

COCOTS Research Effort Overview Statement

Introduction

The **Office of Naval Research** and the **Federal Aviation Administration** are providing funding to the **Center for Software Engineering** at the **University of Southern California** to further refine a model for the estimation of the costs associated with the use of **commercial-off-the-shelf (COTS) software** in the creation of new software systems. This effort has been on-going since 1995, and has had the past sponsorship of other organizations, including the **Air Force Electronic Systems Center**, and the cooperation of the **Software Engineering Institute** at Carnegie Mellon University.

The **CONstructive COTS Integration Cost Model (COCOTS)** effort is under the leadership of Dr. Barry W. Boehm, Director of the Center for Software Engineering at USC, and is related to an effort currently underway at USC to develop and refine **COCOMO II**, a modern version of the well-known **CONstructive COst Model (COCOMO)**¹ software cost estimation model.

One of the more significant changes in software development practice over the past twenty years is the greatly increased emphasis being placed on building systems incorporating pre-existing software in order to keep overall development costs as low as possible. One source of pre-existing software is commercial vendors who supply self-contained off-the-shelf components that can be plugged into a larger software system to provide capability that would otherwise have to be custom built. The primary distinguishing characteristics of COTS software are that its source code is not available to the application developer, and that its evolution is not under the control of the application developer.

The COCOTS effort to date has identified four primary sources of COTS integration effort: 1) COTS assessment; 2) COTS tailoring; 3) glue code design, development, test, and integration; and 4) added application development effort due to COTS volatility. The effort has also identified candidate models to estimate these sources of effort. The parameters of these models, and the resulting project effort amounts, are described in a COCOTS Data Collection Form and Guidelines document.

Cooperation from the software development community is being solicited to provide data via these forms and guidelines. Such data is needed to test hypotheses and to guide and validate the cost model's formulation. In return for cooperation in gathering data, the cost model will be open and made available to the public, and workshops on its use and refinement will be conducted with the data providers.

¹COCOMO is defined in *Software Engineering Economics* by Barry W. Boehm, Prentice Hall, 1981.

Statement of Accountability

The Center for Software Engineering recognizes its responsibility to treat all data submissions with respect and confidentiality. CSE safeguards all data contributions so as not to disclose its origin directly or indirectly. It has a three-year track record of preserving confidentiality of COCOMO II data from roughly two dozen sources. Each organization contributing data will be given an identifying number known only to its own internal organization focal point plus three to four USC-CSE researchers. No dollar-cost data is requested or kept, only effort data in person-months. The data protection procedures are available on the CSE web site or upon request.

Points of Contact

If you have questions about this research effort, please contact one of the following individuals:

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