

MADW Introduction

The Maintenance and Availability Data Warehouse (MADW) contains availability, cost, inventory, and transactional data on nearly every weapons system and readiness reportable piece of equipment in the Department of Defense (DoD). The MADW team has been curating maintenance records from 46 authoritative data systems used by the military services for more than 12 years. Each of the more than 1.6 billion maintenance and supply transactional records within MADW has been converted to a standard format, providing the capability to differentiate common and special maintenance cost and availability loss drivers for every weapons system and readiness reportable piece of equipment.

MADW evaluates top-level measures of success in the DoD sustainment world, such as achieved availability and trends in cost per day of availability (C/DA). Achieved availability is DoD's measure of effectiveness and C/DA is the efficiency metric of the DoD sustainment community. MADW also uses a diagnostic capability to identify maintenance cost and availability loss drivers at the system, sub-system, maintenance action, object, and part number levels of detail. Machine learning algorithms help solve for maintenance actions and objects at each task-level transaction. MADW provides the following new and enhanced capabilities to DoD.

Logistics studies and analyses:

- Analyzes availability, supportability, and sustainment of joint use systems, subsystems, and components across services

- Identifies common areas of logistics improvement, such as reliability, maintainability, and readiness, to justify investment decisions across systems and services
- Integrates supply, maintenance, and cost data, enabling DoD analyses previously constrained by database and data type separation
- Helps identify cost and materiel availability drivers and build business cases for technology insertion initiatives

New approach to measuring weapons systems maintenance:

- Generates weapons system health measures based on achieved availability and C/DA trends
- Helps make affordability decisions and justify investments
- Improves confidence in system cost estimates by providing high-fidelity cost and performance data
- Helps program offices use antecedent data to avoid past issues and anticipate future needs

Diagnostic and predictive capability:

- Allows analysis of achieved availability and C/DA by looking for abnormal action/object combinations and predicting what new availability and cost will be once the combination is normalized.

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