionality to permit substitution without loss of original function.
- *Synchronized*—functioning in a coordinated fashion with specific actions across multiple agents occurring at the proper time and in the proper sequence.
- *Timely*—delivered or performed when needed to be most effective in the situation.
- *Total Asset Visibility*—the ability to know the location, functionality, and availability of all required resources, whether human, equipment, supplies, or systems.

JCL Definitions

- *End-to-End (Distribution)*—Joint distribution operations boundaries begin at the point of origin and terminate at the combatant commander's designated point of need within a desired operational area, including the return of forces and materiel.
- *End-to-End (Supply)*—The integration/synchronization of all JSE Plan, Source, Make/Maintain, Deliver, and Return processes; the forward and reverse flow of materiel, services, information and finances; and the related JSE capabilities between source of supply and point of employment.
- *End-to-End process framework*—a multi-tiered matrix of processes that at the top level ranges from concept development at inception and to disposition at the end. There are multiple subordinate end-to-end processes for every Joint Capability Area.

- *Joint Logistics Enterprise*—a matrixed system of key global logistic providers, Combatant Commands, Services, Agencies, the national industrial base, multinational, nongovernmental, and governmental, commercial contractors. Consists of the aggregate capabilities of their equipment, procedures, doctrine, leaders, technical connectivity, information, shared knowledge, organizations, facilities, training and materiel necessary to provide logistic solutions to the JFC. Furthermore, the JLEnt is a collaborative network of capabilities that when synchronized is greater than the sum of its parts and can provide an unassailable American strategic advantage (CCJO page IV) and is critical to achieving the unity of purpose and unity of effort required to support the JFC.
- *Joint Supply Process Owner*—The JSPO will be responsible for the capabilities, rules, tools, and processes associated with all phases of satisfying a JFC supply requirement, and is organized around the integration and synchronization of the five primary management processes of plan, source, make or maintain, deliver, and return.
- *Point of need*—physical location(s) designated by the JFC as receiving point(s) for forces or commodities, for subsequent employment, emplacement, or consumption.
- *Point of employment*—the point at which the resource or capability is consumed or employed.

Appendix E

Joint Logistics Compass

An electronic copy of the Joint Logistics Compass can be found at:

https://www.intelink.gov/wiki/Portal:Joint_Staff_J4

Scroll down to "Documents & Pages" and click on "Joint Staff, J-4 Compass."

