

Portfolio Analysis in the Cost-Efficiency Evaluation of Weapon Systems

Jussi Kangaspunta, Juuso Liesiö and Ahti Salo
Systems Analysis Laboratory
Helsinki University of Technology
P.O. Box 1100, 02015 TKK, Finland
jussi.kangaspunta@tkk.fi, juuso.liesio@tkk.fi, ahti.salo@tkk.fi

Abstract: Cost-efficiency evaluation of weapon systems is challenging due to multiple mission objectives, interactions among weapon systems and variety of operating situations where these systems may be used. We develop a portfolio modeling framework to identify cost-efficient combinations of weapon systems at different budget levels in view of multiple mission objectives. The modeling framework – which builds on results from combat simulations – admits incomplete information about the importance of mission objectives and accounts for interactions that exist among dissimilar weapon systems.

Keywords: Decision Support Systems, Military Operations Research, Multi-Objective Decision Making.