
# SGS 4613 REMOTE SENSING PROJECT MANAGEMENT

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# Topic 4

## Budgeting the Project

# Introduction

- ***Budgets*** **are plans for allocating organizational resources to project activities.**
  - forecasting required resources, quantities needed, when needed, and costs
- ***Budgets*** **help tie project to overall organizational objectives.**
- ***Budgets*** **can be used as tool by upper management to monitor and guide projects.**

# METHODS OF BUDGETING

# Top-Down Budgeting

- **Based on collective judgements and experiences of top and middle managers.**
- **Overall project cost estimated by estimating costs of major tasks**
- **Advantages**
  - accuracy of estimating overall budget
  - errors in funding small tasks need not be individually identified

# Bottom-Up Budgeting

- **WBS or action plan identifies elemental tasks**
- **Those responsible for executing these tasks estimate resource requirements**
- **Advantage**
  - more accurate in the detailed tasks
- **Disadvantage**
  - risk of overlooking tasks

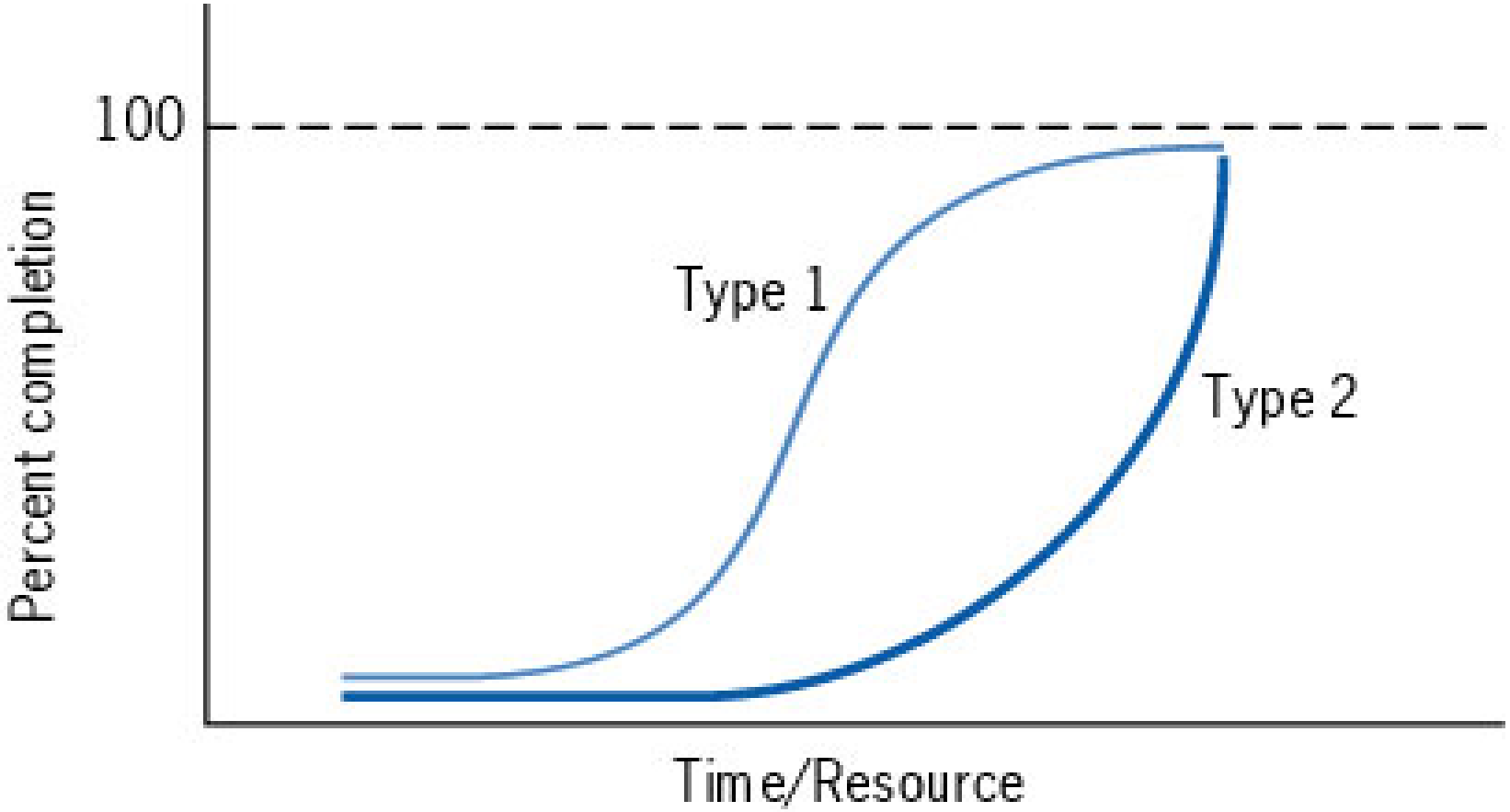
# COST ESTIMATING

# Work Element Costing

- **Determine resource requirements and then costs for each task**
  - costs (e.g., materials)
  - labor time
  - labor rate
  - equipment time
  - equipment rate
  - overhead
  - GS&A