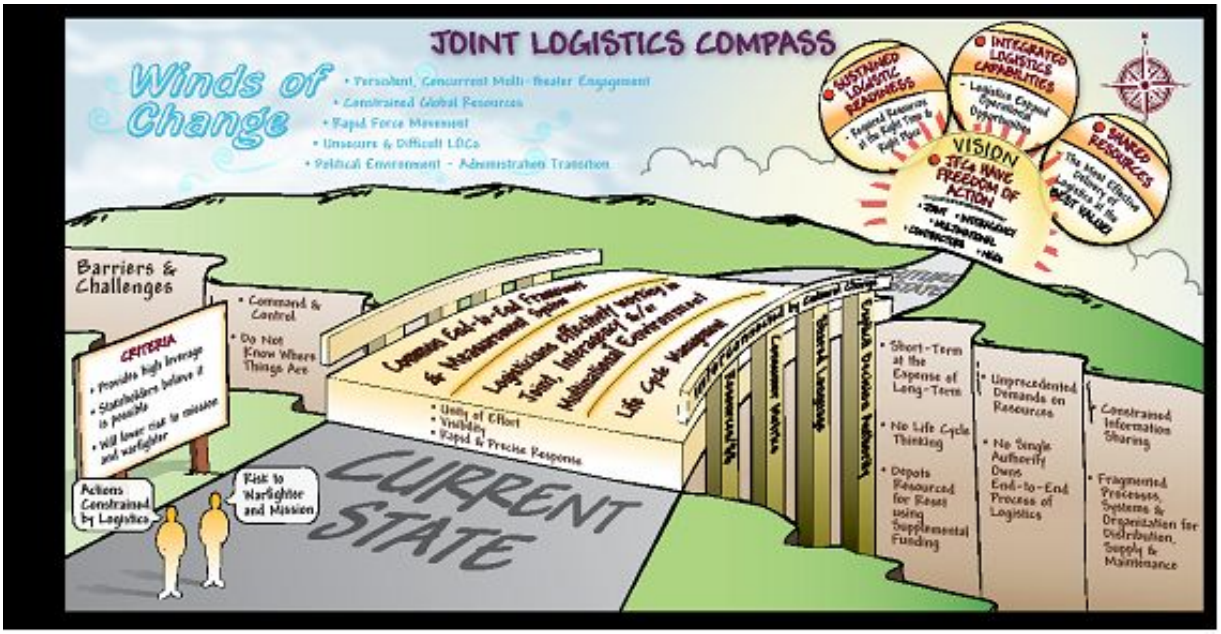

Figure 9 – Joint Logistics Compass

Appendix F

Implementing the JCL Central Idea by Tier II JCA Maintain

Maintenance capabilities enable JFC readiness. Future joint forces must have complete transparency and integration/synchronization across maintenance, supply and distribution processes in order to optimize maintenance capabilities. Tools and test equipment must more precisely pinpoint and predict malfunctions. We must develop common inter-Service, interagency, and multinational procedures and language for the basic process of requisitioning parts and repairing equipment. Predictive diagnostics or autonomics must replace cyclical maintenance. Future weapons systems must be "smart platforms" with increased mean-time between failures. These systems must self-report malfunctions, automatically order repair parts, and initiate a maintenance work order to correct deficiencies. These smart platforms must be linked into command and control systems so that supply, maintenance, and distribution processes initiate a work order, requisition and deliver the part to a maintenance facility at a location nearest to where the equipment is operating, regardless of unit affiliation. Maintenance organizations must become more modular and Service interoperable. Maintenance automated information management systems must have the built in authorities to process cross-service, multinational, and interagency maintenance transactions. We need to integrate an inter-Service serialized item management system in order to provide total asset visibility, enhancing the capability to gather, organize, and assess equipment information more effectively.

Flight Crew Readies A-10 Thunderbolt II

Maintenance planning during the acquisition process must be performance based and focus on availability, reliability, maintainability, and total ownership cost to enhance life cycle management. Institutionalization of these key life cycle management themes must become a central focus in the acquisition process. We must develop key performance parameters that consider maintenance, sustainment, and energy demand requirements throughout equipment life cycle. Alternative energy propulsion systems must be researched and implemented. We must develop generic vehicle architectures that are

open, scalable, and modular. These architectures must be shared across the Services, multinational and commercial partners. This will lead to common electronic interfaces, maintenance procedures, and repair parts across the JLEnt. We must develop common avionics integration standards to do the same.

We must tailor resources to enable the JFC to safely deploy and employ multiple echelons of maintenance capacity while minimizing redundancies. Maintenance activities must be modular, agile and adaptive in order to integrate a capability into small units conducting distributed operations. Public and private sector maintenance capabilities must be integrated and interdependent.

The JFCs maintenance managers must have information-driven decision making enablers with timely, accurate and scalable information of JLEnt maintenance capacity in order to support joint operations.

Appendix G

Implementing the JCL Central Idea by Tier II JCA Engineering

Engineers provide the essential capabilities of combat, general and geospatial engineering in support of the basic categories of military activity: combat, security, engagement, and relief and reconstruction. The future role of engineers in ensuring successful military operations will only increase in the face of the rapidly changing and complex environment facing the JFC in the 21st century.

Engineering capability will remain critical in achieving global access by ensuring adequate infrastructure and capacity to receive, prepare, employ, and sustain the force. Engineering capabilities must have the ability to deploy from land and sea bases and operate in any global environment in support of the JFC. This will require the development of engineering force packages and equipment capable of operating from a sea base and other global environments.

Engineers assure the mobility essential to friendly forces while denying opposing forces similar options during forced and early entry operations. Engineering capabilities set conditions for friendly forces to expand and adjust force flows, build combat power at will, promote onward movement, and achieve the campaign's objectives rapidly. During the onward movement phase, engineer capability centers on establishing initial lines of communications, expanding bed down capacity, broadening theater force protection and building mobility baseline and infrastructure. Sustainment and improvement of the infrastructure is the focus during the employment phase. Engineering capability throughout all operational phases provides protection and mobility to the force, while simultaneously providing the geospatial foundation on which to build a COP to enhance awareness, understanding, and effective synchronization of the operational environment. Future engineering activities should include the employment and integration of environmental capabilities as a proactive engagement activity including all partners and environmental stakeholders. This engagement activity includes all JLEnt partners and environmental stakeholders. Finally, engineering capability focuses on drawdown activities to include base closure and environmental precautions or safeguards.

