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Initial Capabilities Document (ICD)

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Abstract

The purpose of this document is to solicit sponsorship by an appropriate DoD entity for the Joint Power Projection Support Platform (JPPSP). The document is formatted as an Initial Capabilities Document (ICD) to present the underlying justification for a JPPSP in DoD terms, and form the basis for development of the JPPSP using Joint Capabilities Integrated Development System (JCIDS) procedures.

The JPPSP is the military component of the Agile Port System concept developed by the Center for the Commercial Deployment of Transportation Technologies (CCDoTT) as proposed under the Strategic Mobility 21 (SM21) program sponsored by the California University Long Beach Foundation. SM 21 is developing the JPPSP as part of the SM21 program under contract with the Office of Naval Research. The vision of SM21 is that through network centric focused logistics we enable the adaptive global distributed logistics in support of full spectrum expeditionary operations. SM21 focuses on developing solutions to regional transportation issues and challenges. In particular, the project focuses on issues and challenges faced in the southern California region centering on the Ports of Los Angeles and Long Beach (POLA/POLB) productive capacities in face of rapidly increasing commercial trade traffic and a physical infrastructure that has few options for physical expansion in current locations. This is a common problem in many parts of the United States, particularly with Strategic Ports, such as POLA/POLB.

SM21 has established a consortium of public and private, governmental and non governmental, academic, and other impacted parties to develop and implement emerging processes and technologies to expand the productive capacities of POLA/POLB while balancing regional quality of life issues as well.

SM21 recognizes the importance of POLA/POLB to DoD as a strategic port, and the importance of DoD's participation in this process. SM21 further recognizes this is a general concern to DoD as more and more strategic ports, because of conflicts with commercial activities, would rather not provide service to DoD for deployment and distribution operations. This ICD focuses on these challenges faced by DoD and provides a workable concept to maintain assured access to strategic ports.

SM21 calls for a dual use inland terminal facility to provide for process change and physical expansion necessary to maintain the competitive status of ports and meet increasing demands for service. Dual use is a cooperative/collaborative commercial and military use of the terminal facilities. The JPPSP is the military component of the dual use inland terminal facilities.

CCDoTT could easily have called for simply commercial applications at the inland facility, but they recognized the need to assure DoD access to strategic ports, particularly with emphasis in military transformation on increased reliance on force projection capabilities from the United States as a critical component of our national security policy. The JPPSP represents an opportunity for DoD to partner in the development of future port facility templates, and as a military capability, a transformational enabler help achieve JV 2020 deployment and distribution capabilities.

The JPPSP leverages many current concepts, infuses them with Joint Functional Concept capabilities by use of emerging technologies and processes to change the focus of force projection

operations from mobilization at installations and depots to flexible and responsive support from ports of embarkation to the warfighter executing expeditionary operations.

The JPPSP represents a node within the envisioned Joint Deployment and Distribution Enterprise (JDDE) to manage and regulate the deployment and distribution flow as envisioned in the Joint Logistics (Distribution) Joint Integrating Concept. The JPPSP can be a prototype node, that can be used to determine requirements and capabilities for other similar nodes (like a Sea Base, ISB, Theater Distribution Center Etc.), as the end to end assessments are completed to fully define JPPSP operations, processes, capabilities, and capacities. The JPPSP can be the CONUS anchor to the JDDE as it develops to support forward deployed forces.

This ICD formatted document provides the foundation for a sponsor to be able to develop the JPPSP using the JCIDS process. Identification of a DoD sponsor is required to take advantage of the opportunity to develop this capability in partnership with port stakeholders.

Change History

The table below identifies all changes incorporated into the updated version of this document after initial approval. A change in twenty percent (20%) of the document constitutes a new version, which will also be identified in this table. The Change Request Number (CR #) provides a link to the history of the change request.

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JOINT FUNCTIONAL AREA

Current National Military Strategy requires what is called 1-4-2-1. Defend the Homeland (1), be able to deter adversaries in 4 critical regions (4), be able to swiftly defeat the enemy (SDTE) in 2 of the 4 critical regions (2), and win decisively (WD) in one of the 2 SDTE conflicts (1). In the Army Power Projection Program Baseline Deployment Study Phase III – Deployment Metrics and Achievability, it was assumed that an STDE force would require 3 Division Equivalents (DE), and a WD force would require 5 DE. This strategy assumes that there will be at least a Brigade sized force in vicinity of the conflict to respond as an immediate response force (within 4 days of notification), and a quick response force (2 Brigades, to bring the force up to 1 DE within 10 days of notification). This force will be rounded out with a prompt response force of 2 DE to bring the force to 3 DE within 20 days of notification. If needed, a WD force of an additional 2 DE will deploy to bring the force to 5 DE within 30 days of notification. This concept attempts to employ Joint Swiftess Objectives that will implement the 10-30-30 strategy. That is be able to seize the initiative within 10 days, defeat the enemy within 30 days, and be prepared to redeploy to another conflict within 30 days.

This strategy rests upon a paradigm shift in logistical support operations from separate deployment, employment, and sustainment operations, where deployment focused on mobilization, sustainment focused on getting large volumes of stuff to theater, and employment was the theater war-fighters concern, to expeditionary force projection operations where Deployment, Employment, and Sustainment (DES) are integrated synchronized operations. These DES type operations are typical of those conducted by Naval Expeditionary Groups. Highlights of those operations include the marriage of personnel and equipment just prior to loading at the POE (Port of Embarkation) for the transit. This concept, of marrying equipment and personnel at the POE, can be extended to the National Training Center (NTC) need to combine personnel and equipment in preparation for further training and readiness en route. These forces can then be deployed directly from NTC to the AOR, disaster scene, or the Sea Base with minimal transition time upon arrival in theatre. In combination with air and surface lift assets, our strategic ports represent the critical choke point constricting force projection operations to deploy the bulk forces beyond the quick response force, as well as the majority of sustainment supplies that will originate from CONUS locations for distribution by sealift assets. The Joint Deployment/Rapid Distribution, Agile Sustainment, and Information Fusion capabilities of the Focused Logistics Joint Functional Concept are key to developing the DES capabilities required to support envisioned expeditionary operations.

REQUIRED CAPABILITIES

Adaptive distributed operations in an asymmetrical warfare environment reflected in Joint Operational Concepts (JOpsC) developed by the Joint Staff requires adaptive distributed logistics capabilities embodied in Focused Logistics functional concepts. Distributed logistics capabilities describe how we are to project forces swiftly and sustain them once there. The goal of distributed logistics is to get the right stuff, in the right place, in the right quantity, in the right sequence, at the right time. Developing the infrastructure capable of supporting emerging logistical concepts will require shifting the focus of CONUS DES operations from mobilization at installations (Power Projection Platform); to agile, adaptive and responsive operations in the Deployment and Distribution Process at the Port of Embarkation (POE).

To achieve the goals set in deployment standards and vision of future logistical operations, we must attain capabilities described in the Focused Logistics Joint Functional Concept, particularly

the tenets of Joint Deployment/Rapid Distribution, Agile Sustainment, and Information Fusion. Additionally, the Joint Logistics (Distribution) Joint Integrating Concept (JL (D) JIC) calls for the integration of current and future deployment and distribution systems into a single enterprise. That enterprise is called the Joint Deployment and Distribution Enterprise (JDDE). The JDDE must be able to respond to both Force Deployments and Complex Humanitarian Disasters. A C2 node that has Situational Awareness of all logistics needed for the operation greatly enables the proper support required for disaster response. Pre-staged and transitioning logistics can be smartly packaged and loaded on short haul conveyances at the JPPSP for transit to the POE. This capability also gives DoD and the rest of the National Enterprise a more flexible response to the call for support from other governmental organizations during instances such as Katrina.

Focused Logistics Joint Functional Concept

The Focused Logistics (FL) Joint Functional Concept (JFC), dated December 2003, identifies requirements for capabilities to provide joint deployment/rapid distribution operations as a fused operation. In addition, information fusion requirements are identified to provide visibility and collaboration that future capabilities require, and that will be facilitated by a real-time, web-based, network-centric information system providing accurate, actionable asset visibility as part of an integrated operational picture, effectively linking operators and logisticians across joint forces, Services, and support agencies. This will require new visions for nodes comprising the DES infrastructure, particularly the nodes supporting embarkation operations

The core functions of a Joint Power Projection Support Platform (JPPSP) integrated with a Seaport of Embarkation (SPOE) will transform Deployment, Employment, and Sustainment (DES) operations and inject the requisite agility into the Joint Deployment/Rapid Distribution process. The JPPSP and SPOE, as a deployment node leveraging commercial agile infrastructure support, will allow incoming traffic to be staged in a manner most effective for loading to sealift, or reprioritized to reflect changes in commander's intent or changes in circumstances since departure from point of origin as well as the emerging capability of dynamic re-planning to divert movement to air transit in reaction to changing priorities or missions. Adding new capabilities transforms the Joint Deployment/Rapid Distribution process by widening a qualitative superiority through increased agility and flexibility. Robust agile infrastructure leveraging IT technologies with the point of effect at point of embarkation can provide adaptability and agility within the deployment and distribution infrastructure that is currently lacking.

In addition to supporting the Focused Logistics JFC, this ICD also supports future JFCs supporting JOpsC include Battle-space Awareness (BA), Joint Command and Control (JC2), and Force Application (FA). Each JFC that requires development of future capabilities in order to be supported are described in Appendix D. It also supports the Net Centric Joint Functional Concept (JFC), Net-Centric Operational Environment and Sea Base Joint Integrating Concepts (JIC), and the Sense and Respond Logistics Joint Enabling Concept. Network Centric IT Capabilities enable Human Systems Integration/DOTMLPF through applying universal interoperability processes and toolsets. Each of the Net Centric Concepts mentioned rely on the ability to collaborate freely before developing force capability. This project tests the use of interoperability processes and toolsets. It focuses on the top priority of operational commanders in Joint Forces – Interoperability. It leverages the network centric efforts of the Office of Force Transformation and their Sense & Respond Logistics concepts to transform Logistics capabilities and forces.

Joint Deployment and Rapid Distribution

Capabilities essential for supporting the joint deployment/rapid distribution challenge include the following:

- A fully enabled distribution support system, supported by a robust infrastructure, and further characterized by capabilities for:
 - optimizing rapid projection, delivery, and handoff of joint forces and sustainment assets
 - rapidly initiating force deployment processes and moving required forces and sustainment to the place and at the time required
 - supporting returning forces to home station, or other location for regeneration and reconstitution
- Integrated, effective, efficient deployment and distribution processes that fully support DoD joint force deployments and sustainment through the SPOE:
- enabled by integrated military and commercial business practices and interoperable systems
- integrated and synchronized vertically and horizontally from the strategic to the tactical level
- capable of determining distribution capacity and optimizing distribution capacity allocation, transportation allocation, carrier selection (including sources of opportune lift), scheduling, and rescheduling based on supporting the evolving commander's intent.

Agile Sustainment

Capabilities and characteristics essential for meeting the agile sustainment challenge:

- Use of common metrics, standards, and processes that promote simplicity and interoperability with all Services and commercial entities
- Collaboration with the civilian sector to take advantage of advanced business practices, commercial economies, and global nonmilitary networks
- Remote monitoring, diagnostic, and prognostic devices and knowledge based-information systems to sense, predict, report, and anticipate problems in the distribution system
- Provide the IT architecture that rapidly enables allies, other government and non-government organizations, coalition partners, and other Communities of Interest to link with the Global Supply Network.

Global Logistics Network Interoperability

Capabilities and characteristics essential for meeting the global logistics network interoperability challenge include the following:

- Integration with the DOD end-to-end information grid:

- Assured communications
 - Net-centric enterprise services, such as:
 - Universal transaction services
 - Distributed environment support
 - High assurance of services redundant, agile, and survivable infrastructure, combined with joint interdependencies, which enables infrastructure that can withstand both kinetic and directed information warfare attacks.
- Near real-time support (focused on the segment from the source through the SPOE (US strategic port) to the COCOM) to enable the end-to-end control of the entire deployment, distribution, and sustainment pipeline—from mobilization, deployment, employment, reconstitution, regeneration, redeployment, and demobilization, and across the entire logistics spectrum, with the characteristics outlined below:
 - Ability to capture timely, accurate, interoperable source data (enabled by data standards)
 - High-quality, authoritative data available for processing and presentation applications
 - Enhanced asset visibility, control, and management decision support tools that turn available data into “actionable” information
 - Information-rich visualization so deployment and distribution stakeholders can quickly and efficiently assimilate the volumes of data and information pertaining to their respective areas of responsibility
 - Robust network architecture capable of providing all who need it rapid access to an integrated operational picture with timely, accurate, and synchronized operational, intelligence, and logistics information
 - Automatic planning and re-planning to reduce significantly the time necessary for developing and evaluating alternative approaches for logistics support execution monitoring—through trigger processes or plan sentinels at key nodes or links in the pipeline—for identifying and reacting rapidly to deviations from the movement plan and ship loading plan while unit equipment is en-route from multiple Power Project Platforms.

Joint Logistics (Distribution) Joint Integrating Concept

The JL (D) JIC calls for the integration of current and future deployment and distributions systems into a single enterprise. That enterprise, called the JDDE, requires 3 capabilities for successful operations:

- Deploy the joint force
- Sustain the joint force
- Operate the JDDE.

The most critical capability required for DES operations is assured access to strategic ports when needed. In today’s current environment of increasing commercial demands for port services, combined with increasingly frequent deployment operations, and port facilities nearing physical capacities, assured access to strategic ports cannot be assumed.

To assure access to strategic ports, DoD must work collaboratively with the communities and port stakeholders to find ways to leverage new technologies and processes to increase the capacities of

our ports and de-conflict demands for military movements and commercial operations in ports. In the process, DoD must find ways achieve the capabilities necessary to support the war-fighter in the JV 2020 environment.

CONCEPT OF OPERATIONS

Historically, DoD and strategic providers (USTRANSCOM and DLA) on one hand, and Combatant Commanders on the other hand, have viewed logistics from opposite ends of the same pipeline and with different perspectives. Surge deployment and mass logistics were virtually synonymous employing push logistics in a strategic sense. The strategic mission was complete with successful delivery into theater at a SPOD or APOD via surface or airlift, organic or commercial charter, and measured in volume delivered. Even most major IT systems terminated data input or update at that point. In contrast, the Combatant Commander is concerned primarily with unit readiness, operational availability and capability in an operational and tactical sense. COCOM success is measured in readiness rates and mission accomplishment.

There is a need to fully integrate and network DES operations to be able to achieve support of distributed operations as envisioned in JV 2020. As the DES paradigm shifts from separate doctrine and support structures designed in stovepipe function to support mobilization requirements in a linear fashion to a single integrated operational concept designed to support rapid expeditionary movements to diverse and distributed locations, network of smart nodes must emerge to provide the data fusion and integrated synchronized movement and C² operations necessary to control DES operational flow. These smart nodes, at strategic locations, leveraging commercial agile infrastructure will provide the suite of capabilities required to respond to rapidly changing circumstances in the unpredictable environment of future expeditionary operations. To support expeditionary, distributed operations, POE and POD (particularly SPOE and SPOD) locations will require different resources and command focus to synchronize the DES flow so that units, materiel, and equipment can rapidly flow through the POE and POD and minimize the dwell time that currently inhibits rapid employment of critical capabilities to theater operations.

In a DES environment, a JDDE element will be operationalized to control the flow through and operate POEs. This element will be able to coordinate the flow coming to the POE as it tracks movements from Source of Origin into the flow (this also includes retrograde movements coming back from theater). Once at the POE, the DES flow will be buffered to sort, marshal, and stage for smart loading of lift assets in collaboration with war-fighter priorities to minimize RSOI requirements upon discharge in theater. These capabilities will be enabled by development of a sensor network to monitor the flow into the POE, movements and storage within the POE, and the flow out of the POE. Information fusion, that integrates multi service IT systems with those of Non-DoD supply and transportation partners, will be leveraged to create the local Common Operating Picture (LCOP) necessary to control POE operations and provide the war-fighter the relevant information needed to collaborate for movement in support of the war-fighter's intent.

The POE will be able to support distributed expeditionary logistical operations by, first, leveraging information technology to establish ITV and TAV within its sphere of influence, share that information with the stakeholders they interact with (particularly the supported war-fighter), second control the DES flow by providing marshalling and staging operations to buffer between transportation mode capacities, and third impacting the DES flow by providing smart load planning to create effective lift loads to minimize theater RSOI requirements and dynamic re planning and diversions (including transport mode shifts – for example, sealift to airlift) as

situational changes dictate, and flexibility, agility, and responsiveness demands of Sense and Response Logistics require.

The informational and physical domain established by the JPPSP will be tested and made operational. This super C2 node will have the ability to stage and smartly load all out going personnel and equipment shipments as well as process incoming retrograde and logistics returns. The concepts developed to enable this node are transportable to other global stationary or mobile locations and continuously serves as information nexus for Command & Control purposes. The node C2 structure can be transported to the Sea Base where it could be used to provide a logistics common operating picture in support of OMFTS (Operation Movement from the Sea) and STOM (Ship to Objective Maneuver). The JPPSP is also on the front line in CONUS, as it provides and ideal location for reach-back information and autonomic logistics applications for warriors in theater.

CAPABILITY GAPS

A fundamental challenge to DES operations are to provide de-conflicted on demand access to our strategic ports. First, increasing deployment tempos to austere operational areas has increased military demands on strategic ports and sealift assets. At the same time, ports are experiencing increases in commercial traffic, and are less willing to experience the disruptions military deployments cause in commercial operations. These trends are causing many ports, short of national mobilization, to discourage or deny military use of their facilities, thus access to strategic ports cannot be assured, except in times of national crisis as mandated by law.

Two major paradigms create seams in current Deployment, Employment, and Sustainment (DES) operations that inhibit seamless joint operations from point of origin to point of need. First is the fact that deployment, distribution, and sustainment operations are currently covered by separate doctrines and viewed as distinct separate operational areas. Second, current doctrine views distribution as a pipeline composed of a strategic segment (under USTRANSCOM for transportation and DLA for distribution) and a theater segment (under the responsibility of the COCOM) with handoff occurring at the Port of Debarkation (POD).

Current deployment and distribution doctrine is still based largely on meeting the mobilization needs of a heavy force engaging a comparable heavy force. Thus, Army Power Projection Platforms (PPP) are at Army installations where forces (particularly reserve forces) can be mobilized, certified mission capable, then deployed. Transformation to expeditionary forces will put a premium on responsiveness, agility, and flexibility, thus shifting the critical node of control from the assembly point (PPP), to the point of embarkation, where final adjustments to the flow into theater can be better synchronized with COCOM and JFC requirements and priorities.