# The Impact of Budget Cuts

## Two project life cycles



# Activity Versus Program Budgeting

- **Activity oriented budgets are based on historical data accumulated through an activity-based accounting system.**
  - expenses assigned to basic budget lines
- **With program budgets, each project has its own budget.**
  - expenses by task and time period are shown

# IMPROVING COST ESTIMATES

# Learning Curves

$$T_n = T_1 n^r$$

*where*

$T_n$ = the time required to complete the $n^{th}$ unit

$T_1$ = the time required to complete the first unit

$r$ = log(learning rate)/log(2)

# Tracking Signals

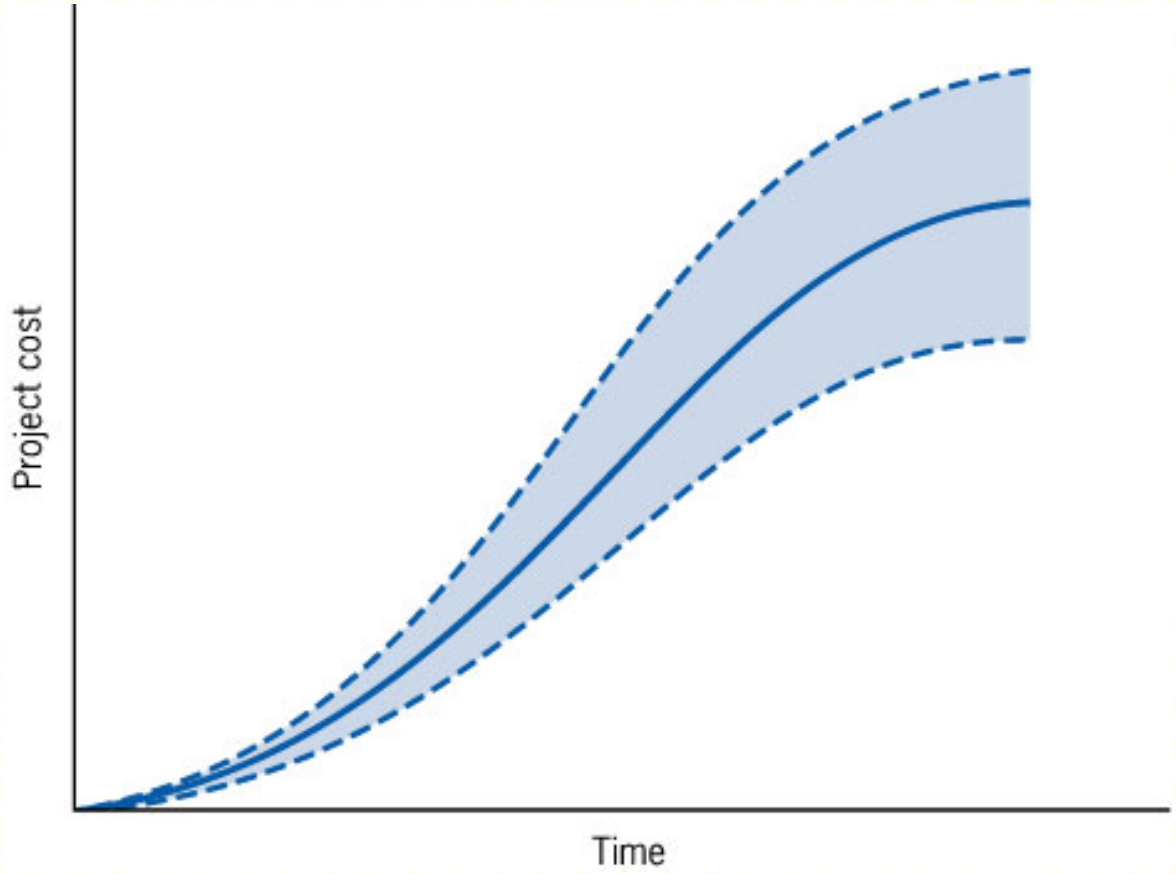
- **Used to determine if there is a systematic bias in cost or other estimates**

# Other Factors

- **Changes in resource prices**
  - Increase all estimates by same percentage
  - Estimate rate of price change individually for inputs that have significant impact on costs
- **Waste and spoilage**
- **Team member turnover**
- **"Mythical man-month"**
- **Organization climate**

# BUDGET UNCERTAINTY AND RISK MANAGEMENT

# Estimate of Project Cost: Estimate Made at Project Start



# Three Basic Causes for Change in Projects

- Errors made by cost estimator about how to achieve tasks.
- New knowledge about the nature of the performance goal or setting.
- A mandate.

# Risk Management

- Risk Management Planning
- Risk Identification
- Qualitative Risk Analysis
- Risk Response Planning
- Risk Monitoring and Control

# Failure Mode and Effect Analysis (FMEA)

- List ways project might fail
- Evaluate severity (S) of each failure
- Estimate likelihood (L) of each failure occurring
- Estimate ability to detect each failure (D)
- Calculate Risk Priority Number (RPN)
- Sort potential failures by their RPNs

# Other Approaches

- **Game theory**
- **Expected value**
- **Simulation**

# Reference


- **Meredith, R. J. & Mantel, J. S. (1995). *Project Management – A Managerial Approach*. John Wiley & Sons, 5th Edition.**