New systems will be required so that the joint engineering force can be optimized and tailored to meet these missions and objectives. Networking with forecasting, and "sense and respond" logistic applications will be critical to ensure the best management and timely

delivery of mission essential materiel to the engineer force while also keeping engineering equipment mission capable. Coupled with collaborative planning tools, this will create a system that spans from materiel forecasting to execution and provides real-time inventory visibility and the interface between suppliers and users necessary to achieve agility in engineering operations. The development, acquisition and fielding of common engineering platforms and systems is essential to the effectiveness of the future engineer force. The overarching goal remains having the right engineer capability available for executing the mission with optimal efficiency and maximum effectiveness.

Engineers conduct bridging operations in Iraq

The future joint engineering force must be more responsive and capable of rapid and flexible employment against a dynamic and fluid array of worldwide peacetime and wartime missions. Joint Engineer forces will have an increasing role in the nation-building and non-lethal military assistance necessary to sustain and support friendly governments in support of the U.S. National Security Strategy. This force will often be acting in an independent role supporting non-military instruments of national power engaged in shaping, conflict avoidance, stability, and reconstruction missions. These complex missions will require a "whole of government" approach to bring all elements of national power to bear in response to a wide range of threats, both natural and man-made. Success in responding to these challenges will require the skillful integration of engineering capabilities resident across the Services, interagency, nongovernmental, and commercial partners as well as international, host nation and coalition engineering resources. The aforementioned operations will present unique challenges due to differing training, construction standards, techniques and practices. Security and connectivity challenges will stress the joint engineer force's ability to engage in adaptive planning and maintain communications with Interagency and commercial partners. Additionally, Interagency and commercial partners may lack the organizational structure and resources to deploy and sustain their personnel in operations with the same speed and flexibility as U.S. military engineering forces, requiring joint engineers to develop and maintain commensurate capabilities in its forces. Growing future joint

engineering capabilities will require new policies and procedures to achieve unity of effort in engineering missions between DOD and other organizations while providing mobility, protection, construction, or other essential engineering services.

Appendix H

Implementing the JCL Central Idea by Tier II JCA Operational Contract Support (OCS)

OCS planning and deployable capabilities must grow substantially and adopt a pre-crisis (Phase 0) approach to planning and fielding a rapidly scalable, robust "5th force" (contractors) that may equal or exceed the military footprint. Contracts and contractor automated visibility and accountability must become the norm and include mechanisms to enable the JFC greater flexibility to support current operations.

Contracted support is integrated into the joint force to deliver sustained services or supplies when and where needed. Contract support integration and contractor management systems must be networked at all echelons of command. This capability must have appropriate oversight and management tools to tie contractors to task order detail. The future OCS capability must operate as a fully integrated sourcing system, with greater self-synchronization and precision. The adaptive planning and execution process must drive the assessment of contract support integration and contractor management requirements across all Joint Capability Areas through realistic durations and phases of operations.

Contracted field service representatives
Balad Air Base, Iraq

Today, OCS policy, doctrine and processes are immature and must rapidly evolve and respond to warfighting demands. The future environment will be characterized by increased competition for local and strategic resources. The enemy will target contracted support forcing the JFC into balancing risk to mission and risk to forces when planning the use of contractor support. The future operating environment demands OCS capabilities that can de-conflict, integrate, synchronize and coordinate common contract support across interagency, multinational, and other governmental and nongovernmental organizations. OCS must be optimized to achieve economies of scale and still provide effective support. It must employ all aspects of legal support, transparent and non-transparent contract support integration, and contractor management systems.

The continual introduction of hi-tech equipment, coupled with force structure and manning reductions, and high operating tempo mean that military forces will often be augmented with contracted support. We have every indication this level of dependency on contractors will continue well into the future. As a result, the contingency contracting workforce and operating forces required to provide contracting oversight must be adequately sized, and, contract support integration and contractor management must be fully integrated into military planning and operations. OCS training, education, and exercises must become more robust for both acquisition and non-acquisition personnel. A cadre of OCS planning experts must be developed at the COCOM and Service staffs.