The Joint Logistics (Distribution) JIC identifies a number of capability gaps and seams in the current distribution system. Key indicators of the overall problem are as follows:

- Lack of full integration between processes that deploy and sustain the joint force.
- Separate DOD systems and doctrine exist for both deployment and distribution.
- Lack of an integrated, net-centric environment, capable of supporting the control needed to accommodate E2E distribution activities.
- Limited direct “fort-to-fight” force deployment capabilities.

- Limited and intermittent asset visibility and in-transit visibility of forces and commodities in the distribution pipeline.
- Poor retrograde management and return within the distribution pipeline.
- Inadequate decision-support and modeling & simulation tools.
- Insufficient commonality in force data elements.
- Limited shared common operational picture.
- Vulnerability of the entire distribution pipeline to attack..
- Rigid, cumbersome financial processes.
- Lack of standardized rules, tools and processes to enhance joint distribution operations.

The above indicators speak to the many shortfalls that sharply hinder immediate employment of joint forces in simultaneous, distributed operations.

In March 2006, USTRANSCOM, as Distribution Process Owner (DPO), began to prioritize addressing gaps in the distribution system as it briefed the Distribution Functional Working Group (DFWG) and Distribution Steering Group (DSG) on the most significant gaps in the distribution process, and ranked them into a prioritized order. Twenty eight gaps were identified, of which the top 8¹ accounted for 70% of the weighted score, and the top 11² account for 80% of the weighted response. The top 3 priorities, Intransit Visibility, Distribution Planning and Forecasting; and Joint Transportation Interface, accounting for a little less than 50% of the weighted score, were further broken down into sub-gaps to identify problems of scale that can be addressed to close these gaps. The top three priorities, each with the same top three sub gaps in common, point to the need to synchronize the deployment and distribution processes, as critical enablers, as the military transforms to more expeditionary operations; and as deployment, distribution, and sustainment evolve from separate operations supported by separate doctrines, to a single deploy, employ, and sustain operational concept.

THREAT AND OPERATIONAL ENVIRONMENT

Three key aspects of the future security environment will pose an array of military challenges that will influence the conduct of DES Operations: (1) a wider range of adversaries, (2) a more complex and diverse battle space, and (3) technology diffusion and access.

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- ¹ JDDC Gap Prioritization and Way Ahead Briefing to DFWG/DSG, 15 Mar 2006, Lt Col Dan O'Canon, TC J5-SAG The first 8 gaps are: 1. Intransit Visibility, 2. Distribution Planning and Forecasting, 3. Joint Transportation Interface, 4. Requisition Priorities, 5. Joint Logistician, 6. Supply chain Sustainment Simulation Tools, 7. Defense Transportation System (DTS) Expansion, and 8. Container Management. For the complete list, see Annex C
 - ² Ibid. The next 3 gaps are: 9. Cargo Booking, 10. DoD Activity Address Codes (DODACC) Management, and 11. Inventory Receipts and Accountability.

Smart nodes, such as a SPOE with a JPPSP, while a physical target for terrorism, rely heavily upon IT. As net-centric and information-driven warfare become a reality, the security posture and threats to the JDDE infrastructure influences our ability to conduct warfare and support business operations. In order to ensure the reliability of our enterprise, it is paramount to identify the threats to future IT systems and applications at the earliest possible point in the development/acquisition cycle. This practice is paramount to the security posture of POE and its ability to support the JDDE and thus the war-fighter.

More specific threats to operations are covered in Appendix E.

FUNCTIONAL SOLUTION ANALYSIS

Solutions to assure access to strategic ports and provide the C² and physical facilities to provide robust agile logistical support providing the warfighter greater control of the DES flow will necessitate non materiel DOTMLPF changes to adjust to the new paradigms of JV 2020, as well as materiel changes to provide the resources and facilities to enact change in SPOE operations necessary to support future expeditionary operations.

Appendix F, the Strategic Mobility 21 Joint Power Projection Support Platform (JPPSP) provides a specific example of a smart node to enhance POE's to achieve the capabilities necessary to achieve DES operations as envisioned in Joint Focused Logistics Functional Concepts.

Non-Materiel Approaches

Emerging concepts in logistical support and control of logistical support operations call for an analysis from End to End (E2E) of current deployment and distribution infrastructures and processes, from fort/factory to foxhole. To establish the JDDE as envisioned in the JL (D) JIC, DOTMLPF changes will be required for the entire DES infrastructure. Concepts expressed in this ICD would be a component of that analysis and like other emerging concepts, such as Deployment and Distribution Operations Centers, Joint Deployment and Distribution Enterprise systems, SeaBasing, and Node Management and Deployable Depot (NoMaDD), all represent improvements in theater DES capabilities. What is lacking, however, is a network centric CONUS anchor node-for-such operations to smooth the seam representing the transition from strategic lift and sustainment support systems to theater distribution reflecting the warfighter's needs. Enhancement of POE operations to shift the paradigm from movement of mobilized forces to force projection in support of expeditionary DES operations will require new doctrine, force structures, and business practices to leverage advancements in technologies and processes in partnership with the private sector as well, and will be part of overall DOTMLPF changes as we evolve to DES operations.

Materiel Solutions

To assure de-conflicted access to Strategic Ports and provide valued added facilities to DES operations, a prototype JPPSP (Appendix F) must be designed to create logistical support capabilities as described in the Joint Focused Logistics Functional Concepts, with emphasis on providing Joint Deployment/Rapid Distribution functional capabilities. The architecture for developing physical facilities and processes must be based on supporting net-centric operations (to ensure Information Fusion capabilities) and Sense and Respond Logistics (to ensure Agile Supply that is flexible, adaptable, and focuses on achieving effects articulated in operational and strategic objectives of supported operations).

To achieve desired capabilities, POEs with the following capabilities and facilities are needed:

The core capabilities:

- The coordination of the control of traffic out of (and in to) CONUS, to be responsive to COCOM support requirements and campaign plans.
- Marshaling, staging, and organizing traffic for onward movement (Buffering, Smart Load)
- Synchronization of deployment and sustainment operations with reception activities in COCOM.
- Integrating Non-DoD partner IT systems and products into DoD IT networks as appropriate.
- Allowing Non-DoD partners access to DoD IT systems and products as appropriate.
- Providing accurate ITV data on shipments as they enter, are temporarily held, and as they leave the JPPSP.
- Ability to access and operate in both secure and non secure IT environments.

Basic facility requirements will include the need for:

- A rail deployment facility
- Connecting rail networks
- Holding facilities (Warehousing, Marshalling Yards, Container Yard, Staging Areas, etc)
- Trans-loading facilities (mode to mode and intermodal) for air, sea, and surface movements
- A Deployment and Distribution Operations Center
- Internal Sensor Networks

FINAL RECOMMENDATIONS

The paradigm shift in operations from mobilization to support a heavy conventional force poised in fixed positions to meet a similar adversary, to a new less predictable world requiring expeditionary operations to project our forces to more austere environments, requires the change in locus of control and focus of operations from activities at mobilization stations, to activities at embarkation points. Contingency operations change rapidly, thus an agile and responsive support system needs to be in place.

Additionally, our ports are facing a crisis in capacity. They are facing unprecedented trade-driven throughput demand, and current physical facilities are nearing their productive capacities with little room for physical expansion. New and innovative network centric solutions requiring modal integration, collaboration, business process transformation, and maximizing the use of

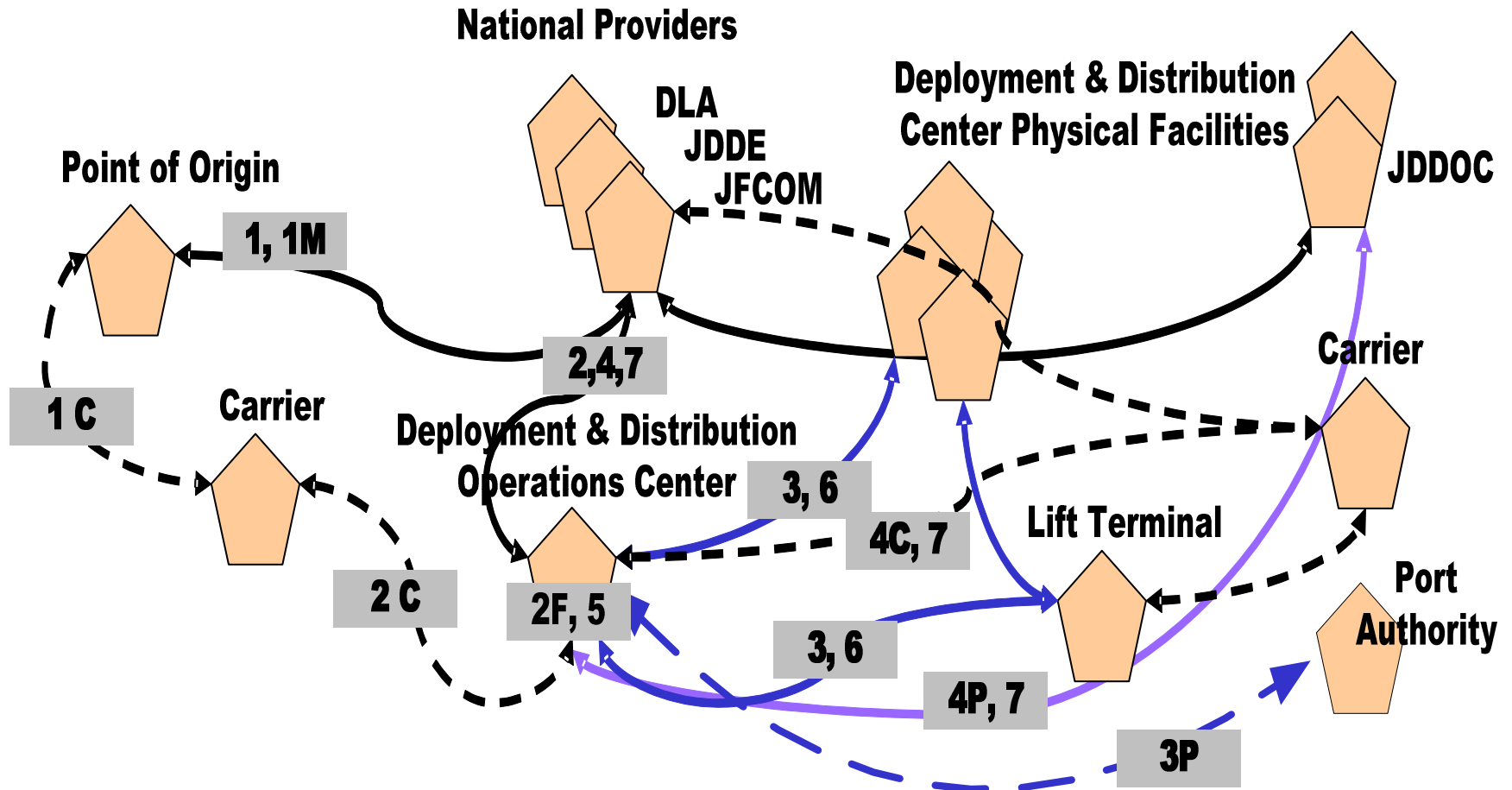
additional air and surface transportation infrastructure are needed. Collaboration among all stakeholders is needed if we are to keep our ports competitive and meet throughput demand. DoD has a major stake in the outcome of these efforts, as current and future operational tempos increasingly call for demands to deploy forces using our seaports to provide the necessary sealift capabilities. To assure access to Strategic Ports, DoD must join in the collaborative efforts to transform our global transportation and logistics networks, and when necessary in the national interest, as part of the Joint Deployment/ Rapid Distribution Process, set an example.

Important initiatives, such as Strategic Mobility 21, are efforts of several communities, public, private, academic, and governmental, to find solutions to port issues. DoD, particularly with transformation efforts, is an indispensable stakeholder in developing viable doctrine and leveraging the development of agile infrastructure and facilities to support DES operations to assure access to strategic ports.

APPENDIX A: MANDATORY ARCHITECTURE FRAMEWORK DOCUMENT

OV-1 POE Deployment and Distribution Operational High-Level Operational Concept

Supported **COCOM**



Legend next page.

1. Point of origin creates shipment data, arranges transportation, tags shipment for movement tracking and shipment identification. Provides information to National Support controllers to update ITV server, TAV server. 1 C. Carrier shares transportation information over internal IT network. 1 M Movements tracked through check points by national provider
2. POE Deployment and Distribution Operations Center accesses DoD Transportation movement and ITV servers for incoming shipments, expected ETA, description of shipments (physical and delivery instructions). 2 C. POE Deployment and Distribution Operations Center accesses commercial partner networks for incoming traffic. 2 F. POE Deployment and Distribution Operations Center fuses DoD information and Commercial information to create local COP, share with DoD and commercial partners.
3. POE Deployment and Distribution Operations Center, using internal sensor and IT infrastructure controls facility operations by maintaining inventory control and facility capacity status of POE Deployment and Distribution Operations Center physical facilities (warehouses, marshalling yards, container yards, rail yards, etc) and directing priorities of work. 3P. Collaborates with port complex authorities for use of facilities
4. POE Deployment and Distribution Operations Center coordinates with USTRANSCOM for inbound Strategic lift. 4 C. When necessary, accesses commercial partner IT systems for particular conveyance information. 4 P. POE Deployment and Distribution Operations Center shares COP and collaborates with supported theater command to determine current situation and commanders intent and priorities for DES support
5. POE Deployment and Distribution Operations Center develops load plans based on incoming DES flow, lift assigned for outbound leg, supported theater commander's intent and priorities.
6. POE Deployment and Distribution Operations Center orders execution of load plans, monitors operations, continuously updates load plan, stands ready to alter plans due to change in theater commander's needs, alterations in plan assumptions (I.e. shipments not arriving as planned to POE, arrival of different lift conveyance, etc.), needs to divert to different destination or mode of transport.
7. POE Deployment and Distribution Operations Center dispatches outbound shipments and conveyance, shares information with national providers, commercial partners, and supported theater commander.

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APPENDIX C: ACRONYMS

ACRONYM	DEFINITION
AOA	Analysis of Alternatives
AOR	Area of Responsibility
AV	Asset Visibility
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CDD	Capabilities Development Document
CLM	Car Locator Message
CJCS	Chairman of the Joint Chiefs of Staff
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
CJCSM	Chairman of the Joint Chiefs of Staff Memorandum
COCOM	Combatant Commander
COI	Community Of Interest
COOP	Continuity of Operations
COTS	Commercial Off-The-Shelf
CR #	Change Request Number
CRD	Capstone Requirements Document
DCN	Document Control Number
(J)DES	(Joint) Deployment Employment Sustainment
DoD	Department of Defense
DoDD	Department of Defense Directive
DOTMLPF	Doctrine, Organization, Training, Materiel, Leadership, Personnel and Facilities
EDI	Electronic Data Interchange
EMP	Electromagnetic Pulse
ESDE	Enterprise Shared Data Environment
EW	Electronic Warfare
FA	Force Application
FAA	Functional Area Analysis
FL	Focused Logistics
FNA	Functional Needs Analysis
IA	Information Assurance
ICD	Initial Capabilities Document
IOC	Initial Operational Capability

ACRONYM	DEFINITION
IT	Information Technology
ITI	Information Technology Infrastructure
ITV	In Transit Visibility
J-AIT	Joint Automatic Identification Technology
JCIDS	Joint Capabilities Integration Development System
JDDE	Joint Deployment Distribution Enterprise
JDDOC	Joint Deployment Distribution Operations Center
JFC	Joint Functional Concept
JFC	Joint Force Commander
JIC	Joint Integrating Concept
JL (D) JIC	Joint Logistics (Distribution) JIC
JOC	Joint Operating Concept
JOpsC	Joint Operations Concept
JROC	Joint Requirements Oversight Council
JTA	Joint Technical Architecture
JTF	Joint Task Force
JV	Joint Vision
KPP	Key Performance Parameter
MOE	Measure of Effectiveness
MOP	Measure of Performance
MOS	Military Occupational Specialty
MT	Mission Task
NCOW	Network-Centric Operations and Warfare
NSS	National Security Systems
O&M	Operations and Maintenance
OA	Operational Architecture
ODS	Operation Desert Storm
OIF	Operation Iraqi Freedom
OV	Operational View
(A)(S)POD	(Ariel) (Sea) Port of Debarkation
(A)(S)POE	(Ariel) (Sea) Port of Embarkation
PPP	Power Projection Platform
RSOI	Reception, Staging, Onward movement, and Integration
RFID	Radio Frequency Identification

ACRONYM	DEFINITION
SDE	Shared Data Environment
S & RL	Sense and Respond Logistics
TBD	To Be Determined
TCA	Transformational Communications Architecture
TTP	Tactics, Techniques, and Procedures
UJTL	Universal Joint Task List
U.S.	United States
USTRANSCOM	United States Transportation Command

APPENDIX C: ACRONYMS ANNEX 1 DEFINITIONS

Deployment, Employment, Sustainment (DES) – Deployment, Employment, Sustainment is a single, coherently joint deployment, employment and sustainment concept that enables seamless projection and indefinite sustainment of a future joint force. The concept is an operational level concept that merges planning and execution of deployment, employment and sustainment of military forces within a single construct, as opposed to the current practice of viewing these processes as separate operations with separate doctrine, and as required by the JopsC.

Joint Deployment Distribution Operations Center (JDDOC) -- Mission: Directs Intra-theater distribution and synchronizes the strategic operational lift capabilities for theater commander. Responsibilities: Maintains Visibility of Forces / Materiel, Directs Intra-theater Movement of Forces / Materiel, Synchronizes Strategic / Operational Lift, Tracks Movement of Forces / Materiel from origin to Tactical Assembly Area (TAA) / Supply Support Activity (SSA).

Joint Deployment Distribution Enterprise (JDDE) -- The JDDE is described as an integrated system consisting of assets, materiel, personnel, leaders, organizations, procedures, tools, training, facilities, and doctrine – will provide logistics solutions to the JFC to minimize seams in the pipeline that characterize current strategic and theater distribution segments. The JDDE will complement, interact with and augment Service or JFC-unique distribution responsibilities and capabilities.

APPENDIX D: JOINT FUNCTIONAL CONCEPTS

While primarily concerned with development of capabilities to support the Focused Logistics concept, this ICD also support development of other future JFCs supporting JopsC, to include Battle-space Awareness (BA), Joint Command and Control (JC2), Focused Logistics (FL), and Force Application (FA). Each JFC that requires development of future capabilities in order to be supported are described in the following Annexes.

