

## Capabilities, Effectiveness & Requirement Analyses

Capabilities, Effectiveness, and Requirement Analyses allow the operators who write requirements, the PMs who interpret them, and the engineers and scientists who develop the solutions to the requirements to speak the same language and all be working toward the same goals, resulting in a system or equipment that performs its intended function.

Effective reliability, maintainability, life cycle cost, supportability and other analyses are essential to identifying short-falls in weapon system designs and to offering solutions that improve performance and cost. With access to good data sources, design engineers and program managers can make decisions on those issues that have the most impact on weapon system effectiveness. If applied early in the design phase, the cost benefits are significant. If applied later during production or operation, long term supply problems and related costs can be avoided.

Areas include:

- Life Cycle Cost Management – Models and support data assess repair levels, spare support, cost factors and program management. These data allow a logistic support analysis that avoids duplication of efforts to the overall system effectiveness. The benefits of life cycle costing force long range considerations rather than short term thinking.
- Defense Acquisition System – The DoD 5000 series represents a change in weapon system acquisition policies and procedures. Without experience or backup data, errors can be performed in the acquisition process. The solution is to have access to information that can assist in the acquisition policy.
- Operational Suitability/Effectiveness – Environmental and reliability testing are two methods to assess operational suitability and effectiveness of new weapon systems. This early assessment can reveal design, manufacturing and maturity problems before fielding the system.
- System Engineering for Product Life Cycle Management – Maintenance engineering, performance-based logistics, supply chain design and logistics operational management are some of the important areas of product life cycle management.

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