Future OCS must be technology-enabled and linked to financial systems. They should be fully networked with C2, intelligence, and common operational pictures (COP). It must enable the JFC and supporting contracting and contractor management organizations to 'sense and respond' rapidly in order to adjust and execute contracted support. Networked OCS capabilities must evolve to provide near real time contract and contractor visibility, capability, and capacity. Productivity tools must enable theater business clearance, reach back support, rapid and efficient contract close out, and include workload metrics and balancing. OCS lessons learned and operational needs processes must create a comprehensive, joint, multinational and interagency coordinated approach that cultivates experimentation, best practices, and innovative solutions.

Appendix I

Implementing the JCL Central Idea by Tier II JCA Logistic Services

Marines Log Services in Action

The joint logistician must be able to rapidly identify and synchronize assets to deliver, position, and sustain a single, joint, modular containerized expeditionary and forward operating base camp capability to the JFC. We must develop life support standards that lead to common equipment and systems platforms with scalable service levels to eliminate redundancy, lower costs, improve efficiency, and speed delivery and set up. The joint base camp must include pre-configured, integrated, modular, interoperable, and scalable sustainment capabilities to include billeting, food service assets, refrigeration, water and ice production, and hygiene services. Standardized and modular, scalable morale, welfare, and recreation assets must also be seamlessly integrated into expeditionary base camp packages based on the maturity of the theater and logistics supply chain. Base camp packages must further incorporate common, modular, and scalable force protection capabilities that include everything from sandbags to command and control facilities and equipment.

The modular base camp capability must be multi-functional to support all four categories of military activity. The joint logistician must integrate all logistic capabilities to ensure full service to the commander. Lastly, the base camp capability must be fully exportable with all the equipment and organizational requirements to operate independently on arrival without augmentation from the JFCs maneuver units. This must include system deployment, power generation and distribution, waste management, and system management (i.e. mayoral capability).

Further experimentation and study is needed to develop the requirements and attributes of an at-sea base camp capability to support joint reception, staging, and onward movement or as a platform for conducting and/or logistically supporting military operations ashore from a stand-off position. This capability should allow at-sea transfer of equipment and personnel, selective offload of equipment and

organizations, flow-on and flow-off options, and the ability to offload without putting into port.

Our logistic footprint must decrease in size to support distributed operations in austere environments and/or to make the joint force more agile. Key to achieving a reduced footprint is increasing system reliability, improving scalability and modularity, and reducing support manpower requirements. Reducing the requirement for bulk commodities such as fuel and water will return significant benefits. We can also accomplish this by:

- Reducing fossil fuel consumption by increasing system efficiency
- Utilizing alternate power sources
- Producing energy locally
- Recycling and converting waste into energy
- Producing, distributing, and recycling water locally
- Trading inventory for information

Food service operations must support joint forces around the clock and in close proximity with the adversary. Systems and equipment must be self contained and capable of rapid set up, operation, and tear down. Food service must meet JFC requirements with a suite of flexible rations to support a range of feeding requirements from distributed operations to home station. Small units must have an organic and expeditionary capability to store and prepare rations, produce water, and eliminate waste in an austere environment.

Advanced technologies for onsite water production and distribution must be simplified for use at expeditionary locations. Equipment must be self contained, light, and easy to set up and operate.

The future mortuary affairs (MA) capability must be modular, scalable, self-contained and highly mobile. MA support must be fully synchronized with operations and utilize advanced information-based systems to facilitate identification, evacuation, and tracking of human remains. (Mortuary Affairs is a Force Support JCA.)

Logistic services must have the doctrine, equipment, personnel, and funding to rapidly expand and contract capability at the pace of the joint force.

Appendix J

Implementing the JCL Central Idea by Tier II JCA Supply

Vertical Replenishment Operations

The ability of the JLEnt to deliver joint supply capability is central to future JFCs' ability to prevail on the battlefield. Supply operations must be responsive, flexible, sustainable, survivable, attainable, and focused on the JFC. In order to continue provision of a world class supply capability in the future, supply operations must take an Enterprise approach. Much like the JDDE, supply must establish a joint supply Enterprise (JSE). The JSE must contribute to the evolution of a truly holistic supply chain comprised of Service, multinational, interagency, commercial, and other partners. The JSE must also operate with constructive interdependence across the distribution, maintenance, and supply end-to-end frameworks to optimize joint supply readiness and provide perfect order fulfillment[17] for the JFC.