APPENDIX D- JOINT FUNCTIONAL CONCEPTS ANNEX 1 BATTLESPACE AWARENESS (BA) JFC

Battlespace Awareness (BA) JFC

The BA JFC, dated December 2003 Version 2.1 envisions war-fighting staffs employing expert software to generate critical and relevant information faster and more accurately than ever before. While BA is primarily concerned with development of battlefield intelligence, the same information gathering, processing, and information dissemination functions also apply for dealing with logistical support information. Intelligent software agents will perform filtering functions and highlight items that they have been configured to monitor as well as anomalous observations that might indicate changes in logistical support capabilities, or deviations from logistical support or deployment plans. The key enabler for BA will be the ubiquitous network. As a joint force enabler, the POE operations IT infrastructure must be interoperable, network security compliant, and have the capability to plug in and leverage capabilities provided through the Joint Force IT network.

A POE operations IT infrastructure integrated with a ubiquitous network will ensure that operational facilities (both DoD and non-DoD) involved in DES operations will have access to information in support of the joint force commander's deployment and distribution operational plans. Deployment and distribution operators (both DoD and non-DoD), as well as war-fighters, will be able to obtain secure, timely, high quality, precise information, concerning DES status, that can be shared with relevant decision-makers (both U.S. and coalition) at appropriate classification levels. Information precision refers to the degree that the decision-maker is able to receive information that is relevant, appropriate, and in an understandable form. Timeliness measures the time between the desire for the information and the receipt of the information by the decision-maker. Sharing describes to what extent the information can be shared both in terms of the exportability of its content and form as well as the existence of shared policy, procedures, protocols and infrastructure to move information within the networked force.

POE operations provide capabilities to support attainment of the following BA JFC capabilities. These capabilities are listed below

Table D.1. Capabilities to Support Attainment of BA JFC Desired Capabilities

Capabilities to Support Attainment of BA JFC Desired Capabilities
--

The purpose of Battlefield Awareness is to provide actionable intelligence to the war-fighter to enable the war-fighter a thorough understanding of his environment. JPPSP information fusion encompasses the capabilities to collect, process, and "fuse" data associated with the operational boundaries (scope) of the JPOE. Additionally, the POE IT infrastructure will provide data to other systems that produce actionable information within a Common Logistics Operating Picture.
--

Execute Collection – The POE will have a network of existing and future sensors to track incoming and outgoing movements, as well as interface with commercial systems that acquire and process data from rail and highway sensors. This information will support DES operations.
--

Capabilities to Support Attainment of BA JFC Desired Capabilities

Exploitation and Analysis – POE operations are predicated on monitoring the platform related logistical COP. The POE would get direction and share data with a national level COP and the theater operational level to support the synchronization of war-fighter support. Sharing information with emerging concepts and associated support systems, such as the JDDOC or JDDE, will help support the synchronization of theater logistical conditions with national logistical support capabilities.

Model, Simulate, and Forecast – The POE in providing operations to optimize support efforts both augment and leverage existing modeling and decision making tools to enable the agility necessary operate in a Focused Logistics/S& RL environment while minimizing disruptions as priorities and operations change in support of changing war-fighter needs.

Knowledge Management – The POE, as a partner with commercial/civilian providers and port operators, has the unique opportunity to not only promote the advancement of logistical support theory and practice, but also the opportunity to interact with cutting edge technologies, concepts, and processes from commercial and academic institutions. Development of a Joint Logistics Experimentation and Training and Testbed provides a formal component of POE design to capture and manage knowledge in this dynamic environment.

The POE offers a physical location where commercial/civilian information systems and military information systems can be integrated, with the POE assuring the validity and compatibility of incoming commercial/civilian logistical information for use by military stakeholders, and assuring the validity of logistical information to be drawn by non-DoD partners in support of DES operations. In essence, what the POE will do is acquire appropriate tracking information from the distribution partners, both commercial and military, and use this information to perform the required POE functions. The POE will provide shipment and asset status to DoD systems. In cases, such as reconfiguring trains, the POE will share the appropriate information to commercial system as trains are interchanged and tracked through the POE.

APPENDIX D JOINT FUNCTIONAL CONCEPTS ANNEX 2 NET-CENTRIC CAPABILITIES

Net-Centric Capabilities

POE design recognizes net-centric capabilities required to support the FL JFC. These capabilities are critical to effective POE operations and are listed in the following table.

Table D.2. Net-Centric Capabilities Required to Support the FL JFC

Net-Centric Capabilities Required to Support the FL JFC
--

Ability to Collaborate -- Collaboration is a critical enabler to allow the JPPSP to add value to DES operations through the “Smart Loading” concept. The JPPSP will provide a portal whereby load planners and transportation planners can collaborate with each other and the warfighter to support JPPSP operations and the strategic sealift ship-loading operations.

Ability to synchronize actions – The JPPSP (and its commercial counterpart) depends upon the capability to synchronize JPPSP movements into and out of ports with a variety of transportation modes to achieve customer centric movement objectives. Especially critical for the JPPSP is the ability to synchronize loading of war-fighter bound lift for unload in a manner that will minimize RSOI requirements in theater.

Conduct collaborative decision making/planning – A critical capability to allow the variety of stakeholders to achieve superior desired results by working together to optimize the use of scarce resources as opposed to competing for use of scarce resources.

Ability to create/produce information. -- Ability to store, share, and exchange information and data. -- Ability to establish an information environment. -- Ability to process data and information. -- Ability to employ information. -- Ability to find and consume information. -- Ability to provide user access. -- Ability to access information. -- Ability to validate/assure. -- are all essential net centric capabilities that will be enabled by information fusion operations at the JPPSP. Additionally not only will the JPPSP capture and process military logistical information and data, but will be able to function as an assured portal for exchange of logistical data as appropriate to and with non DoD logistical partners.

APPENDIX D JOINT FUNCTIONAL CONCEPTS ANNEX 3 COMMAND AND CONTROL (C2) JFC

Command and Control (C2) JFC

The C2 JFC capabilities required by 2015 are summarized below.

- The ability to network
- The ability to share information
- The ability to interact
- The ability to develop shared awareness
- The ability to develop shared understanding
- The ability to decide in a collaborative environment
- The ability to synchronize
- The ability to execute the collaborative C2 process
- The ability to monitor and collect data
- The ability to develop situational understanding
- The ability to develop courses of action and select one
- The ability to develop a plan
- The ability to execute the plan including providing direction and leadership to subordinates
- The ability to monitor the execution of the plan and adapt as necessary
- The ability to execute the basic C2 process.

Table D.3. Goals Dependent on POE Capabilities Required to Support the C2 JFC

Goals Dependent on POE Capabilities Required to Support the C2 JFC
Enhancing the interoperability of DES operations through JLETT to experiment, exercise, and validate joint logistical C2 processes.
Providing data assurance necessary to develop a POE oriented COP, by integrating selected DoD logistical information feeds, such as TC-AIMS II, ICODES, WPS, IBS; but also integrating information feeds from commercial distribution partners.
Increasing integration and interoperability with commercial and DOD multi-modal and intermodal distribution entities that support the POE and military shipments habitually routed through the platform.
Within the operational boundaries of the POE, support the evolving logistical support tactics, techniques, and procedures to help exploit the joint operational concepts articulated in JV 2020.
Within the operational boundaries of the POE, support the evolving logistical support concepts to enhance the ability to participate as partners in joint and allied concept development and experimentation.
Within the operational boundaries of the POE, support responsive, integrated, and balanced expeditionary logistical support, leveraging improvements to supply chain management and transportation management to incorporate future anticipatory sustainment concepts such as S& RL.

APPENDIX D JOINT FUNCTIONAL CONCEPTS ANNEX 4 FORCE APPLICATION (FA) JFC

Force Application (FA) JFC

The FA JFC characterizes two overarching force application capabilities required to meet future military challenges, (1) the ability to maneuver, and (2) the ability to engage. Strategic Mobility 21 will enhance the ability to engage by enabling greater maneuver flexibility through consideration of the war-fighter's operational plans. The POE, working closely with emerging concepts, such as the Joint Deployment and Distribution Operations Center (JDDOC) or JDDE structure, enables more fluid DES operations. "Smart Loading" will enable the loading of strategic lift as required by the theater for employment of the force. The POE will be a node capable of coordinating movement with theater needs, thus allowing for better organization of forces and materials so that they are ready to employ upon arrival in theater with minimal need for RSOI operations. Smart active nodes, such as the POE are critical components of an agile logistic support infrastructure necessary in a Focused Logistics/S&RL environment. POE coordinated logistics support to the joint force would enable the continuous application of pressure against the enemy, denying him time to regroup.

Smart nodes, such as the POE, with a LOGCOP, designed to support the platform's operational scope, and agile infrastructure, designed to support adjustments in force application flows, will be required to enable Force Application from Strategic Distances. The POE would reduce the burden on the theater to receive and integrate forces and their sustainment supplies.

Table D.4. Goals Dependent on POE Capabilities Required to Support the FA JFC

Goals Dependent on POE Capabilities Required to Support the FA JFC
Deployment of forces from strategic distances for rapid employment within theater through synchronization of lift loading with war-fighter operational plans. To support this goal, the POE can optimize transport loading subject to operational constraints and the theater situation.
Expanding capabilities to observe, visualize, and shape the logistical area to expand the war-fighter's ability to attack enemy critical vulnerabilities leading to the defeat of the enemy's operational and tactical centers of gravity. The POE can support the ability to observe, visualize, and shape the logistical area, by contributing the right information on force deployments and sustainment supply and in a timely manner from the POE COP to the end-to-end LCOP.
Enhancing service component, functional component, and joint task force headquarters command and control capabilities to ensure deploying forces and equipment integrate rapidly with joint, allied, and coalition forces and interagency organizations already in theater. The POE contributes to this goal by loading strategic sealift ships with forces and their sustainment in the correct patterns, according to the commander's intent, to enable a continuous theater discharge operation and a smooth flow to employment.
Providing combatant commanders with scalable, sustainable, interoperable, expeditionary, logistical support, capable of supporting forces that are —ready to fight and win America's battles—and shape the international security environment across the complex spectrum of crises and conflict. The POE supports this goal by ensuring deployed forces and their sustainment are deployed as an integrated, maneuver package from the CONUS strategic port.

Goals Dependent on POE Capabilities Required to Support the FA JFC

Evolving logistical support concepts to enhance the ability to participate as partners in joint and allied concept development and experimentation. The POE will support experimentation associated with advanced logistics and information concepts on a continuous basis.

Networking operational communications, information, and intelligence systems with joint and allied forces and provides a global access capability to domestic and international logistical information resources. The POE will support the integration of international air and ocean shipment tracking information available to the platform. Additionally, the shipment tracking data from all CONUS modes for shipments managed by the POE can be provided to the DoD LCOP.

APPENDIX E: PROJECTED THREAT ENVIRONMENT

Projected Threat Environment

The projected threat environment is addressed below.

Table D.5. Projected Threat Environment

THREAT	DESCRIPTION
Threat to Critical Infrastructure	Vulnerability to disruption by physical and computer attack.
Insider Threat	Trusted insiders, terrorists, criminals, and other groups or individuals that are positioned to conduct well-coordinated strikes against selected critical nodes or to exploit accessible information.
External Threat	Adversarial pre-attack exploitation and attack preparations with nearly undetectable signatures.
Tactical Threat	The tactical threat to JPPSP comes from IO.
Adversaries	Adversaries recognize our civilian and military reliance on advanced information technologies and systems, and understand that information superiority provides the United States (U.S.) with unique advantages.
Probing and Scanning	Systems are regularly probed and scanned as prerequisites to exploitation and/or attack, via foreign locations in order to define network architectures and assess vulnerabilities.
Electronic Warfare (EW) Tactics	The rapid global growth of commercially available wireless communications systems has caused some countries to be interested in developing EW tactics against those systems, not necessarily against the U.S.
Perception Management and Physical Attack	Perception management and physical attack may be used against JPPSP personnel and facilities, including not only those controlled by United States personnel in host nations, but also those portions controlled by foreign personnel in host nations.
Future Threats	Includes Commercial Off-The-Shelf (COTS) Technology, CNA/CNE Tools and Electromagnetic Pulse (EMP).
COTS Technology	As DoD increasingly uses COTS technology and systems, the threat to unprotected systems will continue to grow.
Computer Network Attack (CNA)/ Computer Network Exploitation (CNE) Tools	CNA/CNE tools will become increasingly available on the Internet and will continue to grow in capability while the required level of user experience and knowledge to use them effectively decreases.
Environmental	Environmental threats include Destructive Weather, Tsunami, Seismic and Geothermal Events, and other naturally occurring events that have proven harmful to either equipment or personnel.

THREAT	DESCRIPTION
Unintentional	The Unintentional Threat encompasses disruptions and/or destruction or compromise of information and assets caused by authorized users and connected systems. This threat increases as we shift to a net-centric environment.
Electro-Magnetic Pulse (EMP)	The effects of the nuclear EMP against JPPSP and its supporting infrastructure must be considered and calculated.

APPENDIX F: JPPSP AND JOINT DEPLOYMENT AND RAPID DISTRIBUTION PROCESS IDC SUPPORTING ANALYSIS AND MATERIEL AND NON-MATERIEL RECOMMENDATIONS

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INTRODUCTION

Within our joint communities of interest in transportation and logistics, there are movements to address the challenges facing our ports of meeting an anticipated tripling in throughput demand to meet future trade driven growth in the face of environmental and quality of life challenges. While these discussions center primarily on issues of maintaining commercial competitiveness and community living standards, they present a unique and timely opportunity for DoD to address concerns for assured access to strategic ports short of Presidential declaration of a national emergency. The Strategic Mobility 21 (SM 21) program is structured to reflect on and address both DoD and commercial port and intermodal distribution system capacity constraints. It therefore presents a unique and friendly forum for DoD to collaborate with other stakeholders, commercial and governmental, to work to develop technology and business process solutions that address both future commercial and DoD throughput requirements without adversely affecting one or the other.

At the same time, there are ongoing discussions within DoD of how to achieve Joint Deployment/Rapid Distribution, and move from stovepipe logistical support by function, service, and commodity, to an integrated view of operations as expressed in the DES concepts of operations. This Appendix will explore in greater detail the complex interrelationship of DoD and commercial interests and initiatives to resolve port capacity issues, while assuring Strategic port capacity remains available to support on going and future DES operations.

STRATEGIC MOBILITY 21

SM21 represents the first green-field demonstration site for an Agile Port System (APS) in CONUS supporting an eventual build out of thirty thousand acres of automated warehouse and distribution facilities, dual Class I railroad intermodal rail facilities, and 15,000 and 12,000 foot all weather runways beyond Los Angeles International Airport air traffic control for air freight operations. It will be the permanent home to the nation's premier joint military and commercial applied logistics education, experimentation and training facility to be known as the Joint Logistic Experimental and Training Test-bed (JLETT) as the sole logistics component of the Joint National Training Center spearheaded by the US Joint Forces Command (USJFCOM). SM 21 will extend the prototype to an eventual network of similar multi-modal transfer facility or hub nodes within CONUS and beyond.

An Agile Port System (APS) is comprised of: (1) an efficient marine terminal; (2) dedicated short haul rail network; (3) synchronized operations with an inland multi-modal freight hub or load center; and (4) a regional information technology (IT) architecture to synchronize vessel arrival and departure, marine terminal, short haul rail network, and load center operations. The information technology architecture monitors freight flows by associating individual shipments and conveyances for in transit visibility and velocity management purposes. An important APS attribute is the ability to accommodate both military container and unit equipment manifest train movement and commercial intermodal container movement without mutual interference.

The military component of an inland multi-modal freight hub or load center and APS is a Joint Power Projection Support Platform (JPPSP) which leverages the Agile Infrastructure of the APS (both physical and IT) to transform Rapid Deployment and Distribution, Agile Sustainment, and Logistics Information Fusion.

SM21 focuses upon leveraging the emerging commercial capabilities of the Agile Port System, through the Joint Power Projection Support Platform (JPPSP), linking and synchronizing for the first time the activities of multiple Power Projection Platforms (PPP's) and Seaports of Embarkation (SPOE's) to enable the execution of current and future Joint Force Projection scenarios across the full spectrum of military operations from domestic (Katrina) and foreign humanitarian (tsunami) response, homeland defense and security, Global War on Terrorism (GWOT) to Major Combat Operations (MCO's) as Joint Operational Concepts (JOC's) envision our future operations. The capabilities are designed to operate across the physical, informational, cognitive and social domains of future network centric operations in a distributed, adaptive environment and battle-space.

SM 21 is structured as an academic-government-industry collaborative network-centric operational consortium. It is conceived and structured as collaborative, joint and coalition, value neutral and network centric design vice current service centric designs. SM 21 intends to deliver capabilities in the form of Deployment and Distribution business process re-engineering and information technology improvements to in-process and in-transit visibility, situation awareness and collaborative decision support all directed at the war-fighter/operator measured in speed, agility, and above all operational availability (OA) of DoD assets.

The SM 21 program is structured and operates on a single organizing principle: Adapted distributed operations require an adaptive distributed logistics capability. Lacking an originating DoD sponsor and in order to ensure successful transition of SM 21 logistics concepts into Joint Concepts and doctrine to benefit the warfighter, SM 21 has elected to generally follow the Joint Capabilities Integrated Development System (JCIDS) process to identify functional requirements and capability gaps, and to evaluate and leverage emerging commercial capabilities to provide solutions that will be accepted in the Joint DoD and coalition community.

SM21 is a program that supports attaining capabilities described under Force Application, Focused Logistics, Net-Centric, and Force Management Joint Functional Concepts. SM21 is a specific program that will provide specific capabilities expressed by the Joint Enabling Concepts of Sense and Respond Logistics, and Joint Deployment, Employment, and Sustainment. SM21, and in particular, the JPPSP component, is most clearly a system providing capabilities necessary to achieve DES capabilities. As the budget process evolves toward a focus on Joint Capability Areas, a JPPSP should be viewed as a Joint Integrating Concept and system under the Joint Logistics Joint Capability Area, with its strongest linkage to the Joint Deployment/Rapid Distribution, Agile Sustainment and Information Fusion programs; and Network Centric Operations and Sea Base Joint Integrating Concepts from a logistics perspective. It will accomplish these objectives by providing DoD multiple opportunities for leveraging commercial surface transportation and information architecture, and best commercial practices through the Focused Logistics component of Agile Infrastructure.

