

Diagnostic metrics task

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Diagnostic Metrics Task Statement

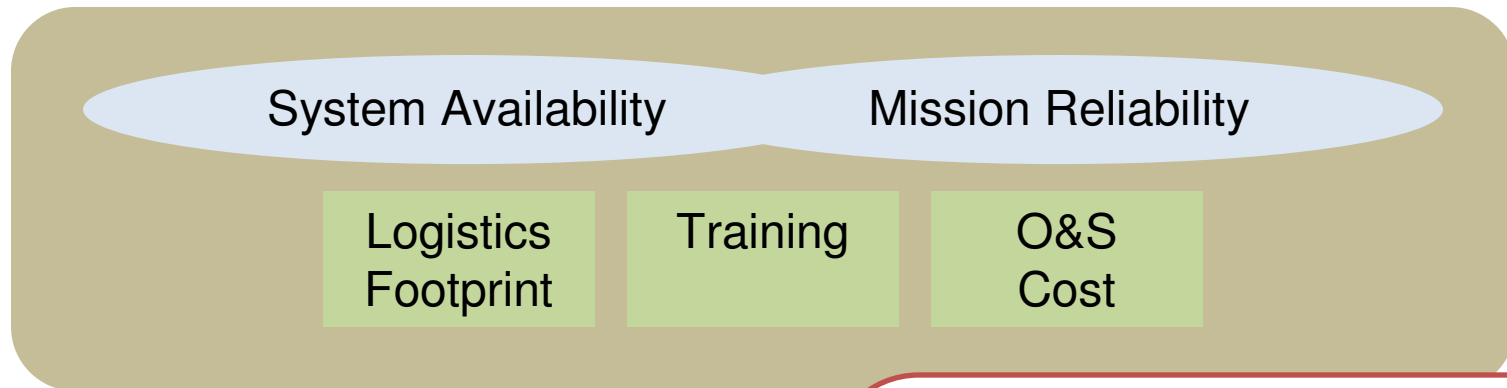
- **OVERVIEW:**

- OSD is interested in being able to diagnose a weapon system the first time quickly in order to get tanks and other platforms back into the fight as soon as possible.
- For maintenance folks accurate diagnostics are the holy grail.
- Problems with diagnostics is one reason why readiness is a problem.
- What metrics are available to measure the effectiveness of embedded diagnostics, prognostics and training?
- Are there tools available, or is tool development to measure it required?
- How do commercial companies like Ford or Boeing commercial aircraft measure it?
- Where should limited funds be applied to improve systems and to increase readiness?

DoD Policy and Guidance

- 3.3.4. Maintenance programs for materiel maintained for the Department of Defense shall facilitate, collect, and analyze maintenance-related reliability data. The programs shall include sufficient analytic capability for identifying needed adjustments based on operating experience, materiel condition, and requirements for reliability, maintainability and supportability modifications, and changes to training curricula or delivery methods. The programs shall provide maintenance activities the means for assessing information generated by prognostic and diagnostic capabilities and for taking appropriate maintenance actions. The programs shall also establish and evaluate performance metrics that promote continuous improvement in maintenance, ensuring responsiveness and best value to operating forces.
 - DoD Directive 4151.18; 31 mar2004 Maintenance of Military Materiel USD(AT&L)
- RCM analysis determines the optimum maintenance approaches that will achieve planned materiel readiness, which is measured by the life-cycle sustainment outcome metrics of materiel availability, materiel reliability, ownership cost, and mean downtime.
 - DoDI 4151.22; 02 Dec 2007 Condition Based Maintenance Plus (CBM+) for Materiel Maintenance USD(AT&L)

EHM Metrics



Reliability

- Mean Time between failure
- Mean Time between Maintenance Event
- Mean Time Between Removal

Maintainability

- Mean Time to Repair

Health Management

- Can Not Duplicate / No Fault Found
- Fault isolation Accuracy
(5%/90%/5%)
 - 5% missed detection
 - 90% correct isolation
 - 5% false alarm
- Fault Detection
- Fault Isolation

Logistics

- Mean Time between Demand
- Spares (components / vehicles)
- Support Equipment
- Manpower
- Training (crew / maintenance)