Life Cycle Cost (LCC)

The cost of a system or equipment to the end user over it planned lifetime is its Life Cycle Cost of ownership. The LCC is the sum total of direct, indirect, recurring, non-recurring, & other related costs, which are estimated to be incurred and include costs associated with design, research & development, investment, operations, maintenance, & support of a system over its life cycle. The life cycle of a system can be defined in several distinct phases, from proposal, conception, design, development, production, and fielding, to the disposal phase. In determining the LCC of a system, consideration must be made to the overall maintenance concept. This may include issues such as whether a commercial maintenance infrastructure or a dedicated maintenance infrastructure will be employed.

Take the example of a consumer who buys an automobile, prior to making his final decision he may consider the purchase price, finance charges, the fuel consumption and even the reliability of the vehicle in question.

The consumer would tradeoff this criteria with another vehicle makes, he or she is considering from a competitor. Fortunately for most consumers, although they may not think so at the time, the repairs cost for an automobile or truck is relatively cheap compared to specialized commercial and military systems.

This is in part due to the fact that when they have a vehicle repaired, they are using a commercial support infrastructure that is utilized by many other consumers. The cost of the support infrastructure is spread across the general population.

In the case where specialized equipment is procured and new or dedicated support infrastructure is required, this would have impact upon the LCC. This can also be compounded by the fact that spare parts are specialized items which are designed and manufactured to a higher quality level, e.g. military standards. To effectively implement a LCC analysis, many parameters should be taken into consideration to determine the cost to the user during the system's expected operational life. This includes spares, repair turnaround, training duration, skill levels, technical publication, operating cost etc.

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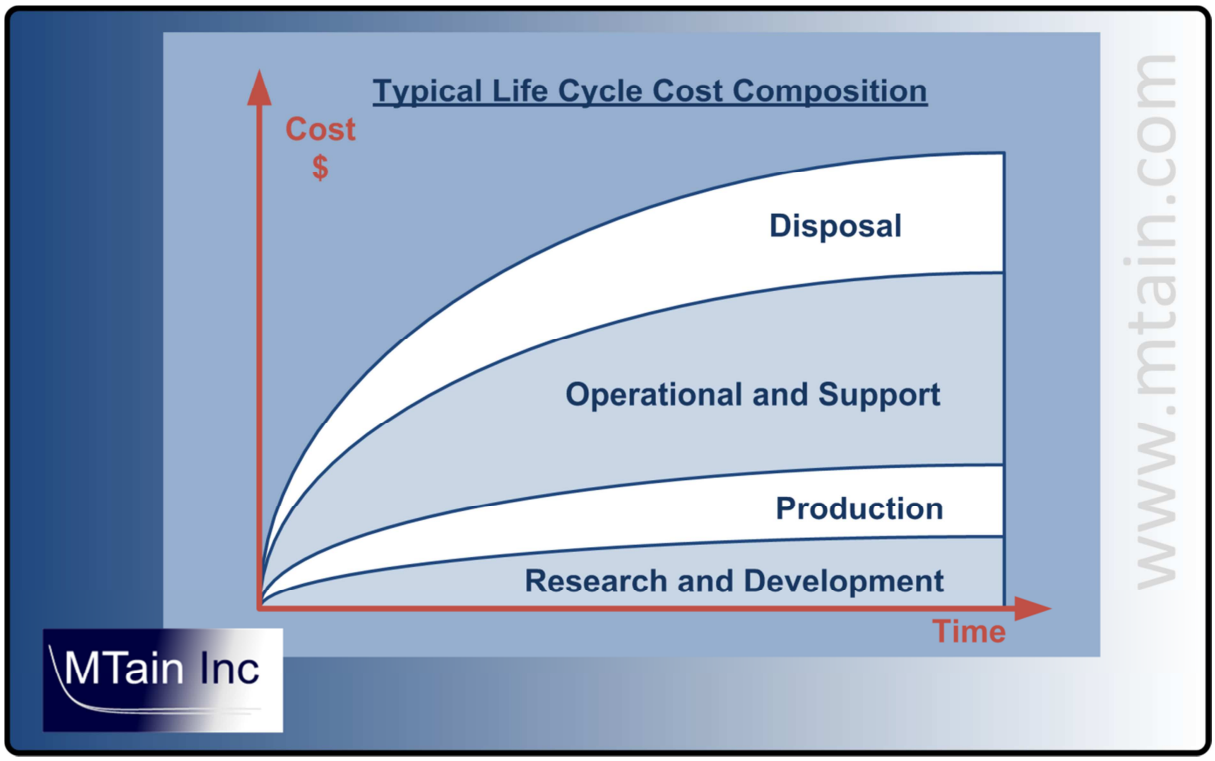

The LCC analysis is most effective and will have its greatest impact on cost at the conceptual and early design phase, of a program. Thus the following should be considered:

- Early analysis data can be of poor quality;
- Model should be updated as design progresses and as better data becomes available;
- Model used to make critical design and support decisions;
- Must use the LSA/LORA outputs;
- Assumptions made must be monitored & changed as necessary (e.g., inflation rates, quantities, cost);
- Changes in the engineering schedules must be reflected in model;
- Front-end analysis;
- Estimates development and maintenance cost;
- Allows for variables in predicted growth and enhancements of software; and
- Estimates for software is based upon developers skills/experience, Source Line of Code (SLOC), platform (military/commercial), programming complexity, development standards, etc.

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The Iceberg Effect

The LCC would address the various cost elements association with the operational and support costs. These costs are somethings referred to the Iceberg Effect as these costs are generally hidden. An effect LCC model would reveal these hidden operations and support costs. Therefor it is important to consider just the Acquisition Cost when acquiring a new equipment and/ or system. The other costs associated with the operations and support can include the following:

- Facilities Cost;
- Disposal Cost;
- Spares Cost;
- Technical Publication Cost;
- Operating Cost;
- Inventory Cost;
- Support Equipment Cost;
- Training Cost;
- Transportation Cost; and
- Plus++.

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