Strategic Mobility 21 is focused on the development of a prototype JPPSP - a component of an Agile Port System (APS). The current CCDoTT APS model includes a dual use efficient marine terminal (EMT) and regional multi-modal transfer facility or hub with a supporting integrated logistics network. The prototype JPPSP will extend and enhance the functions of the current commercial intermodal facility design for implementation within the future Southern California APS. The prototype JPPSP will be developed by combining the essential elements of the approved DOD Logistics Transformation Strategy for achieving knowledge-enabled logistics with commercial distribution best practice capabilities.

The CCDoTT prototype JPPSP will be developed on the site of the former George Air Force Base in Victorville, California (“Victorville”) and will be an integral component of the Southern California Logistics Airport (SCLA). Victorville is the command and control (C2) hub and key physical component of a planned dual use Southern California APS system. It is anticipated that dual use multi-modal freight hubs will be developed across the nation in each geographic region over the next decade as a result of public-private partnerships and efforts such as the development of the JPPSP prototype. The concept will be extended to deployment in austere port environments as part of Joint Port Opening Task Force capabilities and to coalition allies in the future. It is further anticipated that the regional freight hubs functioning as JPPSP’s will be integrated for DoD force deployment and sustainment by a national C2 hub linking multiple PPP’s and Sea Ports of Embarkation (SPOE’s) linked by strategic rail (STRANET) and Highway (STRACHNET) networks.

The Strategic Mobility 21 program is structured as a multi-year; multi-dimensional Joint Logistics Concept Technology Demonstration (JCTD) focused on the development of a prototype JPPSP. The program will adapt a development strategy similar to the DoD logistics transformation strategy. Development of the JPPSP will be a continuous process over the four-year program period using a transformational co-evolution and spiral development process for emerging joint capabilities. What this means in simple terms is that the JPPSP will evolve over the four year period from concept to operational system. This evolutionary process will be in concert with DoD logistics transformation initiatives and commercial best practices. The program will incorporate learning-oriented hypothesis-driven experiments, including simulations, technical assessments, and emulation. Interactive experiments with military units and commercial companies will be conducted to complete early operational testing of software systems and hardware.

The JPPSP concept includes an agile distribution system supported by a network-centric information technology backbone. The information network will be designed to integrate the distribution nodes including: marine terminals, intermodal rail ramps, multi-modal facilities, aggregated warehouse and distribution centers clustered into freight villages, and distribution lanes or arcs connecting the nodes. The prototype JPPSP will become the intra and inter-regional transportation information network hub. This same prototype design can be replicated in the Sea Basing context as the connector for inter- and intra-theater distributed logistics networks. In the military context the nodes are represented by intermediate staging bases (ISB) or vessels/platforms functioning as virtual warehouses and the distribution lanes represented by helicopters or vertical take off fixed wing aircraft and high speed surface craft functioning as system connectors.

The JPPSP design will be guided by high-level commercial business processes and operating techniques and the tenets of the DOD Focused Logistics Concept. A template will be developed that will target and align the facility development strategy to respond to the emerging needs of commercial and military shippers considering:

- The ongoing requirement for supply network reliability and flexibility by providing additional time flexibility to the supply network currently satisfied through the use of free time or demurrage at marine terminals ;

- Carriers shift to third party logistics providers in terms of equipment management and interchange and just in time provision of chassis, grey box empty containers, trailers, and rail cars;
- Potential DOD outsourcing of portions of the deployment and distribution process to fourth party logistics providers;
- Support for the deployment and distribution process from Power Projection Platforms via rail unit train to the JPPSP; and
- Joint Deployment Logistics Training requirements.

The Victorville prototype JPPSP will be a multi-modal and intermodal facility connecting multiple inbound and outbound distribution lanes and functioning as a logistics buffer. It will incorporate optimized infrastructure design layout and regional information technology architecture and communications framework accessible by a global web based portal. Its functional design is intended to:

- Relieve systemic pressure on marine terminals optimizing the use of increasingly scarce and expensive space for storage of on demand transportation equipment and increasing the utilization rate of high value rail yards,
- Relieve growth pressure on lift constrained intermodal rail ramps making up container unit trains to feed transcontinental main lines,
- Encourage modal shift for local drays to short haul rail affording much needed relief of overcrowded freeways and regional congestion,
- Restore regional agile supply network reliability to military and commercial shippers alike and even raising expectations and minimizing mutual interference by providing individual shippers a short term supply chain buffer and the potential large scale vendor managed inventory and trans-loading opportunities
- Provide additional cargo security and military force protection

Functional Concepts Supported by the JPPSP

Functional concepts supported by the JPPSP include the following:

- Collaborative pre-deployment logistics planning for vessel and embarkation port selection, load planning, and synchronized movement flow of unit of action deployment modules and related equipment from multiple Power Projection Platforms.
- Scheduled intermodal and manifest rail movements of modular units by the most direct rail movement to minimize transit time, and synchronize arrival at the JPPSP in preparation for onward movement to the strategic port

- Use of agile infrastructure—the development of a more responsive infrastructure and improved command and control processes and systems to enable agile response to the logistics needs of the deployed force. The agile infrastructure will include rail facilities for pre-marshaling and staging of equipment flow by short haul rail to the strategic port to minimize dwell time at marine terminals and the disruption of commercial operations
- Concurrent, multi-hold/deck vessel loading to minimize dwell time at marine terminals and disruption of commercial operations in theater
- Use of agile supply network analysis and the integration of sense and respond logistics to support dynamic sourcing and routing of high value/velocity items, including the diversion of cargo from surface to air at the JPPSP
- Use of integrated electronic data interchange (EDI), extensible markup language (XML), and automated identification technology (AIT) to improve horizontal and vertical network visibility of end-to-end unit deployment and sustainment distribution
- Use of universal data elements to integrate information flow (EDI, xml) and physical tracking of unit/pack, pallet and container movement through the JPPSP to support the end-to-end distribution network.
- Use of knowledge enabled logistics and logistics based data and information fusion—the development or enhancement and fielding of advanced decision support tools (such as the Integrated Computerized Deployment System (ICODES), the Joint Forces Collaborative Toolkit (JFCT), and TRANSWAY) that operate on multiple cross-service platforms within a distributed networked environment to fuse asset visibility, operational situation awareness, and commander's intent. Knowledge enabled logistics will incorporate the use of intelligent agents to improve the knowledge based decision support of the commander's intent, and the operational and tactical agility and command and control of the deployment and distribution process
- Extension of ICODES to a cross service single platform for vessel stowage to conduct pre-stow planning concurrent with deployment planning will achieve time compression in the deployment process and achieve better asset management.

The SM21 Program is intended to effect the following outcomes, end states, and benefits:

- Significant contribution to rapid deployment process goals of reduced unit transit times - both inter and intra theater
- Improvements to end-to-end deployment and distribution process velocity, visibility, and C2 decision support
- Enhanced operational agility in executing deployment packages linked to strategic scenarios
- Improved operational and tactical logistic situation awareness and collaborative visualization

- Permanent joint brigade level (scalable as necessary) pre-deployment logistics training capability and Joint Logistics Experimental Training Test-bed (JLETT) for advanced logistics concepts (e.g. RFID laboratory and sense and respond logistics end-to-end experimentation. etc.)

To achieve these outcomes, SM21 will combine several end-to-end Force Projection Process enablers. Some of the enablers described below are at the conceptual stage while others represent existing infrastructure, processes, or information systems. These include:

- Information technology architecture within the Agile Port System (APS) that fully integrates with and supports the end-to-end force deployment and sustainment distribution process
- Joint Force projection and sustainment Automated Equipment Identification (such as Radio-frequency Identification or RFID) and other autonomous sensor experimentation
- Joint logistics deployment operations business process reengineering
- Sense and respond logistics and agile supply networks transformational capability
- Integrated, agile multi-modal infrastructure at the JPPSP
- Agile supply network buffer for commercial shipments and military sustainment shipments. The military buffer concept will focused on supporting the Joint Sea Base/trans-shipment ISB concepts
- Network-Centric AIT and EDI/xml IT Architecture for asset and shipment tracking inbound to, outbound from, and within the APS.

In order to compare alternative solutions, to measure achievement of goals and objectives in terms of performance and effectiveness, and to determine if outcomes have been met, concepts and capabilities must have characteristics—attributes—that can be tested or measured. The appropriate attributes for SM21 are listed in the following paragraphs.

Strategic Mobility 21 Required Military and Commercial Logistics Attributes

In order to compare alternative solutions and to measure achievement of goals and objectives in terms of performance and effectiveness, concepts and capabilities must have characteristics—attributes—that can be tested or measured. The following emerging attributes or requirements for the collaborative regional supply network architecture will be used during the Strategic Mobility 21 program:

- **Fully Integrated:** Fully integrated elements with all functions and capabilities focused toward a unified purpose
- **Networked:** Linked and synchronized in time and purpose, capable of capitalizing on information and near simultaneous dissemination to turn information into actions through a common operating picture

- **Decentralized:** Operate with shared knowledge of supporting transportation network environment, as well as a clear understanding of strategic force deployment objectives and commander's intent
- **Adaptable:** Versatile, agile, capable of being tailored, scalable, able to adapt fundamental capabilities in a multi-use manner; and prepared to quickly respond to any contingency with the appropriate distribution solution
- **Decision Superiority:** Arrive at and implement better-informed decisions at a tempo that allows logistic support personnel to shape the situation or react to changes and accomplish the force deployment and distribution management mission

The following additional logistics attributes associated with JPPSP life cycle support will also be considered:

- **Effective:** Meet war-fighter or customer-driven logistics support requirements under specified conditions to specified standards
- **Reliability:** Consistently meeting war-fighter or customer-driven logistics support requirements to specified standards
- **Affordability/cost-effectiveness:** Providing the war-fighter with effective and reliable support capability within specified level of resources.

In addition to the above, on the commercial logistics side, the specific attributes applicable to an agile supply demand network performance would include:

- **Velocity:** Throughput velocity incorporating both a spatial and temporal element reflected in both transit and dwell time of shipments and conveyances moving through the network
- **Visibility:** In transit visibility of shipments and conveyances moving through the network
- **Sustainability:** Sustainability in light of anticipated future growth
- **Mobility:** Flow and accessibility reflected in the absence of bottlenecks
- **Reliability:** As measured in capacity for recovery from network disruption
- **Efficiency:** As measured in terms of capacity utilization
- **Security or force protection**

JOINT POWER PROJECTION SUPPORT PLATFORM

The primary function of the Joint Power Projection Support Platform (JPPSP) is to assure de-conflicted on demand DoD access to Strategic Ports, and as such is a critical node within the system of systems that make up the end-to-end Deployment and Distribution system. The basic

function of a JPPSP is to provide first, a transportation node as a buffer to assure access to strategic ports in support of military operations. Second, a JPPSP provides a focal point within CONUS to coordinate and control DES support of MCO or expeditionary operations. Additionally, a JPPSP must function as a buffer within the support supply chain.

The JPPSP concept accomplishes these functions by acting as a master scheduler- synchronizing and regulating the deployment and distribution flow into the Seaport of Embarkation (SPOE) to minimize transit time from Power Projection Platform (PPP), logistics footprint and dwell time at the marine terminal port side including the loading of vessels they control in port, and anticipated unloading order to meet COCOM/JFC priorities at the Seaport of Debarkation (SPOD). The JPPSP provides the buffer to compensate for the differences in capacity and throughput between surface and sealift modes of transport, the ITV and TAV enablers to provide capabilities to locate specific movement packages (whether it be specific repair parts, or specific individual, or whole unit sets) and divert them to a different mode of transportation or different destination, based on changing priorities, thus providing the flexibility and agility necessary to enable Sense and Respond Logistics capabilities and enable capabilities articulated in Focused Logistics JFC.

By its nature, a JPPSP will also provide as secondary functions, a physical location to host other transformation enablers, such as a buffer stock location for Sea Base replenishment, home station for Theater Force Opening packages (in particular port opening and operational packages, as well as initial theater distribution capabilities). By incorporating Information technology (IT) and net-centric applications as enablers for Joint Deployment/Rapid Distribution capabilities, the development of the JPPSP will provide enhancements to, and integrate end-to-end In transit Visibility (ITV) for shipments and associated conveyances and Total Asset Visibility (AV) equipment management capabilities, as well as act as a bridge between commercial and governmental agency IT information systems, and DoD IT information systems.

Developing a prototype JPPSP in support of the Ports of Los Angeles, Long Beach and San Diego in Southern California provides a unique opportunity to create a test bed for deployment and distribution concepts that can be tested on up to Brigade Combat Team sized formations. The volume of goods passing through Southern California ports (soon to increase with anticipated DoD large scale OEF-OIF redeployment and retrograde movement), coupled with close proximity to USMC and Army training facilities for Brigade Combat Team sized formations allow for a singularly unique testing environment, as well opportunities to design and execute true go to war exercises starting with deployment from home station, to simulated upload at POE, simulated download at POD, and reception into theater before deploying to combat exercises at 29 Palms or the National Training Center.

JPPSP Mission

The basic mission of the JPPSP would include:

- Deploy the joint force
- Sustain the joint force
- Operate the JPPSP as a JDDE node in support of DES operations.

A more complete mission description is provided in a later section.

As-Is Deployment and Distribution Business Process

The JPPSP Concept must of necessity be inserted for transformational purposes into a Deployment and Distribution Process that emerged from World War II; Korea, Vietnam and the Cold War; and even Operation Desert Storm (First Gulf War) mass mobilization and logistics practices.

Several preparatory years of diligent research, field observation, interviews and investigation have concluded that there is no seamless deployment and distribution process within a fragmented DoD organizational structure in comparison to commercial logistics practice. In fact, anomalies abound in the DoD organizational structure, operating paradigm and use of technology and business process to employ logistics capabilities to support operational requirements of the operator/warfighter. Various organizations are delegated lead or supporting roles in a dysfunctional rather than a synchronized business process. DoD's case is similar in many respects – paradoxical in others- to the fragmented commercial world of imports and exports save in one respect. In the commercial world, of necessity, most global supply distribution network partners are linked together by the common medium of standardized message traffic called electronic data interchange to provide whatever level of collaboration and integration the network demands.

In most cases in DoD coordination is left to third party logistics providers to monitor, and not be managed as most often occurs in the commercial domain. In both military and commercial domains, heroic efforts at the lowest levels are routinely required to maintain system equilibrium with constant friction and frequent major disruptions.

Sustainment or re-supply is the responsibility of the Defense Logistics Agency (DLA). Each class of commodities has evolved its own unique distribution strategy and lane (e.g. Class III petroleum, oil and liquids via Defense Fuel Supply, Class VIII medical via Direct Vendor Delivery (DVD), and Class IX spare parts and equipment from various depots and shipped containerized via commercial carriers).

Most major forts and bases have a rail spur and rail ramp as part of their infrastructure as Power Projection Platform (PPP). These are normally paid for through the Installation Management Agency (IMA) funds within DoD. Most units require some degree of mustering active and reserve units from multiple locations prior to assembling and mobilizing at the PPP. Upon departure from the PPP, units are often faced with either road march up to 400 miles by convoy or use of rail for movement from the PPP to SPOE's. All marshaling and staging of outbound moves occurs at the SPOE in an ad hoc fashion regardless of the impacts this logistics footprint and dwell time will have on port operations, or berth time for the sealift vessel. These practices, particularly with global imports tripling in the current decade, inherently conflict with commercial port operations as military demands for resources are in competition for the same valuable space at the dock as commercial operations.

Unit tracking from PPP to SPOE's is almost non-existent except for active tags that are not polled until arrival at the SPOE and never correlated with rail or truck movement en route that would facilitate synchronized arrival and load sequence. Both the USMC and US Army employ ICODES for vessel load planning but not for collaborative upstream movement planning that would likewise help to speed operations including vessel loading and stow factors, and de-conflict with commercial operations at the marine terminal facility.

The Defense Science Board (DSB) Task Force on Mobility noted in their 2005 report a need for COCOM commander to be able to sequence and time sustainment packages to meet changes in campaign plans (pg 17). There need to be better processes to facilitate assembly of force modules and sustainment packages (pg 17). Employment currently is sequential, linear, scheduled, centralized, and commodity focused. Fixed port infrastructures currently have inadequate rail infrastructure and inadequate staging areas (pg 74). Ports will need incentives to expand infrastructure and assure military access to port facilities (pg 73). There is a need for strong command and control to coordinate shiploading. Current shiploading practices are predicated on efficient use of ship stow space, not on unit integrity or COCOM campaign plans. In short, current deployment processes are disjointed, and beyond requesting forces and sharing an operational plan, the COCOM commander has little control or input to the deployment process.

To-Be Deployment and Distribution Business Process

A JPPSP would have three major functions to add value to the distribution process. First and foremost would be to capture and assure the accuracy and validity of supply chain and transportation information between and across military and commercial information systems. This capture is critical to establishing the ITV and TAV necessary to enable Sense and Respond Logistics. Providing information assurance within the JPPSP is essential to maintaining the integrity of deployment and distribution systems, particularly as the JPPSP bridges between services within DoD, and bridges DoD information systems with the information systems of our commercial partners.

Second, leveraging improved information will allow commercial and military operators the ability to increase port production through better coordination of the flow of goods and materiel, thus reducing dwell time within ports and inter modal nodes. Currently the average dwell time for containers port side is 6-8 days, and at inter modal rail yards, and additional 36-48 hours . Reducing port and inter modal terminal dwell time to 4-5 days total could double port capacities without expanding facilities.

Finally, improved ITV and TAV within port facilities will allow DoD logisticians at the JPPSP to locate, reprioritize, and change shipping modes in the agile and flexible manner necessary to support operations and processes based on Sense and Respond Logistics principles.

Distribution capabilities must first center on providing accurate, reliable, valid transportation and supply chain data in a timely fashion that provides usable real time information in support of operations monitoring and decision-making tools. The war-fighter must have timely and accurate information to maintain accurate situational awareness. Secondly, facility capacities and process rates must be cognizant of projected deployment surge requirements, as well as projected sustainment requirements to flow through the POE.

Additionally, the JPPSP must act as a buffer node to compensate for the different capacities and processing rates between different modes of transportation and trans-loading requirements. Capacity and process rates must be addressed by source (transport mode and packaging) for the JPPSP to receive, store, trans-load, repackage, pull, prepare for movement, stage, and dispatch the distribution flow as it transits the JPPSP node.

From a military perspective, the JPPSP may also need to act as a buffer where materiel necessary for replenishment of Sea Base, Intermediate Staging Base, or Theater Distribution

Center type nodes can be marshaled and staged to increase the total effectiveness of an end-to-end distribution system. A JPPSP with access to an air freight terminal may be an ideal location for reach back for items, and in particular low demand items, when emergency replenishment is necessary.

