

Name: COQUALMO

Presenter(s): Meghna Shah

Objective: The demonstration's purpose is to promote awareness and general understanding of the COQUALMO model and its user interface.

Rationale: The rationale behind COQUALMO encompasses the many benefits revolving around the having *a priori* knowledge of the number of and type of defects that are likely to be encountered, with a reasonable degree of accuracy, during the development of a software project.

Target Users: The users include USC-CSE and its affiliates in the roles of data contributors as well as recipients of defect prediction benefits.

Scope: The COQUALMO tool's domain in terms of its inputs is 21 of the 22 COCOMO cost drivers and three defect removal profile levels. From these inputs, the tool produces an estimate of the number of requirement, design and code and test defects that are introduced and removed as well as the number of residual defects remaining in each defect type. It is important to note that the current status of the model is an expert opinion model that has yet to be calibrated over an actual base of real data.

Project Type: The COQUALMO project is a multi-year project.

Runs On: The current COQUALMO implementation is an excel spreadsheet with macros executing on a PC platform.

IPR Status: COQUALMO is copyright owned by USC-CSE.

Technical Approach: The COQUALMO model contains two sub-models 1) the Defect Introduction Model 2) the Defect removal model. The defect introduction model uses the required subset of COCOMO cost drivers and three internal baseline defect rates (requirements, design, code and test baselines) to produce a prediction of defects that will be introduced in each defect category during software development. The defect removal model uses the three defect removal profile levels, along with the prediction produced by the defect introduction model, to produce an estimate of the number of defect that will be removed from each category. Given the information produced by the sub-models the determination of residual defects remaining is a matter of trivial subtraction.

Developers: Sunita Chulani developed the COQUALMO model during her time at USC as a Ph.D. student.

Future Directions: Currently, the main focus of the COQUALMO work at USC is centered on collecting data to validate and calibrate the model.

Demonstration Guide - USC-CSE Annual Research Review 1999

<Short name> (continued)

Demo Description: The presenter will be on-hand to answer questions about the tool and demonstrate the correlating change in defect predictions due to changes in the model inputs.