



Scheduling and Budgeting



Xi'an Jiaotong-Liverpool University
西交利物浦大學

Roland Berberich
MRes, MSC



International Business School
Suzhou at XJTLU
西浦国际商学院



Scheduling and Budgeting

Purpose:

Finding out “When” and “How much”

Why:

360° Project Evaluation **before** committing funds

Allocation of scarce resources



Scheduling and Budgeting

Estimating Budget and Time

- How to estimate
 - Top down vs bottom up
 - Methods
 - Costing
- Gather resources
 - Project Procurement
- Revisions
- Change



Scheduling and Budgeting


Estimating Budget and Time

- Input: WBS
- Top-Down VS Bottom-Up Methods
- Accuracy vs Speed & Simplicity
- “Add a Shot Reality“



Scheduling and Budgeting

Top-Down

- Experience without detail
- No process or WBS knowledge
- Uncertainty & Change 

‘Quick and Dirty’

Bottom-Up

- WBS based
- Actual expertise (those doing the work)
- High Accuracy but slow and overloaded

Scheduling and Budgeting

Top-Down vs Bottom-Up

You cannot have both. Or can you?

- Use multiple methods and people
- Add a shot realism
- Two plans are better than one



Scheduling and Budgeting

Estimation Methods Top-Down

Consensus

Based on managerial experience. Open discussion, similar to Delphi Method.

Ratio Method

Based on previous projects the total time/cost is approximated. E.g. house price per sqm, software development based on features.



Scheduling and Budgeting

Estimation Methods Bottom-Up

Template

Based on previous projects the executing experts adjust previous time/cost for changes and inflation.

Range Estimate

Based on previous projects the experts assume worst/best case scenarios. Equally works for Risk.



Scheduling and Budgeting

Hybrid Estimating

Splits the Project in different Phases.

Only the current phase is estimated en detail.

Source: Larson/Gray 5th Ed.

Allows previous phase experience to be incorporated.

Offers “ranged” target cost where error margin declines over time.

Useful for Greenfield Projects and risky endeavours.

Phase	Need 1	Specifications 2	Design 3	Produce 4	Deliver 5
1		Macro estimate			
2		Detailed estimate	Macro estimate		
3			Detailed estimate	Macro estimate	
4				Detailed estimate	Macro estimate
5					Detailed estimate

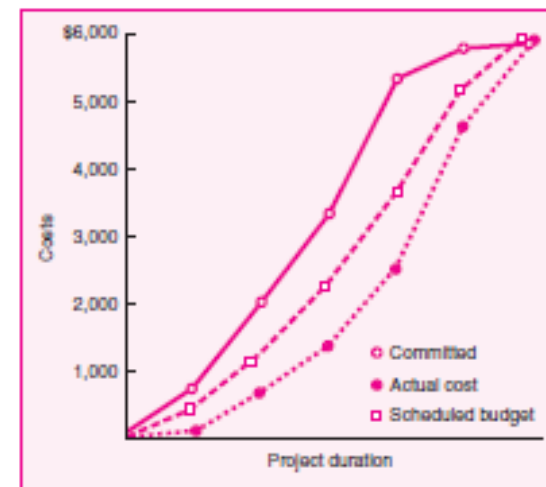
Scheduling and Budgeting

Costing

Same principles as scheduling
Different kinds of cost:

1. Direct Cost (Labour, Material, Equipment, Other)
2. Direct Project Overheads (PM salary, rent)
3. General and Administrative Overheads (Accounting, senior management...)

Source: Larson/Gray 5th Ed.



Scheduling and Budgeting

Change Happens



Scheduling and Budgeting

Refining the Estimate - Rationale

➤ Interaction cost

- Estimates assume task independence
- Tasks are interdependent!

➤ Things go wrong (Murphy's Law)

- Input shortages (equipment breaks, people get sick...)

➤ Change happens

- Change alters the baseline



Scheduling and Budgeting

Refining the Estimate – How?

- Previous experience (Phased estimate)
 - Assume higher risk frequency and impact
 - Play it safe
- ➔ Develop, maintain and consult your database
- ➔ Refine and update frequently

Sources

Gray, C.F., Larson, E.W., 2006/2012. Project management: the managerial process, 3.ed./5.ed/7. ed, McGraw-Hill, Boston.

Project Management Institute (Ed.), 2013. A guide to the project management body of knowledge (PMBOK guide), Fifth edition. ed. Project Management Institute, Inc, Newtown Square, Pennsylvania.

Pinto, J.K., 2016. Project management: achieving competitive advantage, Fourth ed., global ed. ed. Pearson, Boston, Mass.

THANK YOU