Collectively, these emerging capabilities describe the attributes of a distribution rather than a supply network paradigm more closely associated with a manufacturing network. Network discipline is maintained through a master schedule linking nodes and distribution lanes – concurrently tracking shipments associated with conveyances thereby achieving twin objectives of efficient transportation equipment management (air and surface) while maintaining network visibility and security at the same time. In marked contrast to the commercial world, DoD currently segregates transportation management and network visibility requirements and capabilities evident in the bifurcated use of RFID technology for Automatic Identification Technology (AIT) for equipment management separate from In Transit Visibility (ITV) for shipment visibility. Besides the obvious sub-optimization in the use of technology, a propensity for DoD to select technological versus business process solutions is revealed. In either case failure to analyze fundamental organizational structure and process limitations will inevitably produce a cycle of repeated system failure.

In a Sense and Respond Logistics scheme, supply stocks at a JPPSP could logically be part of the theater rear, and considered part of theater supply stocks, as opposed to being part of national stock reserves. The JPPSP can reduce the number of Line Items to forward deployed Authorized Stockage List (ASL)s by housing in particular low demand, high dollar or sensitive items, and expedite request and delivery of such items through coordination between the JPPSP and Deployment and Distribution Operations Center (DDOC). This will help reduce the forward logistical footprint, yet maintain a flexible and agile support system for COCOM units.

To employ such a concept would require a fresh look at what supplies and materiel should be deployed where within the DES system. This analysis should look both at requirements for opening and priming the theater distribution system, as well as sustainment requirements. This will require new parameters and methodologies to determine stockage levels based on a part's criticality to maintain equipment readiness, demand for parts, transportability, among other factors to assure that critical parts are available in a responsive manner.

This type of optimization analysis needs to examine the supply chain from end to end, with each node being considered as a system within the DES system. It will take this type of analysis to correct the APS ASL problems identified by RAND. This type of analysis will also be critical in defining the role and relationships of new systems, like the JPPSP and Sea basing as these concepts mature and become capabilities for DoD. Clear definition of supply characteristics will be critical to developing models and simulations that will allow for the analysis of alternative logistical support schemes and analysis of new enabling concepts as they are proposed.

Historically, DoD and strategic providers (USTRANSCOM and DLA) on one hand, and Combatant Commanders on the other hand, have viewed logistics from opposite ends of the same pipeline and with different perspectives. Surge deployment and mass logistics were virtually synonymous employing push logistics in a strategic sense. The strategic mission was complete with successful delivery into theater at a SPOD or APOD via surface or airlift, organic or commercial charter, and measured in volume delivered. Even most major IT systems terminated data input or update at that point. In contrast, the Combatant Commander is concerned primarily

with unit readiness, operational availability and capability in an operational and tactical sense. COCOM success is measured in readiness rates and mission accomplishment. This is the essence of pull logistics.

On the sustainment side many classes of commodities still involve mass distribution. A joint force travels on its food and water, fuel, and ammunition for over two thirds of its daily consumption rate. These bulk necessities can often be predicted based upon population densities and operational activities, thus they can be pushed in bulk quantities with little direct requisition input. Other items, particularly Class IX repair parts, are demand generated. Demand items often cannot be pushed because of the randomness of when or where the demand will occur, which prevents the strategic level from forwarding the “just in case” items, particularly where cost and perishable issues conflict with having something on hand “just in case”. This conflicts directly with the war-fighter’s need to have equipment restored to an operationally ready status as soon as feasible.

However, in the future DoD capabilities are more likely to be measured in terms of speed and agility responding to requirements for generating joint unit capability packages that must be mission configured, tailored, scalable and modular at the pallet and even pack or unit level. This will require a seamless blending of strategic and operational if not tactical logistics support as well. This support will be more analogous to a Dell computer distribution system with agile capability to adapt to customer requirements changing on the fly. Enter the initial requirements for pre-configured loads with network visibility and capability to rapidly assemble, and the capability to divert loads among platforms while en route or before loading if possible.

The same goes with agile sustainment even back to upstream commercial vendor and sources. Within this paradigm there is a clear emerging need for a last point for trans-load, consolidation or deconsolidation, and even modal diversion as materiel flows from CONUS in response to commander’s intent reflecting changing conditions within the Joint Operating Area.

Agile sustainment will also mean serving as a buffer or safety stock capability for other nodes, such as a Joint Sea Base; monitoring in transit and in process visibility, and sequencing the flow; –and the employment of commercial and military inter-theater and intra-theater connector assets– to the vital distribution lanes of re-supply so as not to cause bottlenecks at the Sea Base analogous to those at the SPOE or SPOD today. Synchronization on this scale will require a Hegelian synthesis between push and pull logistics in the form of sense and respond logistics –the ability to collect, analyze and interpret non-traditional as well as traditional logistics signals to anticipate changing consumption rates and source critical commodities within the network.

Central to developing the Information Fusion capabilities is the development of a Joint Integrated Architecture for the JPPSP. The Joint Integrated Architecture for the JPPSP is based on developing an agile supply network and infrastructure as described:

- Support to a collaborative community of interest comprised of some or all of the following military and commercial logistics planning elements: shipping activity, rail, truck, intermediate nodes, marine terminal, vessel, and end user);
- Integration with a physical supply network comprised of multiple vendors, sources, end users, points of origin and destination, transportation modes, and distribution nodes;

- Support for a strategic, operational, and tactical logistics concept of operations focused upon inducing throughput velocity, visibility, flexibility, security, and synchronicity of goods movement flow; and
- The means (data, IT architecture) of monitoring and performance measurement of the physical and related information flow processes associated with shipment flow into and through the JPPSP in real or near real time.

The focused logistics objective of conceptualizing and moving towards an agile supply network paradigm includes the application of sense and respond logistics to anticipate sustainment demand. Once the demand requirement is sensed within the network, the support network must respond by sourcing and routing the required sustainment to the end user. . Sense and respond logistics is a transformational, network-centric, operations based prototype designed to enable and validate effects based operations and precise agile support of force deployment and distribution processes. Focused Logistics requires an integrated network of regional smart nodes, such as the JPPSP, to create the agile supply network and infrastructure necessary to be responsive to the constantly changing demands of expeditionary operations.

The JPPSP IT infrastructure involves the development of the antecedent elements of an overall information technology architecture based upon a data layer and relational database design. The JPPSP will integrate key shipment attributes or common data elements from representative commercial and military Electronic Data Interchange (EDI) messages and other data formats. Also included is the integration of output files from Radio Frequency Identification (RFID) tags and bar code readers to identify and track containers and equipment moving in and through the JPPSP to the strategic port.

A preliminary network information flow schematic and relational database design have been developed for both military and commercial movements that capture common data elements from commercial and military EDI messages and other sources to track inbound commercial and outbound movements. The initial JPPSP shipment tracking and management system will be incorporate existing commercial applications.

Deployable Attributes of JPPSP-Integrating Strategic and Theater Distribution

While the primary function of a JPPSP is to assure strategic port access to support Joint Deployment and Distribution operations, a JPPSP also provides a logical location to house other Deployment and Distribution enablers. Two such enablers would be a JDDE Operations Center (Fwd), and Theater Opening Packages to open and operate ports and provide initial theater distribution capabilities for expeditionary operations.

The DSB calls for strong command and control (C2) to coordinate ship-loading. The JPPSP provides a logical location to site such C2. In recognition that there was a lack of joint coordination and no one entity with responsibility and authority for coordinating transportation and distribution priorities to CENTCOM, the Joint Deployment and Distribution Operations Center (JDDOC) was created and deployed to:

Confirm USCENTCOMs deployment and distribution priorities, validate and direct intra theater airlift requirement support, monitor and direct intra theater surface distribution support, adjudicate identified USCENTCOM distribution and intra theater shortfalls,

coordinate for additional USTRANSCOM support, provide total asset visibility and in transit visibility for inter and intra theater forces and materiel, and ensure effective theater retrograde. MG Dail, Testimony to House Armed Services Committee Subcommittee on Readiness, Mar 30, 04.

Similar authority should be vested within the JPPSP organizational structure. Not only can a JPPSP node perform CONUS DDOC operations as the DES focal point, the JPPSP may also be the logical reach back position for a DDOC, and a CONUS home when a DDOC is not forward deployed in support of MCO or expeditionary operations. Today, a West Coast JPPSP could host a DDOC that could have a small forward team in the Pacific Rim region and the main DDOC organization at the JPPSP coordinating current DES priorities and operations in PACOM, with a designated fly away package to reinforce the forward deployed element should an expeditionary operation be initiated within the region, thus establishing a theater DDOC. The JPPSP element could then be back filled with reservists as the rear element of a theater DDOC. This concept provides firm C2, with already established habitual relationships, at both ends of the strategic pipeline.

Establishing a JDDOC type C2 node at the JPPSP begins to transform port focus from efficient loading of vessels to minimize lift requirements to management of DES operations in providing effective support for COCOM campaign plans. The focus for DES becomes “Smart Loading”, that is effective and efficient loading, defined in terms of support to war-fighter employment plans, not in maximizing stow space capacities. Close coordination between the DDOC and JPPSP would provide the COCOM the ability to influence and adjust DES flow in response to changing situations and priorities.

A DDOC type C2 unit could form the core of a Deployment Support Group (DSG) type Support Unit of Action (SUA). In addition to a DDOC element, a DSG SUA would also need port operations units (similar to current Transportation Terminal Battalions –TTB). Like the DDOC, an important element of a JPPSP TTB would be a fly away unit to open and establish port operations in support of expeditionary operations. Such units should be designed similar to Air Mobility Operations units in the Air Force with the mission to open air fields for expeditionary operations. The final necessary core element for a DSG SUA would be units to establish in land distribution hubs, to include plans and resources to prime the distribution pipeline.

JPPSP manning of a DSG SUA should be sufficient for CONUS port operations to train core cadre under realistic conditions, as well as identified fly away packages to open theater seaports and distribution operations. Careful evaluation of required capabilities and response times are but two of the factors that will be necessary to determine the proper mix of active duty, reservists, and DoD civilians necessary to man JPPSP operations and optimize its effectiveness.

Creating a DSG SUA operating out of a JPPSP facilitates closing the C2 and visibility gaps between units and materiel exiting the gates of forts and depots and delivery of same to theaters of operations. The current DDOC give the COCOM a firm control element to manage in bound DES flow, and linking the DDOC to the JPPSP will provide the DDOC influence as traffic originates outbound for theater support.

To fill this central control function, a JPPSP must have these core capabilities:

- The coordination of the control of traffic out of (and in to) CONUS, to be responsive to COCOM support requirements and campaign plans.
- Marshaling, staging, and organizing traffic for onward movement (Buffering, Smart Load)
- Synchronization of deployment and sustainment operations with reception activities in COCOM.
- Integrating Non-DoD partner IT systems and products into DoD IT networks as appropriate.
- Allowing Non-DoD partners access to DoD IT systems and products as appropriate.
- Providing accurate ITV data on shipments as they enter, are temporarily held, and as they leave the JPPSP.
- Ability to access and operate in both secure and non secure IT environments.

OIF after action reports, and studies on future mobility requirements have noted the need for more robust theater opening package capabilities to open and operate ports, and to provide initial theater distribution capabilities. A JPPSP, with its connections to CONUS installations, depots, suppliers, and vendors; and its customer centric focus on COCOM/JFC requirements, would be an ideal location to house theater opening packages that could be deployed like a hose to support expeditionary operations, and connect those operations to strategic supply and transportation systems through the JPPSP rheostat or flow meter to synchronize as well as increase or dampen the flow of materiel to a Sea Base or directly to theater in supporting expeditionary operations.

JPPSP as a Joint Integrating Concept Within the Joint Operations Family of Concepts

The Joint Power Projection Support Platform (JPPSP) concept creates an enabler that furthers our ability to develop infrastructure, processes, and culture that are aligned with the way the Joint Chiefs of Staff envision employment of our military forces in their Joint Operating Concepts (JOCs).

A fundamental change in corporate culture is required in moving from the current view of Deployment and Sustainment activities as separate functions. JV 2020 and Joint Operational Concepts fuse these functions along with Employment activities into the single concept of Deployment, Employment and Sustainment (DES) operations. In developing a JPPSP concept, we can better embrace the holistic DES paradigm while realizing the differences encountered at a transportation/distribution node between deployment and sustainment activities (employment would occur in theater not at a JPPSP) are more matters of volume and types of traffic throughput a JPPSP, not differences in basic functions.

We should also be aware of how a JPPSP nests within other concepts expressed in the Military Transformation discussion. At the core, a JPPSP is a specific application that provides enabling capabilities for development of the Agile Port System concept. Thus the JPPSP concept is a

specific approach to provide capabilities expressed in JOC and JFC, and is best described as a Joint Integrating Concept (JIC). Information Fusion will be a critical component of the JPPSP, and design parameters to capture, import, and export information will in general adhere to net-centric principles. As such, Information Fusion, within a JPPSP, would be a specific Net-Centric JFC application that enables Joint Logistics Information Fusion under the Focused Logistics JFC.

As a Joint Integrating Concept (JIC), SM21 and the JPPSP addresses the integration of the joint functional capabilities to achieve operational ends. The core function of the JPPSP is support of the Deployment, Employment, and Sustainment (DES) process. This relates to two Joint Enabling Concepts, Sense and Respond Logistics, and Joint Deployment, Employment, and Sustainment. Sense and Respond Logistics refers to a current body of logistical support theory adapted to the military environment from commercial best practices. It also encompasses all logistical functions, not merely the distribution processes

Strategic Mobility 21 is designed to support logistics capabilities based on concepts expressed to achieve distributed adaptive operations. As a military strategic concept, this project supports the concept of Focused Logistics, a guiding concept in current military Transformation objectives. The JPPSP is a specific application designed to provide specific capabilities and the JPPSP's development will be based on the Focused Logistics Joint Functional Concept tenets of Joint Deployment/Rapid Distribution, Information Fusion, Agile Sustainment, and also supports the Focused Logistics tenets of Joint Theater Logistics C2, Multinational Logistics, and Joint Health Services Support, but not with direct functionality.

More specifically, the JPPSP design must consider how this asset will further Sense and Respond Logistics capability requirements. Additionally, systems are to be Knowledge Based, Demand Driven, and provide visibility from Point of Source of Support through Point of Effect. JPPSP facilities and processes will need to exhibit many of the Sense and Respond attributes, such as; Network Centric, Adaptable, Commander's Intent Focused, Effective Vs. Efficient, Cognitive Decision Support, Total Situation Awareness, Full Spectrum Asset Visibility, Robust, and Transformational attributes. A JPPSP must be designed with facilities and processes that will allow the transformation to Sense and Respond Logistical practices to occur.

JPPSP will be an instrument for the development and fielding of Deployment and Distribution operational capabilities that will support and contribute to overall Joint Deployment, Employment, and Sustainment (JDES) operations, Joint Deployment/Rapid Distribution functional capabilities, and establishment of the Joint Deployment Distribution Enterprise (JDDE). JPPSP capabilities will enable the Joint Forces Command (JFCOM), the United States Transportation Command (USTRANSCOM), and Joint Force Commander to execute synchronized war-fighting operations described by the Battle-space Awareness, Joint Command and Control (C2), Focused Logistics, and Force Application joint functional concepts. The JPPSP primarily supports the Focused Logistics Joint Functional Concept (JFC), particularly the following Focused Logistics capability areas: Joint Deployment/Rapid Distribution, Agile Sustainment, and Information Fusion; but also leverages Network-Centric Operations and Warfare (NCOW), and Information Technology Infrastructure (ITI) capabilities from other JFC as well. Additionally, the commercial concept of Agile Infrastructure will be implemented.

JPPSP Operative across Full Spectrum of Military Operations

JPPSP will provide Joint Deployment/Rapid Distribution capabilities that will support the full range of USJFCOM, USTRANSCOM, and war-fighter support. The JPPSP will enable enhanced deployment and distribution capabilities, along with the required IT infrastructure to support synchronized deployment and distribution operations capabilities, focusing on Sea and Air Port of Embarkation (POE) level operations that are essential for effective force deployment operations. The objective is to support the synchronized movement of units, their equipment, and all other materiels to the port at the right time, in the right sequence and in the most efficient manner, so that they may be dispatched synchronized to theater operational requirements and priorities. The intent is to support the synchronization of deployment and distribution operations as required by the Joint Force Commanders' campaign priorities and objectives reflecting commander's intent. These capabilities will provide speed, agility, flexibility and dynamic re-planning capability to the Joint Force Commander, and are critical to achievement of effects based operations across the full spectrum of Flexible Deterrent and Rapid Decisive Operations from Homeland Security and Defense, Humanitarian Relief Operations both domestic (Katrina) and foreign (Southeast Asian Tsunami), to Major Combat Operations, to Global War on Terror Operations, to Stability Operations and Strategic Deterrence.

In major combat operations the basic function of a JPPSP in the physical domain is to receive traffic bound for employment in a military theater of operations, efficiently transition the traffic from CONUS surface modes to strategic lift carriers in a configuration intended to minimize or eliminate Reception, Staging, Onward Movement and Integration (RSOI) operations in theater. That is, units deploying or sustainment materiels being delivered are ready or nearly ready for immediate employment upon arrival in theater, then loaded onto strategic lift in a manner to minimize handling upon reception in theater.

Universal Joint Task List (UJTL) Review

The Joint Power Projection Support Platform (JPPSP) must be designed to support elimination of strategic, operational, and tactical seams and gaps in the emerging Deployment, Employment, and Sustainment (DES) concept of logistical support operations. At its core, the JPPSP provides capabilities to fill gaps in coordination and control of the flow of forces, equipment, and materiels from CONUS to supported COCOMs/JFC, while providing the strategically vital assurance of access to strategic ports by developing partnerships with these ports, the port stakeholders, and DoD suppliers and vendors. Operationally, the JPPSP has capabilities to ease the seam between strategic support and movement and operational movement and support at operational level by providing a CONUS version of a JDDOC with the experience of dealing with national level sourcing enterprises, yet a focus on the COCOM/JFC operational requirements. Tactically, the JPPSP provide capabilities from a home for Theater Force Opening Packages, to capture and management of ITV and AV information, to providing test and exercise facilities to develop and validate new logistical support concepts.

The JPPSP concept addresses key gaps and seams identified in transformation literature and OIF after action reports. It does so both by providing physical facilities and capabilities, but also by providing a focus for shifting paradigms from mobilizing and deploying to meet the Soviets on the North German plain, to tailoring deployment, employment, and sustainment activities as a single operation to support achievement of effects by expeditionary forces as defined by COCOM and JFC commanders.

