

FRANCISCAN University – SOFTWARE ENGINEERING

SFE – nnn

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Topic 13 – Estimation

IF YOU ESTIMATE IT, BE PREPARED TO DEFEND YOUR ESTIMATION!

Outline

- Estimation Basics
- Estimates as Budget inputs
- Estimation as Iterative
- Project vs Software Estimation
- Methods and Models
- Common Tools
- Example Problems

Estimation Basics (1)

- Estimation (in this context) is the process of determining (forecasting) the cost and schedule of a planned activity (i.e. Project).
- Estimates result from conditions and assumptions.
 - Requirements are conditions. So is available funding.
 - Assumptions include assessments of risk.
 - THE BETTER UNDERSTOOD, THE BETTER THE ESTIMATE
- Estimates are given as a range, i.e. high and low, or a cost with +/- amounts.
- It is common for estimators to multiply the results of modelling by a (fudge) factor to account for unknowns.
 - It was common in the gov't to multiply by 2.5 for any technology risky software project.

Estimation Basics (2)

- Estimates are attributable to available knowledge of the activity, including risks in: technology, resources (including labor), process and procedures, organization stability, etc..
 - The greater the risk, the lower the confidence in the estimate, which results in higher estimates.
 - Similar historical projects in the same organization can reduce estimation (and failure) risk.
- Estimates must show assumptions and conditions used for the estimate (i.e. When is it valid) including the method to make the estimate, and the stakeholders consulted in making it. Think a legal case.

RISKS DRIVE COSTS!

Estimation Basics (3)

- Cost Estimates for software heavy projects are mostly dependant on Labor Estimates
 - Development
 - Sustainment
- Other costs however can include:
 - Captial Costs, such as buying computers
 - Service Costs, such as buying cloud services, internet services
 - Licensing: Software, Intellectual Property
 - These costs are usually amortized (i.e. Expended over time) over the life of a project
- These types are important for budgeting.