

iDAVE 2005 (Information Dependability Attribute Value Estimator)

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, 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* and/or *ROI* that it provides the stakeholders. Hence, iDAVE is developed as a value-based model for understanding dependability alternatives and the tradeoffs among them.

Target Users: Project decision-makers looking to identify an appropriate dependability investment level(s) 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

Developers:

- *Model Principles:* Dr. Barry Boehm and LiGuo Huang

- *Tool Developer:* LiGuo Huang

Execution Platform: 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.

Website: <http://sunset.usc.edu/cse/pub/research/dependability.html>

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