The JPPSP will provide support to war-fighters in Deployment, Employment, and Sustainment (DES) operations from the Strategic National level through Operational levels in performing tasks defined in the UJTL. The JPPSP will provide a suite of capabilities for establishing a Deployment/Redeployment and Sustainment infrastructure that will enable war-fighters to synchronize DES operations, through capabilities that are enabled through a comprehensive and aggressive local Logistics Common Operational Picture (LOGCOP) that supports an S & RL environment in exercising command and control over DES operations or managing the supporting business activities.

JPPSP Agile Infrastructure

A JPPSP will primarily function as an integrated transportation equipment and freight logistics buffer and will provide information management systems to support the buffering concept and global tracking necessary to maintain ITV and AV. Basic facility requirements will include the need for:

- A rail deployment facility
- Connecting rail networks
- Holding facilities (Warehousing, Marshalling Yards, Container Yard, Staging Areas, etc)
- Trans-loading facilities (mode to mode and intermodal) for air, sea, and surface movements
- A Deployment and Distribution Operations Center

Information technologies will allow the JPPSP to develop a Logistics Common Operating Picture (LOGCOP), based on an information grid. In developing a LOGCOP, to integrate with the war-fighters' LCOP, the JPPSP shall provide the capability to coordinate DES operations related to the CONUS interface with strategic lift operations. The JPPSP provides a node to seamlessly integrate theater distribution operations with the national support base. The JPPSP, with its war-fighter centric orientation becomes the "reach back" support location for theater support, and interfaces on a daily basis with the vendors, carriers, posts, installations, depots, and myriad of other stakeholders that perform distribution operations in and through the JPPSP area of influence.

This capability will be enabled by a sophisticated local IT network that integrates inputs from local sensors, DoD IT support systems, and commercial IT systems to be able to identify specific carriers and the specific contents of their shipments, or conversely identify the location of a specific item in relation to the shipment it is on, the carrier the shipment is on, and the location of the carrier. While information originating within the operational control of the JPPSP can be assured accurate, relevant, and timely, information originating from outside the JPPSP control will be normalized when necessary, and as accurate as the originating inputs.

The information grid, capable of integration with the DoD end to end information grid and DoD partners and suppliers is necessary to:

- Provide assured communications

- Provide net centric enterprise services, such as:
 - Universal transaction services
 - Distributed environment support
 - Quality assurance of service

The JPPSP will also have the capability of supporting additional facilities beyond its primary mission to enhance DES operations.

The Defense Science Board Task Force on Mobility and After Action Reports on Operation Iraqi Freedom identify the need for modular forces that can be projected to provide immediate capabilities to open and operate both austere ports and initial theater distribution infrastructure. The JPPSP could be considered as a prime candidate for a CONUS home from which expeditionary packages could be launched to open and operate the initial theater ports and distribution capabilities. As a CONUS joint deployment and distribution node, the JPPSP serves many of the same functions as the theater POD, and therefore, would provide a training base for the expeditionary packages, as well as a home. By locating one set of expeditionary packages on the West Coast and another on the East Coast, operations can be synchronized to backfill from one JPPSP to another as expeditionary packages are launched and surge operations begin to support a theater of operations during the initial deployment phase to a new theater.

Finally, a JPPSP supporting the Southern California area also provides a unique opportunity to develop a National Logistics Experimental Training Area and Test Bed (JLETT), with capabilities to simulate deployment of brigade size units through a POE to a POD, to include RSOI procedures as units deploy to the National Training Center. The proposed Victorville location for a JPPSP supporting the Ports of Los Angeles and Long Beach is also in close proximity to the Army's National Training Center (NTC) facilities in Barstow, as well as the USMC's major training area at 29 Palms. Facilities can be developed to meet the needs identified for deployment training of POE and POD operations and integrated into brigade training as they deploy to NTC or 29 Palms.

Doctrine, Organization, Training, Materiel, Leadership, Personnel and Facilities (DOTMLPF) Analysis

Non-materiel changes alone have been judged to be inadequate in addressing the complete capability required by the JPPSP program. The transformation required to support Focused Logistics DES operations is inherently dependent on materiel solutions as expected advances in supply chain and transportation management concepts, as well as computer hardware, software, and communications necessary to make DES support through a JPPSP a reality. The following DOTMLPF analysis, however, begins to identify the required changes in U.S. and allied doctrine, operational concepts, tactics, organization, and training that will be required to maximize the effectiveness of materiel solutions that will support future operations leveraging organic and DoD-wide DES capabilities. The JPPSP itself reflects the emphasis of enhancing existing nodes and support concepts with physical improvements as well as application of new support paradigms to exploit emerging capabilities provided through the military transformation process and emerging technologies.

Joint Logistical Support Doctrine Changes

Doctrine for DES operations, as well as information-intensive, net-centric operations and processes will be impacted by capabilities provided by the JPPSP initiative. The JPPSP program will continue also to be fully involved in the joint doctrine process as it evolves and becomes more streamlined and directly linked to the concept development and experimentation process.

Organizational Changes

It is anticipated that development, implementation and sustainment of JPPSP capabilities, as a framework and program for DES capabilities, will require organizational (force) and command-chain alignment within the DoD Supporting Establishment (SE) especially when DES operations, development, test, and production facilities and services begin to be established to support force deployment and sustainment operations. JPPSP support in an expeditionary environment must be linked through the Deployment Process Owner and Distribution Process Owner for national priorities, while closely linked to the emerging Joint Distribution and Deployment Operations Center (JDDOC), as the CONUS link and reach back support link. Organizational changes will evolve as JPPSP capabilities are phased in over time.

Joint Logistics Training and Education through the JLETT

Technical training, cultural transformation, organizational change and sufficient time for acceptance will be required before the full benefits of JPPSP net-centric infrastructure capabilities will be realized. Establishment of the JLETT will provide an institutional foundation to guide the cultural transformation by providing a locus for training and experimentation necessary to undergird acceptance of organizational and process changes.

Joint training and exercises maximizing Focused Logistics concepts and net-centric services are also essential to building a joint team that includes other services, interagency and multinational partners. The JPPSP program welcomes and anticipates realistic joint training using Focused Logistics concepts that will forge teams and foster a joint mindset between leaders and within staffs, and further supports the physical development of capabilities to host and execute such exercises. Capabilities-based force packages, designated as components and not permanently assigned, will conduct routine DES operational training exercises in the live, virtual and constructive training environments. Joint DES training scenarios should be built around an adaptive and complex opposing force or a dynamic crisis situation that may be conducted in a “free play” environment that stresses the JFCs, their staffs and leaders to the point of network failure and beyond. Training will be based on lessons learned and designed to improve adaptability to the challenges posed in dynamic and uncertain environments – especially where DES operational capabilities, such as net-centric services might be unavailable for certain periods of time and alternate, off-net decision aids and individual leadership abilities are exercised.

By virtue of circumstance, developing a JPPSP as part of the SM21 project in Southern California, provides a unique opportunity to develop a DES center of excellence and exercise facility to support exercises as complex as insertion and support of Brigade Combat Teams in a contingency operation in response to a rapidly developing world crisis. While this capability at this level would not be developed for all JPPSP facilities, certainly the emphasis on exercise support and experimentation between military and commercial partners would be strongly supported at least at the cell or team level at each facility.

Agile Infrastructure Facilities

To assure access to Strategic Ports and provide valued added facilities to DES operations, JPPSP must be designed to create logistical support capabilities as described in the Joint Focused Logistics Functional Concepts, with emphasis on providing Joint Deployment/Rapid Distribution functional capabilities. The architecture for developing physical facilities and processes must be based on supporting net-centric operations (to ensure Information Fusion capabilities) and Sense and Respond Logistics (to ensure Agile Supply that is flexible, adaptable, and focuses on achieving effects articulated in operational and strategic objectives of supported operations). Minimum facilities would include:

- Rail Deployment Facility
- Connecting Short Haul Rail (JPPSP to Efficient Marine Terminals)
- Buffer Stock Management Facilities
- Trans Load Facilities – Process between Air, Surface, and Sealift modes of transport
- Commercial Fulfillment Centers
- Sensor Networks
- Information Technology Network, internal as well as linkage to World Wide Web and or Major DoD information networks

In addition to the primary mission of the JPPSP, supporting DES operations, facilities would also be needed to host units with theater opening package missions. As the JPPSP evolves, facilities for a Joint Logistics Experimentation Training and Test-bed (JLETT) would be needed at least one JPPSP to support research and development of future logistical support capabilities as well as supporting war-fighter logistical training similar to the experience maneuver units experience at NTC.

Leveraging of Existing and Future Materiel Programs

The DoD is committed to transforming the existing globally interconnected, end-to-end set of DES capabilities, associated processes, and personnel to a Focused Logistics S & RL environment that will provide the war-fighter with the “right stuff”, in the “right amount” at the “right place” and the “right time” in the right sequence. This commitment includes major transformation capabilities to be provided to the joint community by programs such as Focused Logistics and S & RL capabilities evolve from current doctrine and processes. When implemented, these programs will provide the Joint Force Commander an unprecedented level of logistical support by providing end-to-end information capabilities for accessing timely and relevant critical information in order to will provide the war-fighter with the “right stuff”, in the “right amount” at the “right place” and the “right time, thus allowing the war-fighter to accomplish all assigned mission objectives. The JPPSP relates to a number of initiatives currently active concerning DES operations.

Recommended Materiel Approach

To implement a strategy of JPPSP support to DES operations in achieving a Focused Logistics and S & RL environment, there should be a network of at least four to five JPPSPs in support of major Strategic Ports. Locations for consideration would include:

- Southern California, to cover military port support from San Diego to at least Oakland.
- A Gulf Coast location to support movements through Beaumont, Texas.
- A minimum of two East Coast locations, and possibly three.
 - One location in the Northeast, supporting ports from NY/NJ down through Wilmington, De.
 - A second location in the Southeast, to support military operations from Jacksonville, Fl through the Carolinas.
 - Another location for consideration would be the Norfolk/Hampton Roads complex.
- Fort Lewis could be considered for a JPPSP like node as part of their PPP infrastructure operating off the military facilities in support of military operations through the Ports of Tacoma and Olympia

Not all JPPSP locations would have the same mission or facility requirements. All JPPSP locations would have primary DES operational missions. It is possible that no more than two JPPSP would be needed to host theater opening package units and resources, an East Coast location for deployments in support of EUCOM and CENTCOM, and a West Coast location in support of PACCOM operations. Finally, a West Coast JPPSP in close proximity to support the Ports of Los Angeles and Long Beach, would be in a unique location to support the development of a Joint Logistics Experimentation Training and Testbed (JLETT) facility, based on close proximity to major Marine Corps and Army large unit combat exercise facilities.

Implementation of JPPSP capabilities will provide the infrastructure to develop Joint Deployment/Rapid Distribution capabilities that are agile and responsive to war-fighter needs, as the focus of JPPSP operations will be developed with a customer (war-fighter) centric view of operations. JPPSP will align with, use, and mutually support the current globally interconnected, end-to-end set of logistical support capabilities that will provide logistical support on demand to war-fighters, policy makers, and supporting personnel. The DES “to-be” vision and existing environments will eventually converge via Focused Logistics and S & RL concepts to include all strategic, operational, tactical, and business missions and functions by providing flexible and agile support capabilities fused from all operating locations. This environment will create the ability to ingest, analyze, and distribute key information in real-time across the DoD’s global operations, thus allowing for better logistical support with a smaller footprint and a leaner infrastructure.

The JPPSP Framework Solution

The transformation required to support DES operations is inherently dependent on materiel solutions as facilities must be enhanced or built to take advantage of leveraging new technologies

and support process necessary to make Focused Logistics and S & RL concepts a reality. The JPPSP initiative will establish a scalable, net-centric support base infrastructure that can also be used as a template for designing functions at other nodes, such as Intermediate Staging Bases (ISB), Sea Bases, and expeditionary theater Ports of Debarkation and Distribution facilities. This infrastructure will be enabled by an optimal set of mutually supporting transportation and distribution nodes, deployed, and maintained based on the interoperable architecture of facilities necessary to provide logistical support to expeditionary and deployed forces. The JPPSP will host net-centric services to interface between DoD and non DoD partner IT systems to provide assured data necessary to support the flow in DES operations, and assure the war-fighter his promised logistical support can be in place, at the time he require, in the right amounts of the right stuff.

Analysis of Materiel Approaches

A combination of materiel solutions supported by relevant changes in U.S. and allied doctrine, operational concepts, tactics, organization, and training will be required to support future Focused Logistics and S & RL capabilities enabled by the JPPSP operations.

The JPPSP will be supported by robust enterprise IT centers, reusable software services, specifications of data and application interface standards, and architecture products to guide system design, development, usage, and programs. JPPSP is a conventional logistical support system node, with expanded capabilities to exploit advances in information technology to work smarter and to collaborate for resources as opposed to competing for resources.

Transformation capabilities are intended to improve the timeliness, quality of support, and reach for the war-fighter or manager while maintaining the accountability and stewardship of national resources and assets. The components that make up JPPSP are not necessarily new. Many of the components and capabilities are provided at some level today by existing systems operating throughout DoD, however, they are fragmented by service and function.

The transforming capability the JPPSP provides is a focal point to coordinate DES operations at the nexus of national support base and theater support infrastructure. Fusing JPPSP operations with JDDOC operations in theater creates control nodes at each end of the logistical support network that links national resources to theater requirements, a node that contains a focus on theater requirements while maintaining a perspective of national support capabilities and priorities. The benefits to be gained for DES operations is better communication and collaboration concerning what is possible, feasible and supportable (national supply and transport resources) with appreciation for the priorities and situation facing the engaged war-fighter (theater campaign and operational plans)

Analysis for each materiel solution required for a complete set of JPPSP capabilities will be summarized in the JPPSP CDD. The JPPSP CDD will identify capabilities addressing the four main JPPSP components, to include 1) transportation facilities, 2) distribution facilities, 3) information fusion requirement, and 4) integration in support of factory to foxhole DES operations. The effectiveness analysis will be based on a foundation of metrics that progressively define and assess the performance of each materiel solution. These metrics will be defined through an effects-based approach that addresses critical mission capabilities and establishes a hierarchy of performance analysis elements. The elements of the effectiveness analysis include identification of Analysis of Alternatives (AOA) Mission Tasks (MTs), development of Measures

of Effectiveness (MOEs), and development of Measures of Performance (MOPs). One of the initial tasks of the AOA will be to fully define and justify these parameters.

JOINT LOGISTICS EXPERIMENTATION AND TRAINING TEST-BED (JLETT)

Southern California provides a unique opportunity to develop a complement to the JPPSP in the form of a Joint Logistics Experimentation Training Test Bed (JLETT) to provide an innovation cell and mission rehearsal training of logistical processes akin to the combat training at NTC and 29 Palms, and a unique test bed for not just military, but also commercial testing of transportation and advanced logistics concepts

The JPPSP, with its inherent partnership with commercial port and distribution partners provide unique opportunities to develop, test, and evaluate S & RL concepts, as well as cutting edge supply chain management and transportation management concepts and theory. As a national innovation cell or center of excellence, the JPPSP could include a Joint Logistics Experimental Training and Test-bed (JLETT) to support refinement of those concepts through pre-deployment logistics exercises, training, and mission rehearsal. Further, a JPPSP established to support the Ports of Los Angeles and Long Beach in California provides the opportunity to develop training facilities to exercise future Sustainment Units of Action in simulated combat conditions similar to the training maneuver units receive at 29 Palms and the Army's National Training Center (NTC). Combining training center operations would provide capabilities to design exercises to rehearse a full expeditionary deployment from notification of units, to opening a theater, to employing initial units in expeditionary operations and sustaining those units.

Major lessons learned from current DES operations, including Operation Iraqi Freedom, are that there is:

- A lack of training exercises for theater startup and logistics crisis action planning, which contributes to process execution problems and makes it difficult to expose design problems.
- Organizational structures not well designed to support expeditionary deployment planning and operations

The JLETT addresses these problems by collaborating with a host JPPSP, in providing training and exercise opportunities as soldiers and units performing support at a JPPSP, establish vital contacts with the national logistical support structure, as well as being trained in the functions they will be deployed to accomplish. JPPSP's can provide vital training opportunities to address current lack of experience and exercises for theater opening package units and operations.

Fundamental to the SM21 concept is the partnership between academia, commercial, DoD, and non-DoD government partners. The partnership will collaborate and leverage each others strengths in face of rapidly changing technologies to develop capabilities that increase the effectiveness and competitiveness of our ports, while providing quality of life for those around port complexes. The opportunity exists to establish permanent facilities to examine, develop, test, and validate technology innovations through the partnerships and working relationships established in developing a regional APS with a JPPSP. These opportunities offer significant

improvements in functionality to help solve operational requirements, yet reduce the risks of expensive and lengthy transition periods, through spiral development processes, to evaluate and adapt innovations to specific operational environments and performance needs. The JLETT will provide JPPSP methods to align with, use and mutually support DES operations, S & RL capabilities, as well as other technological advancements in supply chain and transportation.

STRATEGIC MOBILITY 21 FINAL MATERIEL RECOMMENDATIONS

Introduction

This section sets forth the Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF) Change Recommendations based upon the Final Solutions Analysis and an initial plan to implement those recommendations and as the basis for a Post Independent Analysis by the respective Offices of Primary Responsibility within DoD.

The common thread of the DOTMLPF change recommendations is to align sponsorship of SM21 capabilities embodied in the JPPSP and JLETT with those DoD entities that own the requirements of Focused Logistics JFC (Rapid Deployment and Distribution, Agile Sustainment, Information Fusion), Network Centric Warfare JIC, Sea Basing JIC, and SRL Joint Enabling Capability in order to secure their validation, transition and implementation in the most timely manner. It also sets forth a recommended timetable and schedule for transition and implementation purposes, summarizes the impact upon DoD resources across units, services and levels, and discusses the risks and advantages and disadvantages of action and no action alternatives maintaining the status quo in terms of operational capability and effectiveness.

The major objectives of the SM 21 effort remain:

1. to transform the Deployment and Distribution Process in terms of velocity or transit time to theater, and by minimizing or eliminating RSOI at SPOD, to improve operational availability of assets and enable effects based operations in a distributive, adaptive, network-centric environment across the full spectrum of operations;
2. to assure de-conflicted access to Seaports of Embarkation (SPOE), by reducing dwell time and logistics footprint at SPOE's thereby reducing or minimizing friction and conflict with commercial operations;
3. to enable agile sustainment of expeditionary forces by providing a logistics buffer to manage the flow across sources, trade lanes, and modes and afford the combatant commander dynamic re-planning capability to respond and even anticipate changing conditions in the Area of Operations; and
4. to act as a force multiplier by enabling information fusion seamlessly across commercial and military information systems in a common logistics operating picture assuring in process and in transit visibility by commodity, shipment, conveyance, mode and distribution lane to end user at the last tactical mile.

