

Name: DBA COCOMO

Presenter(s): Janet Chu

Objective: Database version of the COCOMOII 2000.3 with additional functionalities.

Rationale: This software is intended to serve as a database version of the existing COCOMOII 2003, which is used to estimate cost, effort and schedule of a software development activity.

Target Users: Project manager who needs to estimate cost, effort and scheduling when planning a new software development activity.

Scope: DBA COCOMOII is the database version of the COCOMOII.2000.3. It provides a storage space for existing project (.est file) data and additional functionalities to those data, ie. retrieving size, driver information, rollup several projects in the database.

Project Type: New tool development

Runs On: Windows 98, Me, NT, 2000, XP with Microsoft Access 97 or later with printer driver installed.

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Technical Approach: Following USC COCOMOII model.

Developers: A. Winsor Brown

Future Directions: Full coverage of COCOMOII.2000.3 and merge with other COCOMO suite products, ie. COPSEMO

Demo Description:

DBA COCOMOII.2000.3:

- 1) Regular COCOMO calculation on data from existing .est files
- 2) Retrieving size, scale factor and driver information
- 2) Redo calculate existing data with a new set of drivers
- 3) Rollup several Projects (.est files)

Name: Agile COCOMOII

Presenter(s): Gunjan Sharman

Objective: Provide Project Managers with a simple mechanism for quick, accurate and, reliable cost and, effort estimates.

Rationale: Recent surveys indicate that most project do estimation by analogy using the “Yesterday’s Weather” algorithm. We need a mechanism to ensure an accurate estimate if things are distinct differences between an old project and the new one.

Target Users: Project Managers, Cost Estimation, Feasibility analysts and Marketing analysts.

Scope: Agile COCOMOII facilitates software cost estimation by leveraging similarities between a previous project and the new project.

Project Type: Tool for software cost estimation

Runs On: Uses Internet Explorer 5.5 and higher and, Netscape 4.7 or higher. Supported by Windows 95/98/Me/NT/XP

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Technical Approach: Client side browser script, estimation and reporting “component”

Developers: Gunjan Sharman

Future Directions: Include additional features

Demo Description: Cost estimation with a single cost driver analogy, cost estimation with multiple cost driver analogy, cost estimation with a single scale factor analogy, cost estimation with multiple scale factor analogy, cost estimation with a single cost driver and a single scale factor analogy, cost estimation with multiple cost driver and multiple scale factor analogy, and support for error handling

Name: NOSTROMO 0.3.7

Presenter(s): Dan Strickland

Objective: Software cost and risk estimation using COCOMO II and Monte Carlo Simulation with Uncertainty Values

Rationale: This software tool is intended to take COCOMO II inputs and apply user-defined Uncertainty Values to develop a Monte Carlo Simulation with ranged outputs, charts, and histogram data. The output file can be used to determine risk for software estimates

Target Users: Program Managers of all levels of experience with parametric cost estimation models

Scope: This tool provides estimates of cost, schedule, productivity and size based on the COCOMO II model and inputs with Uncertainty Factors and Monte Carlo Simulation. The output is in a ranged format with confidence intervals applied for risk percentages. NOSTROMO also offers Putnam model output and an input tool called NEWT.

Project Type: Government contractor proof of concept

Runs On: Windows XP (probably 95 or later – untested) with Microsoft Excel 2000 (probably 95 or later – untested) or later (Enable Macros)

IPR Status: Proof of concept tool. Not for general use.

Technical Approach: Proof of concept

Developers: Dan Strickland

Future Directions: Extended functionality to include integration costs of SI's, incremental development, and updated output. Possibly, port to database or development language.

Demo Description: NOSTROMO

- a) Main NOSTROMO sheet – Uncertainty Levels, Inputs, Outputs
- b) NEWT input to NOSTROMO

COCOMOII.2000.3 (COnstructive COst Model)

Objective: To develop software cost and schedule estimation model tuned to the life cycle practices of the 1990's and 2000's; to develop software cost database and tool support capabilities for continuous model improvement; to provide a quantitative analytic framework, and set of tools and techniques for evaluating the effects of software technology improvements on software life cycle costs and schedule.

Rationale: Tailorability of an organization process to its own process drivers; consistency of the granularity of the cost estimation with the granularity of available information; provide range estimates to the degree of definition of the estimation inputs.

Target Users: Customers, Managers, System Engineers, Software Engineers, Cost Analysts

Scope: Generation of Effort and Schedule Estimates; Calibration; Risk Assessment

Project Type: Multi-year USC-CSE research project

Developers:

Principal Investigator: Dr. Ellis Horowitz;

Student Programmers and Testers: Jongmoon Baik, Keun Lee

Runs On: Windows95/98/NT/2000/XP

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Technical Approach: COCOMOII follows the openness principles used in the original COCOMO. Thus, all of its relationships and algorithms will be publicly available. Also, all of interfaces are designed to be public, well-defined, and parameterized, so that complementary preprocessors, post-processors, and higher level packages, can be combined straightforwardly with COCOMOII.

