

COPLIMO

Name: COPLIMO

Presenter(s): Ye Yang

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

Rationale: Most software product line cost estimation models are calibrated only to local product line data rather than to a broad range of product lines. They also underestimate the return on investment for product lines by focusing only on development vs. life-cycle savings, and by applying writing-for-reuse surcharges to the entire product rather than to the portions of the product being reused. COPLIMO offers some insights based on the exploratory development and collaborative refinement of a software product line life cycle economics model, the Constructive Product Line Investment Model (COPLIMO) that addresses these shortfalls.

Target Users: Project Managers who are in the role of making product line investment decisions.

Scope: COPLIMO is based on the well-calibrated COCOMO II software cost estimation model. It has an essential set of product line reuse parameters, covers software maintenance as well as development, and includes the whole set of COCOMO II parameters. The main features includes:

- Non-product line cost estimation
- Product line development cost estimation
- Product line annualized life cycle cost estimation
- Sensitivity Analysis of adding complicators on product-specific portion

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: COPLIMO consists of two components: a product line development cost model and an annualized post-development life cycle extension. It

COPLIMO (continued)

focuses on modeling the portions of the software that involve product-specific newly-built software, fully reused black-box product line components, and product line components that are reused with adaptation. This model is an extension built upon USC-CSE's well-calibrated, multi-parameter Constructive Cost Model (COCOMO) II, tailored down to cover the essentials of strategic software product line decision issues and available supporting data from industries.

Developers:

Model principle: Dr. Barry Boehm

Tool developer: Ye Yang

Future Directions: Collect project data, calibrate model