Software Project Management
4th Edition

Chapter 5

Software effort estimation

Introduction

- What makes a project successful
- Over and under – estimating

What makes a successful project?

Delivering:

- agreed functionality
- on time
- at the agreed cost
- with the required quality

Stages:

1. set targets
2. Attempt to achieve targets

BUT what if the targets are not achievable?

3

Over and under-estimating

- Parkinson's Law: 'Work expands to fill the time available'

- An over-estimate is likely to cause project to take longer than it would otherwise

- Weinberg's Zeroth Law of reliability: 'a software project that does not have to meet a reliability requirement can meet any other requirement'

A taxonomy of estimating methods

- Bottom-up - activity based, analytical
- Parametric or algorithmic models e.g. function points
- Expert opinion - just guessing?
- Analogy - case-based, comparative
- Parkinson and 'price to win'
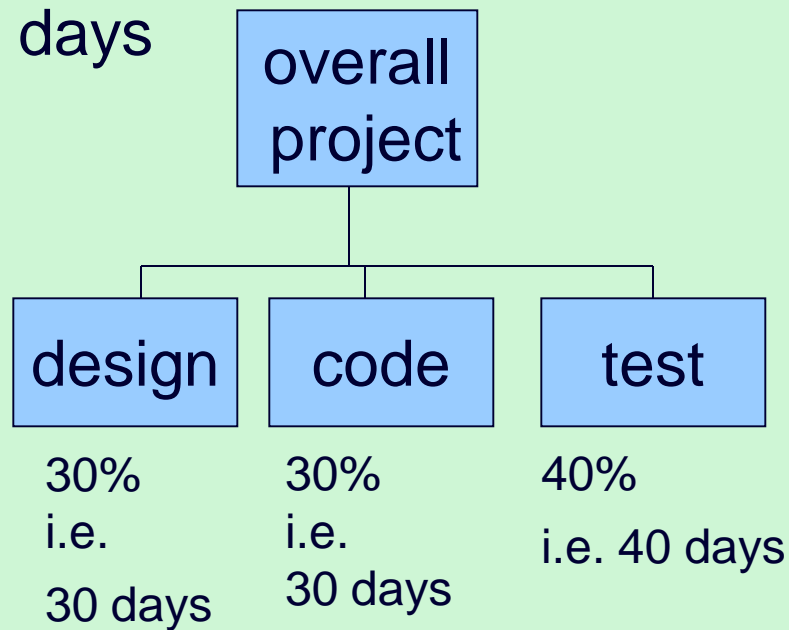
5

Bottom-up versus top-down

- Bottom-up
  - use when no past project data
  - identify all tasks that have to be done – so quite time-consuming
  - use when you have no data about similar past projects

- Top-down
  - produce overall estimate based on project cost drivers
  - based on past project data
  - divide overall estimate between jobs to be done

Bottom-up estimating

1. Break project into smaller and smaller components

[2. Stop when you get to what one person can do in one/two weeks]

3. Estimate costs for the lowest level activities

4. At each higher level calculate estimate by adding estimates for lower levels

Top-down estimates

Estimate
100 days

```
              ┌───────────┐
              │  overall  │
              │  project  │
              └───────────┘
                    │
        ┌───────────┼───────────┐
   ┌─────────┐ ┌─────────┐ ┌─────────┐
   │ design  │ │  code   │ │  test   │
   └─────────┘ └─────────┘ └─────────┘
```

30%   30%   40%
i.e.   i.e.   i.e. 40 days
30 days   30 days

- Produce overall estimate using effort driver (s)

- distribute proportions of overall estimate to components

Applications

- *Software development, much like manufacturing is drastically changing. In order to stay on top, project managers need to accept and adapt to change. This chapter provides focus areas for PMs concerned about: risks, cost, complexity, business climate and team competency.*

- Reference Link : **http://searchsoftwarequality.techtarget.com/feature/Software-project-manager-perspective-The-components-of-successful-application-development**

Scope of Research

The Future is Getting Brighter Every Day

- What does the future hold? According to Johnson the success rate for projects has actually increased since the original Standish CHAOS report. Johnson attributes this increased success rate to more project people using the Standish "Recipe for Success" that was established in 1998. Johnson tells us that the overall project success rate has increased from 16% in 1994 to 28% in 2000. What then are the top 5 factors that have caused this significant increase? According to Johnson's report the top 5 are:

- 1) Executive Support: This is now the No. 1 factor in project failure. Lack of executive support can and does jeopardize projects. Positive Executive support positively influences project outcome.

- 2) User Involvement: Lack of user involvement traditionally has been the No. 1 reason for project failures. Although it is now No. 2, its importance has not decreased.   Johnson feels that project professionals better handle and solve this major problem.

- 3) Experienced Project Manager: Johnson reports that ninety-seven percent of successful projects have an experienced project manager at the helm.

- 4) Clear Business Objectives: Better control of objectives is attributed to experienced project managers.

- 5) Minimized Scope: Do not allow your scope to grow. Johnson claims that minimized scope has replaced small milestones

Reference Link :
   http://www.umsl.edu/~sauterv/analysis/6840_f03_papers/frese/