Title: OSCAM: 20 years of making better operating and support estimates of fleets of ships and aircraft for the US Department of Defense

Author(s) DAVID GARRETT

Decision Analysis Services Pty Ltd, Sydney, NSW

Summary: Established cost estimating techniques exist for military equipment procurement costs based on bottom-up estimating or parametrics. Operating and support cost estimating is less established and is generally considered a difficult area. However, operating and support costs typically contribute around 55-65% of total lifecycle costs, and many of those costs are locked in by the design, development and contracting phases.

System dynamics is a technique used by the US DoD as part of their 'Operating and Support Cost Analysis Model (OSCAM) to improve their understanding of the factors affecting operating & support costs, and thereby make better informed decisions at earlier stages in the lifecycle that optimise the whole life cost of ownership.

SD is a modelling technique used to frame, understand, and discuss complex issues and problems. It models the relationships between all the parts of a system and how those relationships influence the behaviour of the system over time. It applies to dynamic problems arising in complex social, technical, managerial, or economic systems - characterised by interdependence, mutual interaction, information feedback, and circular causality. Originally developed in the 1950s to help corporate managers improve their understanding of industrial processes, SD is used throughout the public and private sector for policy analysis and design. However, it is still a niche approach that tends to be used by experts and is not widely used as a general analyst tool.

The OSCAM tools used by the US DoD are something of an exception, being used by cost analyst professionals rather than System Dynamics experts. OSCAM models have been in existence for 20 years, initially used as a niche tool, but in the last 10 years they have established themselves as the standard tool for the US Navy for Operating and Support cost estimating.

This presentation will provide an overview of system dynamics, the OSCAM toolset, and some practical lessons leant over the 20 years of its development.

Keywords: cost estimating, lifecycle costs, system dynamics, defence.