



EXCERPT FROM THE PROCEEDINGS

OF THE FIRST ANNUAL ACQUISITION RESEARCH SYMPOSIUM

**USING THE SYSTEMS ENGINEERING PROCESS TO BALANCE THE
INTERDEPENDENCE OF MISSION CAPABILITY, OPERATIONS AND
SUPPORT COSTS AND SYSTEM UTILITY RATES—
WHAT'S T&E'S ROLE?**

Published: 30 September 2004

by

LTC Thom Crouch

**2nd Annual Acquisition Research Symposium
of the Naval Postgraduate School:**

**Charting a Course for Change:
Acquisition Theory and Practice for a Transforming Defense**

May 13, 2004

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Proceedings of the Annual Acquisition Research Program

The following article is taken as an excerpt from the proceedings of the annual Acquisition Research Program. This annual event showcases the research projects funded through the Acquisition Research Program at the Graduate School of Business and Public Policy at the Naval Postgraduate School. Featuring keynote speakers, plenary panels, multiple panel sessions, a student research poster show and social events, the Annual Acquisition Research Symposium offers a candid environment where high-ranking Department of Defense (DoD) officials, industry officials, accomplished faculty and military students are encouraged to collaborate on finding applicable solutions to the challenges facing acquisition policies and processes within the DoD today. By jointly and publicly questioning the norms of industry and academia, the resulting research benefits from myriad perspectives and collaborations which can identify better solutions and practices in acquisition, contract, financial, logistics and program management.

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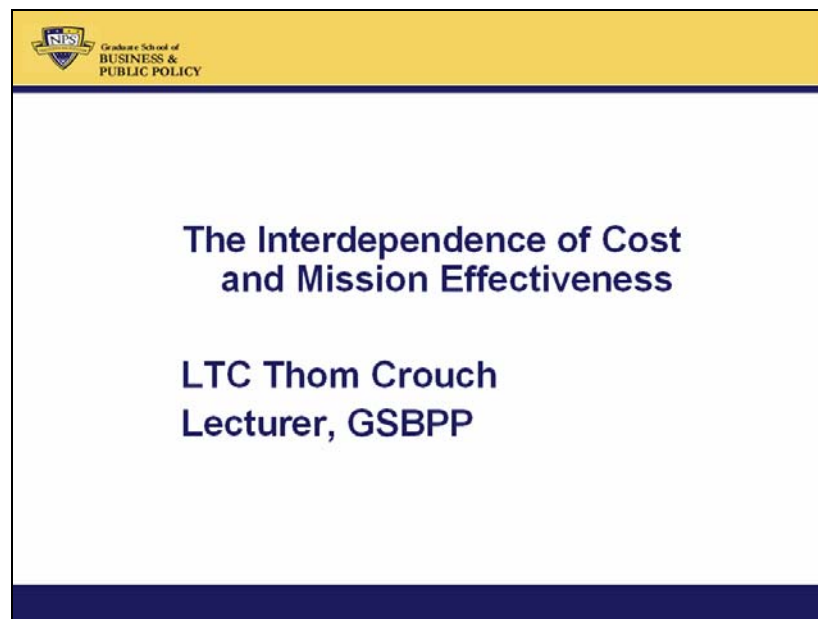
Using the Systems Engineering Process to Balance the Interdependence of Mission Capability, Operations and Support Costs, and System Utility Rates—What's T&E's Role?

Presenter: LTC Thom Crouch, Lecturer, Graduate School of Business & Public Policy, Naval Postgraduate School

Abstract

This research project defines the interdependent relationship between a weapon system's mission capabilities, O&S costs, operational utility rate, and their impacts on overall mission effectiveness of an operational combat unit. By analyzing the sub-elements of both operational effectiveness and operational suitability it can be shown how operational effectiveness is a dependent element of operation suitability. Additionally, it will be demonstrated how support costs influence operational suitability parameters of a weapon system, which then impacts a combat unit's overall mission effectiveness. Since support costs have such a critical relationship with operational suitability factors, the project also defines the current relationships between Service Cost and T&E communities to question whether or not there is the requisite level of integration of effort between the two organizations to accurately assess weapon system costs and capability prior to production.