The JSE will need a joint supply process owner (JSPO) to integrate or synchronize JSE end to end processes in order to optimize support to the JFC. The JSPO will be responsible for the capabilities, rules, tools, and processes associated with all phases of satisfying a JFC supply requirement, and will be organized around the integration and synchronization of the five primary management processes of plan, source, make or maintain, deliver, and return. The definition of supply end-to-end framework is: The integration or synchronization of all JSE Plan, Source, Make or Maintain, Deliver, and Return processes; the forward and reverse flow of materiel, services, information and finances; and the related JSE capabilities between source of supply and the point of employment. In this end-to-end environment, it is the responsibility of all the JSPO and JSE to cooperate in a collaborative manner to monitor, execute, and improve their processes towards measurable JSE performance outcomes. Further, JSPO and JSE partners should be held

[17] Perfect Order Fulfillment: Is simply a metric to measure delivery of the right product, to the right place, to the right organization, in the right condition, at the right time.

accountable for these measurable performance outcomes based on the JFCs assessment of their effectiveness.

The JSE must fuse authoritative logistic data, develop shared knowledge and common metrics, strive for standardized use/commonality of materiel, and develop logistic modeling and simulation tools. The JSPO will need an instrumented, interconnected, and intelligent network that links with logistic information systems of the JSE partners in order to deliver sustained logistic readiness.

Integrated supply planning and networked operations must provide a common framework for deciding sources of supply, inventory levels, and transportation modes. JLEnt logistic modeling and simulation tools that forecast unit deployment and sustainment requirements must optimize storage and strategic lift assets and prioritize flow of materiel in the supply chain.

Joint logisticians must adopt a global, regional and theater approach to inventory management (e.g. joint regional inventory materiel management strategy). All inventories must be managed as a wholesale asset until issued at the point of employment. This global wholesale inventory system will eliminate transfers of ownership, redundant inventories, and multiple funding mechanisms.

We must build mobile distribution platforms capable of performing warehousing and distribution operations in diverse environments and at varying operational tempos.

The challenges and complexities of the future operating environment require a JSE and JSPO that can close gaps in JLEnt supply operations and optimize supply processes from end-to-end.

Appendix K

Implementing the JCL Central Idea by Tier II JCA Deployment and Distribution

...deliver, position, and sustain the Joint Force Commander exactly when and where needed.

The deployment and distribution capability is executed by the joint deployment and distribution Enterprise (JDDE). The JDDE is the composite of equipment, procedures, doctrine, leaders, technical connectivity, information, shared knowledge, organizations, facilities, training, and materiel necessary to conduct joint operations. JDDE operations comprise a significant portion of joint logistic operations by providing agile and optimized delivery, positioning, and sustainment of joint forces from points of origin to required points of employment. The JDDE must have unity of effort across the JLEnt and be able to conduct operations with end-to-end visibility, velocity, and a high degree of precision.

There are three overarching joint deployment and distribution imperatives:

1) design and build the right capacity into the pipeline;
2) exercise sufficient movement control over the pipeline with the ability to coordinate and synchronize joint deployment and distribution operations; and
3) deliver, position and sustain the JFC exactly when and where needed.

The JDDE depends on integrated air, sea, and land deployment and distribution capabilities. For future joint deployment and distribution operations to be successful there must be sufficient movement capacity, supporting infrastructure, and appropriate individual JDDE movement control mechanisms that are both visible and enabled through the JDDE.

Experimental Craft HSV-X1 Conducts Air Operations

Future JFCs will rely upon the JDDE to quickly expand existing peacetime

distribution networks. The JDDE must be able to enable force closure of early-deploying, expeditionary joint forces across strategic and theater movement segments in a single movement from their point of origin to a point designated by the JFC, bypassing, if necessary, traditional ports of debarkation. Some forces must be able to deploy, operate, and be sustained from sea bases. The JDDE must be able to rapidly establish and maintain aerial and sea ports of debarkation and related infrastructure whenever and wherever needed.