The Defense Science Board has properly recognized the impact of logistics transformation on future combat operations and capabilities. The Joint Staff has recognized the transformational qualities of Focused Logistics in a network centric world and distributed adaptive operations. The

Office of Force Transformation has spawned DoD interest in Sense and Respond Logistics as the third wave of logistics transformation. USJFCOM has properly recognized the critical role of capability packages to meet future requirements and the role of education, training and exercise as transformational tools in workforce development although as yet the critical role of logistics in training and operational planning in the development of a Joint National Training Center capability. Even FORSCOM with re-stationing and Future Force considerations in mind is well underway with the process of reorganizing divisions into Brigade Combat Teams to promote agility and velocity into future deployment scenarios.

Yet, as with all major social change, the major impetus and momentum for logistics transformation is coming from the customer –the combatant commander –seeking the same in demand service level that is predominant in the consumer world. This is symbolized in the CENTCOM prescription that all major Class VII end items have RFID tags in theater reminiscent of WALMART’s similar edict to its vendors and suppliers.

USTRANSCOM the designated DPO –in partnership with DLA- has responded with a triad of initiatives to address war-fighter requirements. First, it met the critical need to address the glaring seam between traditional strategic lift and operational and tactical distribution by creating the JDDOC node within the theater area of responsibility as a bridge to coordinate theater distribution with the COCOM. This has led to other initiatives such as JTFPO and related capabilities. Next, it recognized that it must partners with industry to solve its logistics challenges by generating the DTIC initiative. Finally, and for a collaborative distribution network perspective arguably the most important it formed a joint DoD community of interest across customers and logistics providers called the JDDE. It has yet to reach out across barriers to the broader scientific and academic community, network centric DoD players, NCOIC as emerging collaborative communities, and the global logistics community at large –but it is a start and reflects an institutional recognition that it cannot meet customer demand by itself in a vacuum and using traditional methods to evolve solutions.

SM 21 is uniquely suited to add significant value to this process by acting as an advocate, catalyst and agent for logistics transformation, an honest broker, conduit, and neutral evaluator of emerging technology and technical solutions to close logistics gaps and widen a qualitative superiority in an asymmetrical warfare environment by delivering validated capabilities not stovepipe systems, and spur the systematic development of new capabilities in a collaborative network centric environment leveraging off commercial innovation and agile infrastructure in an increasingly resource-constrained environment.

This ICD marks the first step in the process of modeling and simulating the Deployment and Distribution and Agile Sustainment As Is business processes and IT architecture for analytical purposes in light of the desired end state of To Be capabilities in the 2017 time frame. To this analytical framework we will integrate existing sensor capabilities (AIT, RFID), data collection (EDI, xml), network architecture, and intelligent agents as both an enabling suite of capabilities as well as an ideal test environment and physical platform in the busiest most heavily-stressed distribution network in the United States. We will begin a multi-dimensional experimentation with JDDE community and industry partners to exploit emerging technologies for dual use application embedding interoperability at every stage. We will demonstrate capabilities for rapid deployment and distribution by re-injecting a second power projection platform on the west coast and agile sustainment by demonstrating the logistics value to the war-fighter of a buffer among horizontal and vertical sources, dynamic re-planning and modal diversion, on the way to the Sea

Base, all the while serving as the primary catalyst for the development of the reach back capabilities of SRL in improving at the point of effect. We will employ spiral development as an innovation cell to test, validate and deploy emerging capabilities. We will work with NTC and 29 Palms MAGTF and with TECOM, TRADOC, and USJFCOM in sponsoring joint logistics education, curriculum development, training and joint and coalition pre-deployment exercises and pre deployment mission rehearsal. We will work through the JDDE and responsible commands to ensure the successful transition, JCIDS and JROC validation, and implementation and deployment of demonstrated capabilities.

**Recommendation No. 1 USTRANSCOM as Distribution Process Owner (DPO)
Sponsor SM21 ICD JCIDS CBAT Analysis of JPPSP as part of JFWG Rapid
Deployment and Distribution and Information Fusion JFC**

As twice designated DPO and JDDE lead, USTRANSCOM is the logical primary sponsor for SM21 in the JCIDS process, and to assist in transition and fielding of emerging capabilities. It also owns or has an interchange agreement with most of the IT systems that should be linked for interoperability purposes such as GTN, WPS, GATE, TC AIMS II, MDSS, JFRG etc.

The DPO DFWG led by USTRANSCOM surveyed the other JDDE members to prioritize Distribution Process capability gaps and identified In transit Visibility, Distribution Planning and Forecasting (Network visibility and collaboration), and Joint Transportation Interface (Information Fusion) as the primary gaps. The top priority theater distribution was assigned to a Capabilities Based Assessment Team (CBAT) to develop a solution and action plan to synchronize with an anticipated TC AIMS II program milestone.

The identified capability gaps and seams are only the most visible from an operational perspective. They do not reflect growing distribution network constraints that will adversely impact moving to the To Be future logistics environment affecting joint operations. In the absence of polling a broader cross-section of the JDDE (including US Army Transportation Battalions, longshore labor, Class 1 railroads, port authorities, marine terminal operators, etc) this approach will miss growing distribution network friction between deployment operations and commercial logistics, and overall trends in the commercial sector which materially impact upon sustainment logistics.

To ignore these realities (associated with a no action alternative) is to see only a portion of the overall picture. Either DoD through USTRANSCOM begins to modify its As Is business process in collaboration with its customers, deploying units, or the “executability” of its joint force projection scenarios is in as much in doubt as our ability to rapidly respond to major domestic natural disasters in the wake of Hurricane Katrina. As global trade driven container business drives out break-bulk and other business to secondary ports, DoD deployments will inevitably be relegated to secondary ports which are looking for additional business (e.g. Philadelphia) or where excessive dwell time and logistics footprint are not as important or resulting in lost revenue (e.g. Beaumont). Commercial shippers have learned in the wake of 9/11 that contingency planning demands alternative routing in the expectation of distribution network disruptions whether natural or manmade. The alternative is institutional hubris.

SM 21 directly or through the ONR can partner with USTRANSCOM within the JDDE and even lead a CBAT directed toward achieving future logistics capabilities beginning with transformation of the Deployment and Distribution Process. Recent USTRANSCOM initiatives

such as DTCI suggest a growing interdependence between commercial and military logistics not unlike the path from joint to interoperable to interdependent that lies at heart of DoD transformation. With expertise in mastering EDI and xml data and its network centric industry interoperability SM 21 is a perfect partner to USTRANSCOM in developing the JDDE into a truly collaborative distribution network. SM 21 is independently funded, network rather than service centric, and collaborative by design. It does not compete or conflict with ongoing initiatives and should be supported as if it were a USTRANSCOM initiative for data collection, tasking, systems interface, scenario development for experimentation and demonstration through transition and implementation. Properly managed and executed this recommendation should have no adverse impact upon unit movements, resource reallocation, or reprioritization of USTRANSCOM DFWG initiatives.

Recommendation No.2 USJFCOM as Deployment Process Owner (DPO) should Sponsor SM 21 Analysis of Executability of JFP ACTD Scenarios

Under current policy USJFCOM is designated as assisting the joint staff in planning and executing joint force deployment scenarios based upon joint capability packages comprised of unit of action from with the Joint Operations Planning and Execution System (JOPES) with deployment orders transmitted to selected units through the JFRG network. The emerging capability gaps, as identified by SM21, call into question the future executability of those joint and even coalition deployment scenarios.

USJFCOM is the lead in the Joint Force Projection ACTD designed to provide a 21st century network centric IT environment to support Rapid Deployment objectives. The viability of any plan is in the execution. SM 21 is ideally situated acting as a CBAT to collaborate with both USTRANSCOM and USJFCOM in providing an independent analysis of the As Is business process of joint deployment and then turn around and analyze the implications of those deployment scenarios for rapid deployment and distribution purposes within the JFP ACTD context, the constraints inherent in the current process, develop To Be analyses, assess the executability of those deployment scenarios, and the capability gaps and solutions to meet the requirements underlying those scenarios. With only institutional support and no additional resources required USJFCOM should implement this recommendation.

Recommendation No.3 Surface Distribution Deployment Command (SDDC) Should Support ICODES extension to load planning decision support tool and joint deployment experimentation

The Integrated Computerized Deployment System (ICODES) developed by a SM 21 university research partner Cal Poly SLO has been adopted by both the US Army and US Marine Corps as the primary software for vessel stow planning using intelligent agent support. It represents an ideal IT platform for collaborative movement planning to reach back upstream to Power Projection Platforms ITO planning unit moves, SDDC securing rail transportation, SDDC Transportation Battalion port planners, and other network participants. This would convert stow planning to load or movement planning across road and rail, as well as vessel planning with the capacity to select ideal vessel configurations for deployment capability packages and unit equipment lists, as well as control the movement from PPP to SPOE by convoy or unit train directly or through a JPPSP. The cost of software coding and training is minimal compared to the benefits in reduced transit time, greater in transit visibility, and dynamic re-planning capability

that is non-existent today. This is a primary candidate for early SM 21 experimentation and validation with the added benefit of validating ICODES for JCIDS purposes and improving its interoperability with TC AIMS II and MDSS (perhaps operating as a bridge between the two systems as well) as well as WPS, GCSS, and GTN.

Recommendation No.4 The Chief of Naval Research Should Designate SM21 as Sea Basing Logistics/SRL FNC in the current POM

Sea Base applied research is a major priority for ONR as it supports one of the essential triad of Sea Base, Sea Shield, and Sea Strike upon which Expeditionary Warfare is predicated. Despite the fact that SRL and Focused Logistics provide the underpinnings for Sea Base, there is currently no Future Naval Capability (FNC) program element within ONR dedicated to this important capability-driven research area. SM 21 with its independent resources, staffing and research base is perfectly positioned to begin critical research work now, in cooperation with both ONR and the MCWL, and later formally assume that role as designated by the CNR before the FY 08-09 POM cycle and to carry on as an ONR funded effort in the FY 09 or FY 10-11 POM as necessary.

JPPSP can serve as an ideal Sea Base logistics buffer to control the flow of commodities to the Sea Base, while applying SRL to provide eh CONS and OCONUS reach back capability to meet critical needs in theater maintaining in transit visibility from fort or factory to foxhole along the way. Again this is a no cost, low risk strategy for ONR in a lean resource environment.

Recommendation No. 5 The Defense Logistics Agency Should Sponsor Agile Sustainment Joint Experimentation Campaign involving JPPSP

The Defense Logistics Agency (DLA) is partnered with USTRANSCOM in the JDS and in particular, with the Nodal Management (NoMaDD) ACTD, that builds upon the JDDOC model to begin to strategic and theater distribution, while developing new capabilities such as Joint Task Force Port Opening (JTFPO). SM 21 once again is an ideal funded research partner in developing those emerging capabilities, while at the same time evaluating the degree of portability of SM 21 capabilities such as Hastily Formed (wireless) Networks (HFN) for Humanitarian relief and other scenarios through MCO's.

In addition, DLA and USMC Logistics Facility Barstow CA, and Southern California will likely serve as the major point of reentry for retrograde equipment from OIF/OEF. This represents an ideal minimal cost opportunity to tag, sensor and track Class IX and Class VII Major End items from theater to final disposition.

Finally, SM 21 will be working with the Joint Munitions Command and the Telemedicine and Advanced Technology Research Center (TATRC), a subordinate element of the United States Army Research and Materiel Command (USAMRMC), in tracking end to end movement of munitions and medical supplies even by direct vendor delivery providing DLA an opportunity to use SM 21 to monitor and provide quality control for Performance Based Logistics initiatives. SMA 21 will be developing, testing and evaluating the next generation of composite multi-unit containers that provide Sea Base capability for access underway as well as HMMWV direct delivery to end user. A single MOA with DLA could encompass the full range of joint capabilities research, test and evaluation.

Recommendation No. 6 The Chief of Naval Operations Should Designate JLETT as HSS-Joint Sea Base Logistics/IT/SRL Experimentation/Innovation cell

The CNO has recently indicated a personal interest in working closely together with commercial and non-governmental (academic) groups in support of Sea Basing and Strategic Sealift expeditionary warfare capabilities. For the same reasons set forth supra concerning CNR support, SM 21 represents an indigenous applied research capability within CNO Strategic Sealift Mobility domain. In addition, SM 21 is leveraging SPAWAR NCOIC industry consortium capability to further interoperability of emerging capabilities. No additional agreement other than internal designation by the CNO through the appropriate CNO and CNR would accomplish that objective.

Recommendation No. 7 HQUSMC Should Sponsor SM21 through JROC JCIDS process and joint experimentation of JPPSP with Adaptive Logistics ACTD and Sea Viking 08

The USMC stands to benefit significantly from the implementation of Focused Logistics, network centric warfare and SRL capabilities through SM 21. The MCWL is a part of ONR SM 21 program sponsor. The Commandant of the USMC has supported network centric warfare and joint experimentation using war-fighter units since serving as 1-MEF commander. The USMC is a major sponsor of the Adaptive Logistics ACTD in FY 08-09 and of distributed operations in Sea Viking 08 joint exercise in the PI. The USMC is well represented on JROC panels and could serve as a guide for the SM 21 program. Once the deployed MEU and augmented MEB are stood up with additional personnel, the USMC relies upon a traditional Deployment and Distribution and Agile Sustainment process (including dependence upon DLA and to a lesser extent SDDC). In the future Sea Base environment and joint unit of action capability packages, the USMC will require the same degree of control over a distributed process as does the Army. It therefore stands to benefit greatly from SM 21 transformation of the underlying processes.

Recommendation No. 8 USJFCOM Should Designate JLETT as Joint and Coalition Logistics JNTC persistent site

USJFCOM's Joint National Training Capability (JNTC) transformational goals of promoting an effects based, collaborative network centric joint capabilities based joint force are perfectly aligned with those of SM 21. The representation of logistics elements in the scenarios for most major joint or combined exercises is traditionally small. Of the thirty odd approved JNTC persistent sites not one is dedicated to pre-deployment logistics training, although NTC, 29 Palms MAGTC, and Air Warfare Center Nellis AFB surrounding the SM 21 JLETT training site at the former George AFB are designated persistent sites. USJFCOM should consider adding the JLETT as a west coast unit training complement to the Joint Deployment Training Center (JDTC) located at Fort Eustis VA.

Recommendation No. 9 CASCOT (DPMO) Should Sponsor Deployment Modernization Process Joint Experimentation involving JPPSP

The US Army is the only DoD service branch that does not self-deploy. This means that the Army as the greatest stake in Deployment and Distribution Process transformation reflected in the most meaningful metric Required Delivery Date in theater, combat ready with minimal force

reconstitution and RSOI to reach the point of effect in the AOR. CASCOM will need to change its business process to adopt the JPPSP approach to synchronizing the deployment process. There will be necessary reallocation of functions and resources between combat and logistics support units. There will be considerable net savings to DoD in reduced transportation costs (road, rail, vessel) but there may be some slightly increased short term costs in IT, training and operations and maintenance expenses that will have to be absorbed at the appropriate level in order to achieve the qualitative superiority and efficiency gains from change in business process and greater systems interoperability. The DPMO would be a likely partner in identifying and successfully implementing these necessary changes.

Recommendation No. 10 US Army Materiel Command Should Sponsor Agile Sustainment JFC Joint Experimentation Campaign with SM 21

With the most personnel and equipment to move and sustain the joint force, the Army Materiel Command is at the heart of the Agile Sustainment element of Focused Logistics in terms of pre-configured loads, RFID nested sensor tagging at the pick, pack and pallet level, and introduction of vendor managed mini-containers into the distribution network. AMC will also benefit significantly from more efficient asset and inventory management, and greater dynamic re-planning capability –and hence service level - to the war-fighter that is likely to follow a joint experimentation campaign with SM 21.

Recommendation No. 11 The Chief of Naval Supply (NAVSUP) Should Sponsor Agile Sustainment Joint Experimentation Campaign with SM 21

Joint Sea Base and new craft such as the LSC, and TSV/HSV, will require mission-specific pre-configured loads and an agile supply network in order to fully exploit their unique operational capabilities. This will present new challenges to NAVSUP. Buffer stock sustainment and SRL capabilities will be essential in the new network centric asymmetric warfare environment. NAVSUP is already partnering with ONR to investigate several of the emerging technologies that SM 21 has identified. A modification of those existing arrangements is all that would be needed to add SM 21 as an additional partner acting through ONR.

Recommendation No. 12 The Network Warfare Command (NetWarCom) Should Integrate SM1 network centric logistics capabilities with NATO and coalition partners

SM 21 is structured as one of the first network centric ACTD equivalents involving the Department of Defense. The joint capabilities being developed and embedded interoperability apply equally in the coalition arena. In fact, after a regional and national COUS and OCONUS joint exercise demonstrating SM 21 advanced logistics capabilities, a NATO or other coalition venue would be the most likely to expand and leverage those capabilities in a deployed environment.

Recommendation No. 13 The DoD Office of Force Transformation Should Sponsor spiral development of SRL capabilities with SM21

Recommendation No. 14 SDDC should change doctrine and business process to accommodate inland marshaling and staging and just in time call forward to SPOE from JPPSP

SM 21 is currently working with various elements of TEA and SDDC in particular, the Transportation Battalions located in the vicinity of various strategic ports with great success. At that level there is a growing recognition of the IT gaps in data quality and latency that make in transit visibility an elusive goal rather than a reality. SDDC may be in the best position of all when it comes to collaborating, reaping the benefits, implementing, and minimizing risk in maintaining deployment schedules from testing, evaluating and adopting changes in business process and IT in partnership with SM 21.

Recommendation No. 15 USTRANSCOM Should Sponsor change in doctrine and IT standards to enable PPP to SPOE near real time tracking to synchronize Deployment Process through JPPSP

As the DoD parent of SDDC component command and DPO, USTRANSCOM ultimately must approve changes to IT and business process working collaboratively with SDDC. However, as DPO USTRANSCOM will reap the benefits as transportation service provider to the other COCOMs from both improved service and performance levels of distribution services, and from better and more efficient use of air and surface transportation equipment and resources.

Recommendation No. 16 TECOM Should Sponsor pre-deployment joint logistics training, curriculum and exercise planning and execution at 29 Palms

As the JLETT develops its USMC joint logistics pre-deployment training curriculum, it will need TECOM guidance and approval in order to ensure that it complies with all applicable training doctrine. Any changes in doctrine will likewise need to be identified, vetted in the JCIDS process, and ultimately implemented in a collaborative manner with TECOM participation and approval at the MAGTF facility and at SM 21 hosted sites.

