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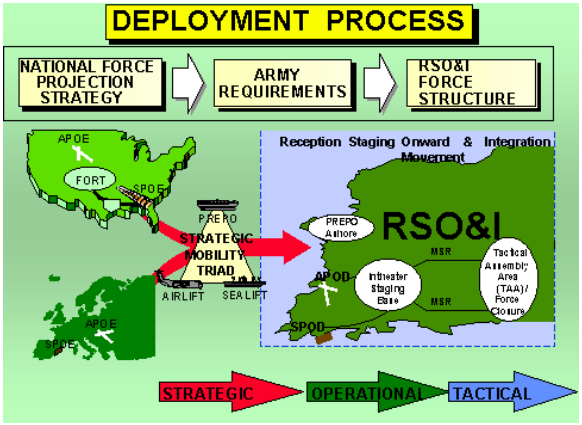
MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

Mobile Automated Distribution Support System (MADSS)

Background: DoD must maintain the capability to deploy/redeploy massive combat power anywhere in the world with minimum preparation time. Currently, DoD units must have the capability to secure, open and operate both seaports and airports in a variety of environments throughout the world. Deployment includes pre-deployment activities, movement to and activities at Ports of Embarkation (POE), movement to and activities at POE, movement to Ports of Debarkation (POD), and Reception, Staging, Onward Movement & Integration (RSO&I). Redeployment activities include recovery and reconstitution in addition to deployment activities. Reception at POD is under the command and control of the Joint Force Commander (JFC). Reception planning and execution, however, is the responsibility of the commander assigned the overall RSO&I mission. This designation can require an augmentation of functional units capable of conducting RSO&I. Movement control is a subset of command and control. A movement control element must be positioned at each reception node, and remain in constant communication with USTRANSCOM elements on-site and with other movement control elements in-theater. Unit onward movement is centrally planned with decentralized execution. Historically, depending on the command level assigned the overall RSO&I mission, movement control could be planned and directed at theater level by a movement control agency (MCA), at Corps level by the Corps Transportation Officer (CTO) and Corps movement control battalion (Corps MCB) or at division level by a Division Transportation Officer (DTO). Theater and Corps movement control teams are positioned throughout the Area of Responsibility (AOR) to assist with movement control. Force tracking provides situational awareness on combat-ready units within the AOR. The process actually begins in the staging area, where equipment and personnel are reassembled to become combat-ready units. Staging areas must have the communications, data processing equipment, and personnel assets to provide and manage force-tracking data.



The importance of having correct, timely information for use by all services cannot be overstated. In austere areas of operation, adequate information technology may not be available. Under these conditions, processing of information is even more susceptible to human error and intensifies the need for ancillary verification, which compounds the effect of scarce resources and time.

Program Initiative Basis and Objective: This program leverages several complementary technology demonstration and development efforts underway in the Services and ORNL. This program is firmly rooted in guidance provided in the DoD Transformation Planning Guidance published in April 2003. MADSS will provide the capability to operate any node of the Distribution System. It provides Global SATCOM connectivity, will contain a Wireless LAN, providing for a RFID capability and a full 2D Barcode suite. MADSS provides TC-AIMS II, AALPS, ICODES, and WIM in a single, mobile package, and is scalable to any IT application package required to operate a node, based upon unit requirements. MADDS will be able to support any A/SPOE/D, Distribution node, Supply activity, Movement Control, etc. and will provide full personnel manifesting and air/sea load planning capability in austere areas. MADSS extends the ITV/TAV linkage to the “dirty end” of the E2E Distribution System.

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The MADSS program links projects under an umbrella concept for coordinated development of hardware as well as interfaces with appropriate command and control, and logistic systems and databases. The synchronized, rapid, spiral development of these technologies will significantly improve the end-to-end flow of military unit equipment and cargo across transportation nodes; processing and loading times of combat units; and the effectiveness and efficiency of existing automated tools and databases. Additionally, WIM systems are considered physical data-gathering devices for the TC-AIMS II. The objectives of the MADSS program are:

- **Objective 1:** The first objective is to develop a suite of man-portable hardware configured in a prime vehicle that satisfies the requirement for obtaining accurate transportation documentation data for air and sea transport at austere equipped theater facilities. This portable MADSS can be used in unit staging areas, and complement/augment components at power projection platforms.
- **Objective 2:** The second objective is to develop automated linkages of vehicle/cargo identification data, weight/balance, and vehicle/cargo dimensional data with TC-AIMS II and other logistics planning systems so that the process is fully automated as well as dynamic and capable of interrogating and updating RFID tags and producing appropriate military shipping documentation.
- **Objective 3:** The third objective expands WIM capabilities to include determining vehicle/cargo dimensional data for interoperability with other designated distribution support systems.

Attaining these objectives will transform the current weighing process into one that is more rapid, more accurate, safer, and less manpower intensive.

FY06-07 Activities: Develop a suite of man-portable hardware configured in a MADSS vehicle that satisfies the requirement for obtaining accurate transportation data:

- Produce a field-ready prototype incorporating state-of-the-art electronic technologies
- Capture automated vehicle identification
- Update the real-world "actual" data electronically into TC-AIMS II for operational planning, deployment, execution purposes and in-transit visibility
- Provide unit production cost study
- Provide manufacturing specifications to include design specifications, bill-of-material and software

FY07 Activities:

- Build MADSS devices to perform operational testing at multiple sites
- Investigate enhancements and incorporate findings into MADSS

Path Forward FY08-FY11:

- Transfer technical specifications to DoD and set up processes to acquire MADSS units
- ORNL will continue to:
  - Enhance equipment
  - Assist in modifying functional/business process
  - Provide technology transfer to Army and other Services

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