

**LOGISTICS
IN THE CONTEXT OF THE SYSTEMS ENGINEERING PROCESS**

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The field of logistics has been changing rapidly as there is more focus today on the design and development of *systems* versus the design of *components*. At the same time, the complexity of systems is increasing with the introduction of new technologies on an evolutionary and continuing basis; there is an increasing emphasis in the utilization of commercial off-the-shelf (COTS) equipment, reusable software, and commercial processes; the life cycles of many *systems* are being extended while the life cycles of individual *technologies* are relatively short-term by comparison; the availability of resources in many areas is dwindling; and competition is increasing worldwide.

Given this, logistics and the elements of product support must be considered within the context of *systems*. Further, these considerations must be addressed from the beginning and during the early phases of conceptual design. It is at this stage when early design decisions have the greatest impact on the subsequent operation and support of the system later on. Thus, logistics must be addressed from a total *life-cycle* perspective.

The objective of this session is to address the subject of logistics from a life-cycle perspective, commencing during the *requirements definition process* early in system design and development. Having identified the need and defined system operational requirements and the maintenance concept, logistics (and the design for *supportability*) is addressed through the top-down process of functional analysis, requirements allocation, synthesis, analysis and design optimization, test and evaluation, and so on. Inherent within the systems analysis effort is the accomplishment of the *supportability analysis* and the application of such tools/methods as life-cycle cost analysis (LCCA), failure mode, effects, and criticality analysis (FMECA), maintenance task analysis (MTA), level of repair analysis (LORA), reliability-centered maintenance (RCM), and related techniques. While many of these tools are not new and have been utilized on numerous programs in the past, the emphasis here is to apply these in the early phases of design, producing more effective results. In essence, logistics and the system support infrastructure will be viewed in the context of the systems engineering process.