Future Directions:

Add new features (FP input, ED model risk analysis, etc)

Update Interface

Fix some bugs

Name: Basic COPLIMO

Presenter(s): Ye Yang

Objective: This basic version of the Constructive Product Line Investment Model (COPLIMO) is designed to help users get started in assessing the costs, savings, and return on investment (ROI) associated with developing and reusing software product line assets across families of similar applications.

Rationale: Basic COPLIMO is based on the well-calibrated COCOMO II software cost estimation model. It includes a minimum-essential set of parameters, which are relatively easy to estimate from and organization's current practice, and to refine as further information becomes available. If there is uncertainty about input parameter values, default values are provided in the model, and one can perform sensitivity analyses with the model to see how the ROI changes with different parameter values. Basic COPLIMO is a standard Excel spreadsheet application that can be easily modified, combined with other Excel applications, or interfaced with other Microsoft Office applications.

Target Users: This tool is designed for Project Managers looking to estimate the life cycle cost of product line investment.

Scope: Product Line Cost Estimates; ROI Analysis.

Project Type: Multi-year USC-CSE research project

Runs On:

- Windows 95, 98, NT, 2000, XP
- Microsoft Excel (Enabled Macros)

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Technical Approach: <fill in>

Developers:

Model Principle: Dr. Barry Boehm

Tool Development: Ye Yang

Future Directions: Elaborate on model inputs, outputs and add more features.

Name: COCOTS 2002.1

Presenter(s): Ye Yang

Objective: This tool provides software cost estimations for COTS-Based Systems (CBS) based on the combined estimation of COCOMO II and COCOTS models.

Rationale: The current version of COCOMOII application supports only COCOMOII calculation, which is the estimation of cost, effort, and schedule of the new project. When the COCOTS theory has been introduced, it has brought the new idea of using the pre-existing software that is self-contained off-the-shelf components. It will take advantage of existing, market proven, vendor-supported products, and also reduce overall system development costs. Hence, COCOMOII and COCOTS application had been developed to estimate cost, schedule, and effort to support both new project components (COCOMOII), and COTS components. It combines all cost, schedule, and effort, required to complete the project based on both models.

Target Users: This tool is designed for Project Managers looking to estimate project development cost including COTS based development.

Scope: Cost estimation for COTS-Based Systems

Project Type: Multi-year USC-CSE research Project

Runs On:

- Windows 95, 98, NT, 2000, XP
- Microsoft Excel (Enabled Macros)

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Technical Approach: 1) COCOMO II model is used to estimate custom developed components of an application; 2) COCOTS model is used to mainly focus on estimating three major sources of COTS-related costs: COTS product assessment, COTS product tailoring, and integration or "glue code" development.

Developers:

Model principle: Dr. Christ Abts
Tool developer: Maysinee Nakmanee

Future Directions: Collect project data, calibrate model

Name: iDAVE (Information Dependability Attribute Value Estimation)

Presenter(s): LiGuo Huang

Objective: The initial tool estimates the ROI for achieving the desired values for dependability attributes and helps analyze and select the most effective software dependability strategies.

Rationale: Dependability is a critical issue for software-based systems, and there has been a great deal of important and influential research in the area. And dependability is traditionally viewed in terms of dimensions of dependable behavior, threats, and mechanisms. However, for most of today's systems, dependability cannot be had at any cost. Investments in dependability must be balanced with other technical demands and other non-technical (e.g. economical) constraints. That is, a given system quality must be evaluated in terms of the *value* that it provides the stakeholders. Furthermore, dependability attribute requirement levels tend to be more emergent than pre-specified so that multi-attribute dependability analysis is not necessarily a complex single-pass optimization, but can be a sequential process driven by multiple levels of Maslow need hierarchy satisfaction. Hence, iDAVE is developed as a value-based model for understanding dependability alternatives and the tradeoffs among them.

Target Users: The tool is developed for decision-makers looking to identify an appropriate dependability investment level for a software project with dependability requirements.

Scope: Cost, Value and ROI estimation for systems with dependability requirements

Project Type: Multi-year USC-CSE research Project

Runs On:

- Windows 95, 98, NT, 2000, XP
- Microsoft Excel (Enabled Macros)

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Technical Approach: The iDAVE model integrates cost estimating relationships (CER's) from the Constructive Cost Model COCOMO II; dependability estimating relationships (DER's) from the Constructive Quality Model COQUALMO; and value estimating relationships (VER's) supplied by the system's stakeholders. And it estimates the ROI for achieving the desired values for dependability attributes starting from the baseline dependability investment level.

Developers:

- Model Principles: Dr. Barry Boehm and LiGuo Huang
- Tool Developer: LiGuo Huang

Future Directions:

- Calibrate iDAVE to JPL experience.
- Develop and calibrate domain-oriented DER's and VER's for additional dependability attributes: security, safety, accuracy, and performance assurance.

Demo Description: The iDAVE model integrates cost estimating relationships (CER's) from the Constructive Cost Model COCOMO II; dependability estimating relationships (DER's) from the Constructive Quality Model COQUALMO; and value estimating relationships (VER's) supplied by the system's stakeholders. And it estimates the ROI for achieving the desired values for dependability attributes starting from the baseline dependability investment level. The iDAVE tool navigates users through four steps to get the ROI analysis results by increasing the software dependability level from the baseline investment.