To do so, the JDDE must develop and maintain standing, scalable, tailorable, and modular theater opening deployment and distribution enabling packages (leaders, organizations, equipment, procedures, communications, etc.) that will deploy ahead of, or with the same rapidity as, the forces they support. These capability packages must have the ability to integrate with existing theater logistic networks.

Supported commanders must be able to optimize force movement and sustainment by configuring and deploying integrated, modular, tailorable, and scalable joint forces in a manner that will minimize requirements for time-intensive theater joint reception, staging, onward movement, and integration. This will also expedite redeployment, retrograde, and reset of joint force capability.

Joint deployment and distribution operations must be inextricably integrated or synchronized with the global supply chain. The JDDE must enable continuous sustainment from providers to consumers across all discontinuous lines of communication. This requires a lean and agile supply chain capable of balancing inventory levels and positioning stock along a robust and agile distribution pipeline. The JDDE and the supply chain must have the ability to deliver, position, and sustain distributed forces through surge and steady state security operations in an anti-access environment. The JDDE must be able to employ precision delivery platforms capable of reaching distributed forces across contested lines of communication without the advantage of large forward operating bases. JDDE partners must coordinate supply chain sustainment distribution services among U.S. forces and host nation support, interagency, multinational partners, nongovernmental organizations, and contractors.

Joint movement control across the JDDE is achieved with the ability to coordinate and synchronize actions and is enabled by integrating JDDE capability elements (which include processes, business rules, systems, tools, and organizations) into the JFC formations. These Enterprise capabilities must be integrated in order to plan, schedule, apportion, allocate, route, direct, validate, adjudicate priorities, and redirect common-user movements per the supported commander's intent. Integrated movement control must facilitate joint force arrival,

assembly, and selective offload distribution functions, especially in theaters lacking robust ashore ports of debarkation.

The JDDE must employ robust deployment and distribution movement control capabilities, supported in a net centric environment, as part of the future global logistic system in order to facilitate an integrated and collaborative approach to decision-making. This system must seamlessly and securely share information from both classified and unclassified networks. In order to do so, the JDDE must leverage the networked command and control capabilities of its Enterprise partners. The ability to coordinate and synchronize actions of JDDE organizations is paramount to JDDE effectiveness and is essential to the management of JFC deployment and distribution requirements.

Real-time asset visibility tools must provide supported commanders the ability to coordinate with the JDDE to meet their needs and priorities. Coordination and synchronization of joint logistics will enable the JDDE to track, redirect, and reconfigure (consistent with the supported commander's intent) forces, equipment, supplies, and support, even while en route, to avoid pipeline nodes and links that are congested, threatened, damaged, or under attack.

A totally networked end-to-end JDDE must be capable of conducting inter and intra theater distribution as a single seamless function. The JDDE must anticipate, forecast, sense, respond, and deliver using collaborative processes that allow self synchronization through integrated movement control mechanisms. These efforts will achieve the unity of effort necessary for success in joint distribution operations, ensuring the JLEnt will deliver the "right things" to the "right place" at the "right time."

If the JDDE performs as desired, the results will include enhanced delivery of forces to - and sustainment of - the JFC; a rapid introduction and integration of right-sized theater distribution capabilities seamlessly linking the joint force with the distribution system; and improved trust and confidence.

Appendix L

Implementing the JCL Central Idea by Tier II JCA

Installations Support

This appendix is added as a placeholder for future developments in Installations Support. This JCA primarily focuses on real property life cycle management and installation services for permanent non-contingency bases. Contingency base support is included in the Logistics Services and Engineering capability areas.

The Joint Staff, J-7 is studying JCA realignment in 2010 that may result in all or parts of the Installations Support JCA realigned under other Tier I JCAs.

The Joint Staff, J-4 is also conducting a study to determine the role of the Joint Staff in managing Installations Support.

Appendix M

Implementing the JCL Central Idea
Medical Logistics

Medical logistics provides life cycle management of specialized medical products and services needed to deliver military healthcare to both the generating and operating force. Medical logistics is relevant to Joint Logistics because it provides visibility and understanding of logistic requirements necessary to effectively coordinate and synchronize health readiness (HR) operations.