Recommendation No. 17 TRADOC Should Sponsor pre-deployment joint logistics training, curriculum and exercise planning and execution at NTC

As JLETT develops its US Army joint logistics pre-deployment training curriculum, it will need TECOM guidance and approval in order to ensure that it complies with all applicable training doctrine. Any changes in doctrine will likewise need to be identified, vetted in the JCIDS process, and ultimately implemented in a collaborative manner with TRADOC participation and approval. The NTC would prefer training pre-deploying units with their own equipment. Allowing a unit to train as they will fight would result in a more combat ready force. The dramatic improvements in the Deployment Process created by SM21 will enable combat ready Joint Units of Action to train with their own equipment at NTC and rapidly deploy in order to meet Required Delivery Dates for the first time.

Recommendation No. 18 DoD Should Reassign financial responsibility for pre-deployment transportation, RFID tags, logistics training, and train loading from units to DoD wide specialists and outsourcing funded through DoD-wide O&M accounts

In order to fully realize the transformational benefits from the implementation of recommended DOTMLPF changes in business process and IT system interoperability, one fundamental change in financial responsibility should occur. Capital improvements to PPP's are funded through the DoD wide accounts through the Installation Management Agency (IMA). In contrast, all pre-deployment O&M expenses are funded through individual unit ITAR accounts. This includes everything from RFID tags, CONUS transportation costs (road and rail), and training costs. In addition, many of the pre-deployment support services from rail car tie down to tag reading/burn-in are carried out by unit personnel with little or no outside assistance or support. No wonder that tags are not used let alone re-burned in at PPP's or in theater. Little wonder that logistics training is universally neglected during the pre-deployment cycle. Yet what is the first thing to go wrong in the fog of war, in part for lack of adequate planning, training, and preparation, but logistics. What is the most stressful least desirable and least rehearsed pre-deployment activity but rail car tie down and similar logistics tasks.

SM 21 strongly recommends that as part of its Focused Logistics transformation efforts, DoD reassess the financial and task burden on pre-deploying units and properly budget as a joint deployment expense, and shift resources and reflect savings and efficiencies at the DoD wide O&M level for everything from RFID tags to pre-deployment training transportation costs to improve force deployment, capture demonstrated savings from such accounts MSC charter hire from fewer days required to load vessels, to long haul unit train rail transportation savings, in addition to the intangible benefits reflected in better personnel morale and unit readiness and efficiency from being more combat ready upon arrival in theater.

Recommendation No. 19 Force Command (FORSCOM) should task deploying/redeploying forces and authorize joint experimentation with SM 21 to validate JPPSP capabilities

FORSCOM is responsible for developing unit capability of action packages and tasking forces from ready combat brigades to meet USJFCOM force projection scenario requirements for surge deployment and sustainment and for USTRANSCOM transportation to theater for theater reconstitution and distribution. FORSCOM should task Power Projection Support Platforms for Installation Transportation Office (ITO) support and deploying and redeploying units to participate in non-intrusive joint experimentation with SM 21 in order to improve rapid deployment and sustainment transit times and synchronization for force flows to theater.

JOINT DEPLOYMENT AND DISTRIBUTION ENTERPRISE (JDDE)

In February 2006, the Joint Logistics (Distribution) Joint Integrating Concept was published on the premise that the two central logistical challenges expressed in the Focused Logistics JFC, the concepts of Joint Deployment/Rapid Distribution and Agile Sustainment, were the most critical concepts to guide the initial development of future logistical capabilities.

The Joint Logistics (Distribution) JIC calls for the development of a Joint Deployment and Distribution Enterprise (JDDE). The JDDE is described as:

...an integrated system consisting of assets, materiel, personnel, leaders, organizations, procedures, tools, training, facilities, and doctrine – will provide logistics solutions to the JFC to minimize seams in the pipeline that characterize current strategic and theater distribution segments. The JDDE will complement, interact with and augment Service or JFC-unique distribution responsibilities and capabilities.

As such, the JDDE is not a single entity, but a system of systems. The JPPSP, the military distribution node component of the Strategic Mobility 21 Agile Port System; is designed to enhance Joint Deployment/Rapid Distribution and Agile Sustainment; and to provide assured access to Strategic Ports, can be a critical enabler that provides facilities for critical C2 elements at a location critical to controlling the distribution flow, and for basing expeditionary theater opening package resources, and thus could be a prototype for developing nodes within the JDDE paradigm.

The JIC envision the Joint Force Commander identifying capability needs (forces and materiel necessary to achieve desired tactical and operational effects). Logistical requirements will be articulated by the JTL (Joint Logistics Command) (Fwd) and communicated to the JTL, a component of the theater Combatant Command (COCOM). The JTL, collaborating with the JFC's (Joint Force Commander), will articulate theater needs to the JDDE Operations Center, which will then source and move materiel through the distribution system for delivery through theater to be delivered to meet requirements at point of need to achieve desired effects. The JPPSP would give the CONUS based JDDE Operations Center (responsible for all JDDE operations) an focal C2 node at the primary SPOE, or last point to effect handling as the flow departs CONUS.

The focus of the JDDE is customer centric, and simply put concentrates on delivering desired capabilities (forces and materiel) to the right place, at the right time, as defined by the needs of the COCOM and JFC. This vision is based on utilization of assets and resources, without regard to the relationship between asset and/or materiel provider and elements in need.

The mission of this future JDDE is to plan, synchronize, execute, and assess global joint distribution operations in support of JFCs. Joint distribution operations, as described in the context of this paper, provide for the movement or delivery of joint forces and sustainment from points of origin to points of need.

APPENDIX F: JPPSP AND JOINT DEPLOYMENT AND RAPID DISTRIBUTION PROCESS IDC SUPPORTING ANALYSIS AND MATERIEL AND NON-MATERIEL RECOMMENDATIONS – ANNEX 1 JPPSP MISSION

JPPSP Mission

Move the Joint Force

- Rapidly deploy modular, scalable joint force war-fighting capabilities, with sufficient accompanying supplies and theater opening capabilities/ basing options, across strategic and operational distances via high-speed mobility and maneuver platforms, enabling entire combat-ready units to arrive in theater within hours or days, not weeks, in accordance with the 10-30-30 construct.
- Close the gap between entry forces and immediate follow-on forces deploying by air and sea to achieve a deployment momentum that rapidly expands initial entry operations and builds combat power sufficiently to seize the initiative quickly, achieve and maintain force dominance, and ultimately overwhelm the adversary throughout the JOA.
- Adopt new strategies to leverage and integrate the expanding role of commercial distribution providers in enterprise activities, especially during early force closure activities.
- Conduct global/intra-theater casualty and patient movement operations.
- Support the intra-theater movement of joint forces from/to all nodes via multi-modal platforms and enable reception and assembly operations as required.
- Provide/augment theater movement control capabilities to enhance surface, air, and afloat distribution activities.
- Build the necessary control in the joint distribution pipeline to track, shift, and potentially reconfigure forces, equipment, supplies, and support, even while en-route, in order to avoid pipeline nodes and links that are congested, threatened, damaged, or under attack.
- Configure and deploy modular, scalable joint forces in a manner that minimizes the requirement for time-intensive theater joint reception, staging, onward movement, and integration (JRSOI) activities.

Sustain the Joint Force

- Build tailored or “capability-configured” loads at the source of supply and ensure the loads are capable of rapid intermodal handling (air, sea, truck, and rail) to minimize en-route and end-user processing and re-configuring.
- Enable continuous sustainment from strategic providers to forward elements across discontinuous air, sea, and ground lines of communications.

- Build greater capacity to control and manage inventory stocks, to achieve an appropriate balance between stock positioning and movement requirements. Enhance the capability to configure packing and the delivery of joint/combined force sustainment, to minimize JRSOI, and to support the non-contiguous employment of forces conducting distributed operations
- Employ precision delivery platforms with sufficient operational reach to enable sustainment to highly distributed forces across lines of communication that may be subject to interdiction and anti-access activities.
- Integrate and deliver sustainment requirements identified through sense and respond logistics.
- Selectively offload cargo to meet changes in operational requirements.
- Support the return movement of retrograde materiel.
- Integrate and coordinate performance based logistics support and direct vendor deliveries.
- Integrate medical and other commodity-unique logistics systems and processes.

Operate and Control the JPPSP

- Establish and enforce business rules and working protocols governing the collaborative support of contributing organizations in the JPPSP. Control the enterprise by creating capabilities to plan, schedule, apportion, allocate, route, direct, and validate/adjudicate priorities across the distribution pipeline.
- Employ a distribution control capability, supported in a net centric environment, as part of a future global command and control system to facilitate an integrated approach to force movement, supply chain integration and decision-making. It should provide asset visibility (particularly in-transit asset visibility) and distribution node capacity levels/status to facilitate decision-making by the enterprise and the ordering activities. This system must seamlessly and securely pull and distribute information from both classified and unclassified networks.
- Leverage net-centric command and control capabilities. Network the JPPSP with continuous, reliable communications and information systems that enable logisticians and customers to see operational requirements in near-real time and to see the support in the pipeline.
- Leverage collaborative information environment (CIE) capabilities and employ robust, intuitive decision-support tools to enable logisticians to conduct transportation feasibility, mode/node selection, and time-definite delivery analyses.
- Use Joint Communities of Interest (JCOI) to support joint deployment and distribution activities.

- Champion/enforce technology fusion across layers of network infrastructure, communications, data applications, and interfaces.
- Develop sufficient information infrastructure capability to anticipate, predict, plan collaboratively, synchronize, and satisfy the volume/intensity of the net-centric communications requirements of the JPPSP.
- Incorporate smart tag capabilities that interact with a modular container system and the net centric environment to provide the capability to quickly identify in-transit assets that require re-distribution.

Conduct JPPSP Operations

- Build and maintain a JPPSP that is capable of conducting strategic and theater joint distribution operations as a single seamless function, eliminating the integration, synchronization, and prioritization problems that characterize current operations.
- Develop and maintain standing, scalable, and modular theater opening, intra-theater mobility, movement control, sustainment, and distribution terminal support 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 should be capable of integrating with existing theater distribution networks and operate as part of the established combatant command and joint task force functional component commander logistics construct, or part of a lead-Service activity tasked with theater distribution functions.
- Build, in partnership with the commercial distribution industry, an end-to-end, expeditionary, modular, International Organization for Standardization (ISO)-compatible, durable, inter-modal container system.
- Establish, operate and maintain lines of communications and integrate them with commercial, host nation and interagency activities.

Protect the JPPSP

- Ascertain the magnitude of threat(s) across the entire distribution pipeline (e.g., at terminals, hubs, nodes, and in lines of communication), and conduct risk assessments to determine appropriate protective measures.
- Provide/coordinate for required protection of the distribution pipeline, at a level commensurate with threat assessment.
- Incorporate force protection planning and execution activities into all aspects of the JDDE to include protection of distribution capabilities sourced from the commercial sector, and for services performed by civilian contractors in theater.
- Determine the potential impact of threat activity on essential information systems, and coordinate for the protection of the capability provided by information systems (e.g., COP, CIE, AV, etc.).

- Leverage responsible DOD activities to indemnify JPPSP protection requirements; ensure Information Assurance; and Computer Network Defense techniques are incorporated.
- Leverage counterintelligence (CI) activities resident in the DOD, Central Intelligence Agency, Federal Bureau of Investigation, and other U.S. intelligence community components, to protect the JDDE from intelligence collection efforts of terrorist entities, foreign governments, or organized criminal enterprises.
- Leverage physical protection capabilities and resources of homeland security for the continental United States (CONUS) distribution nodes/distribution

Conduct JPPSP Capabilities Development

- Establish the strategic vision of the JPPSP, including capabilities and application across the strategic, operational and tactical spectrum.
- Conduct analysis and experimentation of JPPSP capabilities to initially determine needs, followed by Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities (DOTMLPF) recommendations/changes.
- Implement and codify JPPSP capabilities in conjunction with combatant commands, Services, and interagency.
- Manage the joint distribution enterprise IT portfolio of systems – guide IT investments in all aspects of the enterprise.
- Shape Services/agency decisions on IT development and integration germane to the JPPSP.
- Establish and manage a container distribution system.
- Examine the Unified Command Plan, and executive agency (EA) roles and responsibilities and how they align with JPPSP to ensure that essential distribution related tasks are performed effectively

APPENDIX F: JPPSP AND JOINT DEPLOYMENT AND RAPID DISTRIBUTION PROCESS IDC SUPPORTING ANALYSIS AND MATERIEL AND NON-MATERIEL RECOMMENDATIONS – ANNEX 2 JPPSP SUMMARY

JPPSP Summary

The basic mission of the JPPSP would be:

- Deploy the joint force
- Sustain the joint force
- Operate the JPPSP

The core functions of a JPPSP are:

- The coordination of the control of traffic out of (and in to) CONUS, to be responsive to COCOM support requirements and campaign plans.
- Marshaling, staging, and organizing traffic for onward movement (Buffering, Smart Load)
- Synchronization of deployment and sustainment operations with reception activities in COCOM.
- Integrating Non-DoD partner IT systems and products into DoD IT networks as appropriate.
- Allowing Non-DoD partners access to DoD IT systems and products as appropriate.
- Providing accurate ITV data on shipments as they enter, are temporarily held, and as they leave the JPPSP.
- Ability to access and operate in both secure and non secure IT environments.

Basic facility requirements will include the need for:

- Rail Deployment Facility
- Connecting Short Haul Rail (JPPSP to Efficient Marine Terminals)
- Buffer Stock Management Facilities
- Trans Load Facilities – Process between Air, Surface, and Sealift modes of transport
- Commercial Fulfillment Centers
- Sensor Networks
- Information Technology Network, internal as well as linkage to World Wide Web and or Major DoD information networks

Primary Mission:

- Assure access to strategic ports
 - Provide deployment process support operations
 - Provide sustainment process support operations
- Operate the JPPSP

Secondary Mission:

- Provide CONUS host facilities for theater opening package capabilities
 - Port opening capabilities
 - Port operating capabilities
 - Initial theater distribution capabilities and stocks
 - Initial medical service support
 - Hospital/medical care
 - Supply Distribution

Tertiary Mission:

- Training, Exercise, and Experimentation Facilities
 - JLETT
 - Training and exercise ranges

Components:

- Operations Center
 - JPPSP C2
 - Synch in/out bound traffic
 - Plans
 - Link JDDE/JDDOC with JPPSP
 - JPPSP Ops
 - Information Management (Fusion)
 - Buffer Operations
 - Warehousing
 - Marshalling
 - Staging Areas
 - VMI
 - Intermodal/multi modal transfers
 - Deployment/Sustainment Operations
 - Synch with war-fighter operations
 - Smart Loading
 - Dynamic diversion
- Tennant Organizations
 - Port opening capabilities
 - Port operating capabilities
 - Initial theater distribution capabilities and stocks
 - Initial medical service support
 - Hospital/medical care
 - Supply Distribution
- JLETT
 - R & D
 - Experimentation
 - Joint Exercises

Decision Support, Tracking Technology and Management Systems Considerations:

- Decision Support Tools
 - Sealift Load Planning
 - Loading Management
 - Internal Traffic Management
 - Internal Inventory Control and Management
 - Yard Management
 - Warehouse Management
 - Airlift Load Planning
 - In bound CONUS traffic Planning
 - Container Management
- Sensor Network
 - Site Plan
 - Information Capture and Processing
 - Interface with External Sensor Networks
- Common Operating Picture
 - JPPSP COP
 - Port Complex Operations COP
 - Integration with supported Commander's COP

APPENDIX F: JPPSP AND JOINT DEPLOYMENT AND RAPID DISTRIBUTION PROCESS IDC SUPPORTING ANALYSIS AND MATERIEL AND NON-MATERIEL RECOMMENDATIONS – ANNEX 3 SUMMARY OF RECOMMENDATIONS

Summary of Recommendations

Office of Primary Responsibility	Recommendation	Suspense
USTRANSCOM	Distribution Process Owner Sponsor SM21 ICD JCIDS CBAT Analysis of JPPSP as part of JFWG Rapid Deployment and Distribution and Information Fusion JFC	Current
USJFCOM	Deployment Process Owner Sponsor SM 21 Analysis of Executability of JFP ACTD Scenarios	Current
SDDC	Support ICODES extension to load planning decision support tool and joint deployment experimentation	Current
CNR	Designate SM21 as Sea Basing Logistics/SRL FNC	FY 08-09
DLA	Sponsor Agile Sustainment Joint Experimentation Campaign involving JPPSP	FY 07-09
CNO	Designate JLETT as HSS-Joint Sea Base Logistics/IT/SRL Experimentation/Innovation cell	FY 07
HQUSMC	Sponsor SM21 through JROC JCIDS process and joint experimentation of JPPSP with Adaptive Logistics ACTD and Sea Viking 08	FY 07-08
USJFCOM	Designate JLETT as Joint and Coalition Logistics JNTC persistent site	Current
CASCOM DPMO	Sponsor Deployment Modernization Process Joint Experimentation involving JPPSP	Current
Army Materiel Command	Sponsor Agile Sustainment JFC Joint Experimentation Campaign with SM 21	FY 07-09
NAVSUP	Sponsor Agile Sustainment Joint Experimentation Campaign with SM 21	FY 07-09
NETWARCOM	Integrate SM1 network centric logistics capabilities with NATO and coalition partners	FY 07-09
Office of Force Transformation	Sponsor spiral development of SRL capabilities with SM21	FY 07-09
SDDC	Change doctrine and business process to accommodate inland marshaling and staging and just in time call forward to SPOE from JPPSP	FY 07

Initial Capabilities Document (ICD) for the Joint Power Projection Support Platform (JPPSP)
Appendix F: JPPSP and Joint Deployment and Rapid Distribution Process IDC Supporting
Analysis and Materiel and Non-Materiel Recommendations
Annex 3 Summary of Recommendations

Office of Primary Responsibility	Recommendation	Suspense
USTRANSCOM	Sponsor change in doctrine and IT standards to enable PPP to SPOE near real time tracking to synchronize Deployment Process through JPPSP	FY07
TECOM	Sponsor pre-deployment joint logistics training, curriculum and exercise planning and execution at 29 Palms	
TRADOC	Sponsor pre-deployment joint logistics training, curriculum and exercise planning and execution at NTC	
OSD	Reassign financial responsibility for pre-deployment transportation, RFID tags, logistics training, and train loading from unit to DoD wide specialists and outsourcing funded through DoD-wide O&M accounts	
USFORSCOM	Task deploying/redeploying forces and authorize joint experimentation with SM 21 to validate JPPSP capabilities	