

Top 10 Equipment Sustainment Phase Tasks for Logistics Product Support Assign to Field Level Mission Requirements

04/11/2017

Sustainment Metrics measure degree of system product support in terms of design characteristics created for reliable and maintained equipment and efficacy of disparate elements of product support. Site Visit Executive must provide for inclusion of spare parts, tools, and training required to operate/maintain weapons systems.

Structured metrics assessments ensure systems are designed to achieve mission success and product support elements are identified and available to field-level units. Here we detail prediction/allocation model to assess responsibility for effective operational tasks addressing contributions of quality system design and Logistics Footprint to total cost/benefit of equipment use over sustainment phases.

The Logistics Footprint of weapons systems consists of field-level unit levels & materiel required in theater of operations. The ability of military forces to deploy in meeting multiple crises or move quickly from one area to another is determined in large measure by the amount of logistics assets required to support that force. Improvements in sustainability planning reduces size of Logistics Footprint is related to effective determining number of required spares, maintenance specialists, support equipment & force size available to successfully accomplish missions.

Sustainment task space bounds values of reliability and time phase to achieve best possible cost/benefit ratio solution. Balancing techniques are conducted throughout weapons systems service life to ensure optimised solution. While early phase considerations may exhibit higher R&D and acquisition costs due to costs incurred in implementing mission availability programmes, reductions in O&S costs due to improved performance and decreased sustainment requirements far outweighs implementation costs.

“Design the Support” processes are based on output support process design as described previously—i.e., levels of spares, common & unique tools, test equipment & training Site Visit Executive must procure and specify. For example, support equipment recommendations are generated to specify measurement requirements and determine if existing equipment can be used or whether new equipment must be designed and procured. Properly tailored product support packages, based on technical requirements of system design, will yield most affordable and operationally ready capability.

When dealing with requirements for available equipment, product support tasks must be included as some level of repair simulation accuracy to achieve mission-capable state. Site Visit Executive has designed logistics support strategies closely related to simulated variables at play to ensure accurate levels of equipment are tasked to meet field-level unit mission targets. Directives take

form of spare parts provision, maintainer training & identification of required product support enablers.

For any system, estimates detailing future cost/benefit of labour intensive sustainment processes are subject to varied degrees of uncertainty. Uncertainties are due not only to deficits in cost/benefit estimates, but also due to uncertainties in programme definition or system technical performance. Although these uncertainties cannot be eliminated, they must be addressed in Site Visit Executive task orders. For each major concern, it is useful to quantify degree of uncertainty and consequent effect on cost/benefit estimate accuracy.

Typically, for major weapons systems many types of programme concerns or risk areas and associated cost/benefit drivers have been identified by Site Visit Executive. For example, sensitivity assessments must examine how maintenance labour varies with different assumptions about how reliable system value determinations are made or how spare part consumption is dependent on pace of field-level missions. In designing smart sensitivity determination techniques, cost/benefit driver values are not changed by arbitrary plus/minus percentages, but instead by categorisation of underlying uncertainties.

From both cost/benefit and logistics perspective, level of repair action is most important business case decision made by Site Visit Executive. Detailed performance metrics provided by field-level users, as well as mission requirement factors and fiscal criteria allocate execution of repair actions throughout all levels of maintenance. Sustainment metrics estimates are provided for use in critical decision processes to make assist in finalise dispatcher quality assurance samples as well as initiate future Job Site planning activities.

Here we define several mandatory sustainment requirements in Site Visit Executive Job Description to ensure effective product support principles are addressed and accomplished across equipment life phase for all newly created and fielded systems. These requirements include 1) Performance Parameters 2) Availability and 3) Reliability.

Sustainment is key component of weapons system performance. Including product support planning “upfront” enables acquisition and requirements directorates to provide equipment with optimal availability and reliability to the warfighter at value. Value of Sustainment Performance Parameters is derived from mission requirements of weapon systems, assumptions for operational use, and planned logistics support to sustain it.

Complete system must be created to provide warfighting capability, sustainment objectives must be established and performance of the entire system measured against well-designed metrics. We have provided illustrative examples of tracking actual reliable/maintain metrics compared to baseline specifications.

Performance Tracking techniques can be used to update estimates of cost/benefits elements such as maintenance manpower. An example of aircraft reliable performance track is measured as timed equipment repair event simulations. Specification definition requires conversion of operational reliable/available equipment parameters to equivalent contract outcome measurement.

Product Support programmes have two baseline values for reliability included as part of contract specifications. The first reliability value is the minimum requirement must be met, while second value is desired goal at higher, but not too ambitious value than requirement. It is assumed performance-based incentives are in play for product support provider to surpass the minimum requirement.

Reliability growth metrics associated with specification values assume reliability is improved over time due to design changes correcting deficiencies discovered in test and evaluation, or due to improvements in spare parts quality as build process matures.

Performance tracking displays actual test metrics for same points in time as programme baseline goals and requirements. In some examples, early reliability is deficient relative to baseline, but over time product support provider demonstrates ability to address problems, reaching reliability value at maturity that significantly surpasses specification projections.

As preliminary test/evaluation results are collected and assessed, it is possible to update current estimates for system maintenance reliability. In some cases, test/evaluation results come close to matching advances associated with current programme estimates or specifications, and current estimates can be validated. In other cases, test/evaluation results may not match advances so current estimates must be revised.

Validated or revised information can be used to update fiscal O&S budget estimates for elements sensitive to reliability and maintenance parameters—typically, field-level mission levels utilising consumable materiel such as spare parts.

As an example, maintenance manpower for units or squadrons tasked with critical missions can be determined as a function of aircraft reliability by use of repair simulation models estimated at subsystem levels promoted by Site Visit Executive charged with execution of the following Tasks:

1. Assumes Responsible efforts for drafting sustainment requirements & rationale articulated in Reliable/Available Reports
2. Details Operational Mode Mission Summary Profile/Success Definition & Scoring Criteria
3. Leads combat system creation teams in providing expert engineering & product support assessments
4. Implements weapons systems support design demonstrate through event-driven component, subsystem & system-level testing
5. Ensures creation of Sustainment Concept Element provisioning, training, equipment, etc.
6. Establishes Product Support Integrate/Provide estimation of Field Level Use metrics

7. Provides input into statement of requirements characterised in measurable & testable terms
8. Confirms sufficient test assets & event schedule to allow for reliable/available evaluation
9. Measures system reliability & demonstrate support concepts assess validity/clarity of assumptions
10. Verifies Test/Evaluate programme results include sufficient time for retest of potential corrective actions