Introduction



MISSION EFFECTIVENESS DRIVERS

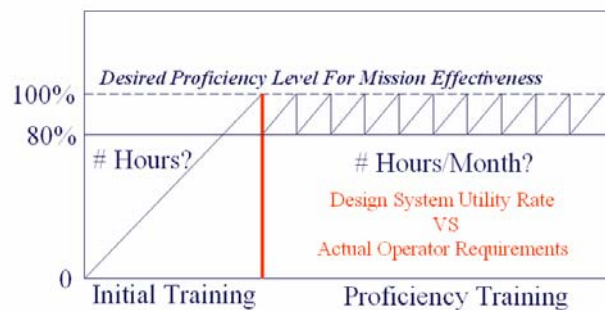
Full Mission Effectiveness (ME) is a function of BOTH:

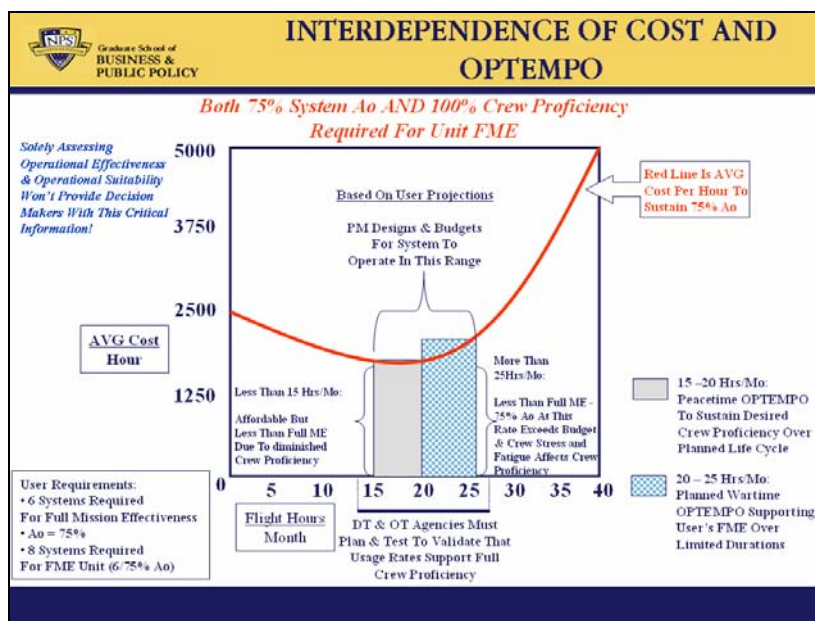
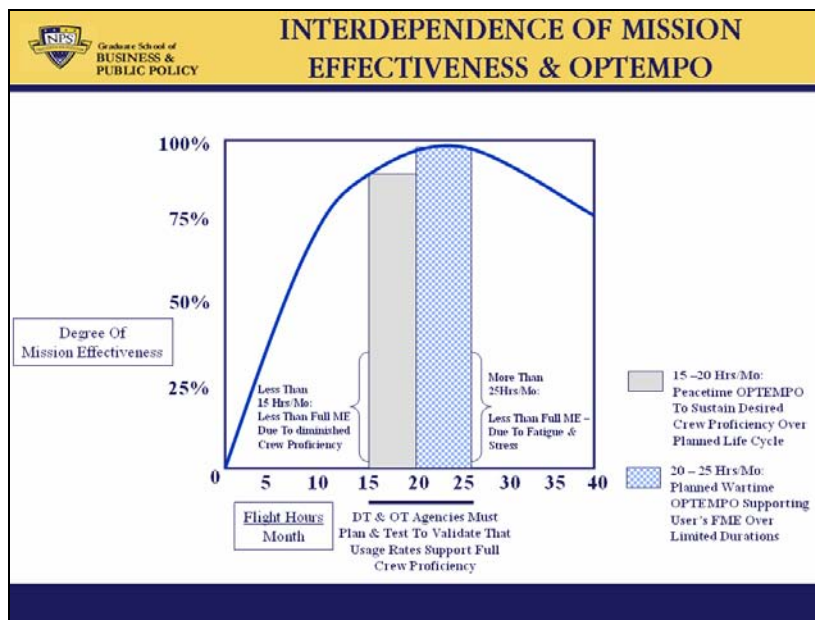
1. Collective crew proficiency to perform requisite mission tasks
2. Collective weapon system readiness and capability at the unit of action level

In current terms – At the unit of action level, weapon systems must be both operationally effective and suitable (in both peace & wartime OPTEMPO) with particular attention to whether or not system readiness levels support crew proficiency.

TRAINING REQUIREMENTS

How do training requirements compare to the design utility rate of the weapon system?





SUMMARY

- T&E communities can contribute significantly to defining and assessing requisite OPTEMPO rates for new systems
- Collecting data to define the shape of a system's operational cost curve can be most insightful in predicting O&S costs
- Close relationship between Cost and T&E communities a must to obtain total projected O&S impacts

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