Health Care Professionals Rely on Medical Logistics in the Combat Zone

HR is a complex, joint capability required for every joint force activity and is intensive in the use of specialized products and services. Medical logistics requirements are driven by demands from HR activity performed by medical elements dispersed across the joint force. Medical materiel requirements vary significantly in terms of items and quantities based on patient conditions, mission, population, geography, and endemic and hostile threat. They are also subject to rapid changes in technology and clinical processes and often difficult to accurately predict. Medical logistics requirements and resources are therefore intensively managed in order to plan, synchronize, optimize, and sustain materiel support. HR requirements must be presented and balanced with JLEnt support to the JFC.

Future medical logistics will be shaped by the challenges of delivering HR to joint forces operating in complex and uncertain environments. Medical doctrine, leader development, and materiel solutions must support the JFC with medical forces whose composition and employment techniques are modular, scalable, and agile. These modular elements must be suited to missions of their respective Service, but tailorable enough to meet the diversity of JFC mission requirements. This system must have the ability to continuously sense and assess medical threats and make adjustments to adapt to changes in the operating environment. HR force structures must be capable of making

rapid changes in medical force composition, allocation, and rapidly responding to fluctuating patterns of materiel demands.

Medical planners must have a COP and perspective in order to plan medical logistics sustainment. The medical community must develop solutions for documented gaps such as inadequate doctrine and guidance for joint medical interoperability, personnel shortfalls, insufficient joint training, inadequate demand forecast tools, and lack of a fully integrated HR information architecture. It must achieve the desired joint effects through a deliberate and formal governance and strategy management process that promotes innovation, partnerships, and operational excellence. The outcome must be future medical logistics capabilities that enable joint collaboration in the acquisition and life cycle management of materiel solutions for HR and promote standardization, interoperability, and sustainability in the delivery of healthcare. We must develop better modeling and simulation tools for forecasting joint medical materiel requirements. Defense standard medical logistics systems must build an integrated, net-centric medical Enterprise architecture and data strategy that links medical materiel life cycle management processes in both institutional and operational settings and captures or anticipates medical logistics demands with minimal effort by clinical personnel at the customer level. This system must enable joint force surgeon support to medical logistic planning. It must relieve the tactical level units of more complex management functions, provide accurate, actionable medical logistics information for decision-making within the HR command and control structure and support the seamless exchange of information with the JLEnt.

A DOD JSPO must develop a process that minimizes investment in materiel inventory or layers of management. The JSPO must reduce redundancy, promote synchronization of medical supply chain activities across organizational boundaries, and optimize performance. Operational medical logistics units, institutional medical facilities, and DOD distribution centers must all be capable of serving as nodes for storage and distribution of medical materiel within a joint financial framework that eliminates financial transactions before the point of employment. Such partnerships must include new organizational solutions to blend Service and JSPO capabilities within an Enterprise framework.

When these solutions are successfully implemented they will provide sustained health readiness to the JFC and meet the medical outcome expectations set by commanders and the American people.

Appendix N

Acronyms

Acronym	Definition
ALN	Adaptive Logistics Network
CCJO	Capstone Concept for Joint Operations
CS	Cooperative Security
C2	command and control
DIETP	DOD Information Enterprise Transition Plan
DLA	Defense Logistics Agency
DOTMLPF	doctrine, organization, training, materiel, leadership and education, personnel, and facilities
DX/RX	Direct Exchange/Repairable Exchange
EIE	Enterprise Information Environment
GAO	Government Accountability Office
GIG	Global Information Grid
HA/DR	Humanitarian Assistance/Disaster Relief
HR	Health Readiness
ISE	Federal Information Sharing Environment
JCA	Joint Capability Area
JDDE	Joint Deployment and Distribution Enterprise
JFC	Joint Force Commander
JIC	Joint Integrating Concept (legacy concept document)
JLEnt	Joint Logistics Enterprise
JCL	Joint Concept for Logistics
JOC	Joint Operating Concept (legacy concept document)
JOE	Joint Operating Environment
JOpsC	Joint Operations Concept
JSE	Joint Supply Enterprise
JSPO	Joint Supply Process Owner
LOC	lines of communication
MA	mortuary affairs
MNIS	Multinational Information Sharing
NGO	nongovernmental organization
OCS	Operational Contract Support
SEALOC	sea-line of communication
TAV	total asset visibility
USJFCOM	United States Joint Forces Command