Tutorial 7

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1. Algorithmic (Parametric) Model This software cost estimation technique use the mathematical equations to perform the software estimation. The mathematical equations are based on historical data or theory. SLOC (source line of code), function points, and other cost drivers are the inputs. For most algorithmic model, calibration to the specific software environment can be performed to improve the estimation. Examples of the parametric models are COCOMO (COnstructive COst MOdel), COCOMO II, Putnam's software life-cycle model (SLIM). Advantages: - Generate repeatable estimations. - Easy to modify input data. - Easy to refine and customize formulas. - Objectively calibrated to experience. Disadvantages: - Unable to deal with exceptional conditions. - Some experience and factors can not be quantified. - Sometimes algorithms may be proprietary.

2. Expert Judgement This technique captures the experience and the knowledge of the estimator who provides the estimate based on their experience from a similar project to which they have participated. Examples are the Delphi, Wideband Delphi and Work Breakdown Structure (WBS). Advantages: - Useful in the absence of quantified, empirical data. - Can factor in differences between past project experiences and requirements of the proposed project. - Can factor in impacts caused by new technologies, applications and languages. Disadvantages: - Estimate is only as good expert's opinion. - Hard to document the factors used by the experts.

Note

It should be noted that cost estimation should be done with 2 models. If both the models are giving lagerly varying answers a third model should be used to validate the findings of previous two models. Hence a third model should also be described.

3. Estimation by Analogy This technique utilize the actual data that is extrapolated from a previous completed project and compare that with the proposed project in the same application domain to derive the cost estimate. Advantages: - Based on actual project data. Disadvantages: - Impossible if no comparable project had been tackled in the past. - How well does the previous project represent this one.