

## Development of Reliability, Maintainability, and Supportability Plans

### DESCRIPTION

Reliability, maintainability, and supportability (logistics) program plans exist to define and implement the reliability, maintainability, and logistics tasks that a supplier considers necessary to meet the overall reliability, maintainability, and supportability (RMS) objectives of the product. The scope of the objective drives the number and types of tasks required, and the details of implementing each task. Successfully implementing the program plans ensures that product RMS issues are addressed as part of the overall engineering and manufacturing effort, and provides a high degree of confidence that the RMS objectives will be met.

To achieve high reliability in both commercial and military products, reliability practices are needed that allow for, and promote, flexibility and innovation, encourage continuous process improvement, promote reduction in variability, foster defect prevention and control, and most importantly, focus on user needs. A well-developed reliability program plan will provide the roadmap to achieving high reliability by stressing proactive reliability tasks over reactive tasks.

A maintainability program plan should demonstrate an understanding of the customer's maintainability needs and the product's design, describe the approach to design for maintainability based on a systems engineering process, and explain compliance by validating maintainability through analysis, test, and finally, monitoring operational performance.

The System Engineering Management Plan (SEMP), which for many programs represents the top technical planning document, provides the initial planning requirements for the implementation of a logistics and supportability program, usually in the form of an Integrated Logistics Support Plan (ILSP). The ILSP includes all tasks essential in accomplishing the design for supportability objectives, which includes initial establishment of performance-based logistics (PBL) requirements, completion of necessary design integration and review tasks, implementation of supportability analysis activities, and requirements development for supportability validation. A well-developed ILSP closely integrates the reliability and maintainability program plans.

The Alion SRC staff has the experience and knowledge required to develop, implement, support, and execute reliability, maintainability, and supportability program plans. We have worked with commercial and defense customers to develop and execute program plans tailored to their specific product(s) or environments. Some of the tasks that we have recommended include:

Tasks	Purpose
Benchmarking	Benchmark "world-class" competitors' or industry leaders' practices to adapt the best relevant features to the product being developed.
Life Cycle Planning	Define the methodology for establishing, assessing and ensuring that the product meets the customer's useful life (end-of-life) expectations.
Market Survey	Obtain an overview of customer needs and expectations regarding elements of product reliability performance.
Parts Obsolescence	Establish the ground rules which delineate how parts obsolescence issues will be addressed (lifetime buys, substitute parts, new technology).
Supplier Control	Establish the ground-rules under which parts or software will be selected, purchased and applied. Establish procedures for defining supplier-vendor relationships.
Test Strategy	Define test strategies to identify the appropriate tests which should be performed on both hardware and software, and the required test levels and durations.