

The Rise of Outcome, Performance and Availability-Based Contracts for the Delivery and Support of Complex Systems

Peter Sandborn

301-405-3167, sandborn@umd.edu



Abstract: Outcome-based contracts that pay for effectiveness and penalize performance shortcomings have been introduced to incentivize cost reduction efforts on the contractor side of product service systems (PSSs). Outcome-based contracting concepts are being used for PSS acquisitions in healthcare, energy, military systems and infrastructure. These contracts allow customers to pay only for the specific outcomes achieved (e.g., availability) rather than the workmanship and materials delivered. Common outcome-based contract structures include: performance-based logistics (PBL), power purchase agreements (PPAs) and public-private partnerships (PPPs).

Given the rise in interest in outcome-based contracts, it is incumbent upon the system development community to determine how to design systems (including designing the sustainment of systems) to operate under these contract mechanisms, and to ultimately coordinate the system design with the design of the contract terms.

This presentation provides an introduction to outcome-based contracts. We will discuss the ways in which engineering design interacts with the design of contracts and introduce the concept of contract engineering, which treats engineering and contract design as a system design problem in the context of resilient systems.

Presenter: Peter Sandborn is a Professor in the Department of Mechanical Engineering at the University of Maryland and the Director of the Maryland Technology Enterprise Institute (Mtech) at the University of Maryland. His research interests include electronic part obsolescence management (including forecasting, mitigation and refresh planning), prognostics and health management for electronic systems (including optimal application of PHM to systems, and design for availability), parts selection and management for electronic systems, and system life-cycle and risk economics. He is an Associate Editor for the IEEE Transactions on Components, Packaging and Manufacturing Technology; a member of the Board of Directors for the PHM Society, the International Institute of Obsolescence Management, and the Offshore Business Network; and a Fellow of the IEEE and ASME.

