

통합병참지원에 관한 연구

A Study on Integrated Logistic Support

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Abstract

The successful operation of a product in service depends upon the effective provision of logistic support in order to achieve and maintain the required levels of performance and customer satisfaction.

Logistic support encompasses the activities and facilities required to maintain a product (hardware and software) in service. Logistic support covers maintenance, manpower and personnel, training, spares, technical documentation and packaging handling, storage and transportation and support facilities.

The cost of logistic support is often a major contributor to the Life Cycle Cost (LCC) of a product and increasingly customers are making purchase decisions based on life cycle cost rather than initial purchase price alone. Logistic support considerations can therefore have a major impact on product sales by ensuring that the product can be easily maintained at a reasonable cost and that all the necessary facilities have been provided to fully support the product in the field so that it meets the required availability.

Quantification of support costs allows the manufacturer to estimate the support cost elements and evaluate possible warranty costs. This reduces risk and allows support costs to be set at competitive rates.

Integrated Logistic Support (ILS) is a management method by which all the logistic support services required by a customer can be brought together in a structured way and in harmony with a product. In essence the application of ILS:

- causes logistic support considerations to be integrated into product design;
- develops logistic support arrangements that are consistently related to the design and to each other;
- provides the necessary logistic support at the beginning and during customer use at optimum cost.

The method by which ILS achieves much of the above is through the application of Logistic Support Analysis (LSA). This is a series of support analysis tasks that are performed throughout the design process in order to ensure that the product can be supported efficiently in accordance with the requirements of the customer.

The successful application of ILS will result in a number of customer and supplier

benefits. These should include some or all of the following:

- greater product uptime;
- fewer product modifications due to supportability deficiencies and hence less supplier rework;
- better adherence to production schedules in process plants through reduced maintenance, better support;
- lower supplier product costs;
- lower customer support costs;
- better visibility of support costs;
- reduced product LCC;
- a better and more saleable product;
- improved safety;
- increased overall customer satisfaction;
- increased product purchases;
- potential for purchase or upgrade of the product sooner through customer savings on support of current product.

ILS should be an integral part of the total management process with an on-going improvement activity using monitoring of achieved performance to tailor existing support and influence future design activities.

For many years, ILS was predominantly applied to military procurement, primarily using standards generated by the US Government Department of Defense (DoD). The military standards refer to specialized government infrastructures and are too complex for commercial application. The methods and benefits of ILS, however, have potential for much wider application in commercial and civilian use.

The concept of ILS is simple and depends on a structured procedure that assures that logistic aspects are fully considered throughout the design and development phases of a product, in close cooperation with the designers. The ability to effectively support the product is given equal weight to performance and is fully considered in relation to its cost.

The application of ILS provides improvements in availability, maintenance support and longterm logistic cost savings. Logistic costs are significant through the life of a system and can often amount to many times the initial purchase cost of the system.

This study provides guidance on the minimum activities necessary to implement effective ILS for a wide range of commercial suppliers. The guide supplements IEC 60706-4, Guide on maintainability of equipment Part 4: Section Eight Maintenance and maintenance support planning, which emphasizes the maintenance aspects of the support requirements and refers to other existing standards where appropriate. The use of Reliability and Maintainability studies is also mentioned in this study, as R&M is an important interface area to ILS.