



Costing Secure Systems & COCOMO II Security Extensions

Objectives

The Constructive Cost Estimation Model (COCOMO II) of the Center for Software Engineering allows users to estimate the cost, effort, and schedule for software development and maintenance activities. CSE is extending it to address cost factors related to developing secure software systems, and is developing a model for estimating the cost of acquiring secure systems early in the life-cycle (e.g. investment analysis), to help government and industry, using modern practices (e.g. *Common Criteria*), in predicting more accurately the cost of developing or acquiring secure systems.

Background

Engineering security in software-intensive system is now a high-priority objective for the U.S. Federal Aviation Administration (FAA), which is supporting this research, for the U.S. Government generally, and for many industries. Prudent management is concerned about the life-cycle cost of security. Existing models, which are based on the Orange Book, show wide variation in estimating the cost to engineer secure software systems.

Achievements to Date

Following the COCOMO II extension method, CSE has analyzed secure development activities, gathered expert opinion from developers of software-intensive systems and experts in security, defined a preliminary extension to COCOMO II ("COSECMO"), defined a model for estimating total system acquisition costs, and developed prototype tools.

Current Research

CSE is collecting and analyzing existing project data and additional expert opinion, and working with pilot projects, to validate and refine the new models, and to refine tool support. In the next phase, CSE will continue to collect project data, develop initially calibrated models, and validate them.

Workshop

CSE will hold its 11th *Costing Secure Systems* workshop on Tuesday, November 7, 2006, at the offices of the Systems and Software Consortium in Herndon, Virginia, as part of the CSE's *International Forum on Systems and Software Cost Modeling (COCOMO/SCM Forum)*. See <http://sunset.usc.edu/events/2006/CIIForum/pages/welcome.html> for details about the Workshop and Forum, local hotels, or registration.

For Project Information

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