

Capital Budgeting, Cost Management & Financial Analysis

INTRODUCTION

Rapidly advancing technology, increasing project complexity, and competitive pressures demand better Cost Estimation and Economic Evaluation of projects, processes, products, or services, whether developing new ones or improving existing ones. Successful engineers and managers must use modern Cost Estimating and Economic Evaluation Techniques to select the optimum mix of projects for today's cost-conscious environment. Accurate project Cost Estimates and Investment Evaluations are critical to staying competitive and optimizing organizational resources.

This conference develops the skills needed to prepare, review, approve, supervise, monitor, and/or use Cost Estimates and Economic Evaluations in design, manufacturing, process, and capital projects. The workshop also discusses how to produce accurate Cost Estimates and Investment Evaluations to avoid large cost overruns or unsatisfactory investment returns, whether the project budget is a few thousand dollars or millions of dollars.

This conference is about the techniques most commonly recommended and used for budgeting and cost engineering of capital investments. These investments require long-term commitments of a firm's capital, labor and reputation - commitments that cannot easily be altered in the face of unexpected conditions. Because of this, project cost estimate and cost engineering should be done with great care, using the best techniques and should also include an adequate analysis of project riskiness. These are the key cost estimate and cost engineering skills required for success in a rapidly changing and competitive world economy.

Following a broad introduction to project cost estimate concepts and data needs, this conference discusses the most practical and applied cost estimating methods, data collections and projecting future escalations and contingency. The concept of cost coding, design based estimating, benchmarking and estimate validation techniques, and cost optimization and audit are all stressed in this conference.

OBJECTIVES

- Understanding how Cost Estimation and Investment Evaluation fit into the life cycle of a project, process, product, or service from conception and definition through design and construction to implementation, operation, and disposal.
- Gaining an appreciation for the advantages, disadvantages, and pitfalls of different Cost Estimation and Economic Evaluation methods.
- Describing how to do Order-of-Magnitude, Budget, and detailed Cost Estimates
- Gaining insight into Economic Evaluations by using Sensitivity and Risk Analysis using Monte Carlo Technique
- Understanding how to avoid common errors and pitfalls in Cost Estimation and Capital Projects Investment Evaluation Criteria.

PRESENTERS

Dr. Jamal F. AlBahar, PMP, AVS

Registered Arbitrator Dubai, U.A.E. and Kuwait - Associate Value Specialist, SAVE, USA

Active Member: PMI, CMAA, AACE, AAA, PMA, SAVE, CSI, President, PROMIS- Project Management Engineering Systems

Dr. Al Bahar, is a regional expert in project management applications and a well recognized consultant in construction contracts and claims analysis. Dr. AlBahar is a frequent regional and international speaker on subjects related to project management, construction contracts, tendering procedures, claims analysis/evaluation, arbitration, and value engineering. Dr. AlBahar has conducted over 400 public and in-house training courses in the last 15 years on subjects related to contracts, claims analysis and pricing, project management, value engineering, budgeting and cost estimating, and effective project administrative procedures. Dr. AlBahar is a registered arbitrator in Kuwait, Bahrain and the U.A.E.

Mr. Terry Morris

Mr. Terry Morris is a senior manager, university lecturer, international management consultant and management trainer with over 25 years of experienced. He has spent many years as the Technical Director of a very large public transport company in the UK and his consultancy work has taken him from the Middle East, Singapore and Hong Kong to Central and Eastern Europe, Estonia and Baltics as well as most countries in the European Union. He has written courses and taught continuously for the largest business school in Europe and is currently its Business Manager for Bulgaria.



1. WHY BUDGET?

BUDGET RATHER THAN GUESS!

- Introduction to Budgeting
- Problems in Budgeting before and after approval
- Budget Categories/Objectives
- Skills required by the Budgeter

2. BUDGETING AND COSTING PRINCIPLES

- Budgeting and Estimating Principles
- Direct vs. Indirect Costs
- Variable vs. Fixed Costs
- Relationship of Project Budgeting, Cost Estimating and Project Management
- Budgeting Capital Expenditure Project

3. BUDGET AND COST ESTIMATING CYCLE

- The Cost Estimating Cycle
- Project Development Stage
- True Cost/Variables
- Work Breakdown Structure (WBS)

4. CONCEPTUAL (PRELIMINARY) BUDGETING

- What is Preliminary Cost Estimate?
- Preliminary Cost Estimating Techniques
- Cost-Capacity Relationship
- Square-Foot (SQ M.) Cost Estimating
- Cubic-Foot of Volume Cost Estimating
- Range Estimating (Factored Cost Estimating)

5. PARAMETER BUDGETING / COST ESTIMATES

Elemental Analysis Estimate

- What is Parameter Cost Estimate?
- Design Parameters Available for Parameter Estimate
- Parameter Cost Input
- Difficulties and Accuracy Level with Parameter Cost Estimates

6. COST INDICES AND ITS USE IN BUDGETING

- What is a Cost Index?
- Purpose of Cost Indices and Their Use in Cost Estimates
- ENR Construction and Building Cost Index
- Development of a Cost Index

7. UNIT PRICE ESTIMATES

- Purpose of Unit Price Estimates
- Labor, Material and Equipment Cost Estimates
- Unit Price Proposal
- Pay Items vs. Cost Items
- Allocation of Costs into Pay Items

8. COSTING FOR PLANNING

- Economic Life
- Cost Allocation
- Job Site Analysis
- Overhead and Indirect Cost Estimate
- Contingency and Markup
- Escalation and Inflation Cost

9. VALUE PREDICTION & CONTROL

- The Value-Control Cycle
- Determining Operating Costs
- Appraising Value - Project Risk and its Relationship to Acceptable Return
- Production Performance Shortfalls
- Profitability Optimization

10. MANAGING THE BUDGETING OR COST ESTIMATING PROCESS

- Contingency margins
- Risk analysis
- Cost estimate accuracy vs. precision
- Pareto's law (80/20 rule)
- Documentation costs

11. ECONOMIC EVALUATION OF PROJECTS

- Time value of money and interest/discounted rates
- Present and future values
- Cash Flow diagrams and analysis
- Break-Even Analysis and Marginal Costing
- The Break-Even Model
- Identifying risk parameters
- Sensitivity and risk analysis
- Basic Concepts of Economic Evaluation

12. METHODS FOR COMPARING AND EVALUATING ALTERNATIVES

- Net Present and future values (NPV), FV
- Annual worth evaluations
- Rate of return methods
- Payback period
- Identifying risk parameters using @ Risk Software

13. BASICS OF LIFE CYCLE COSTING

- What is a life cycle?
- What is a cost?
- Why use Life Cycle Costing?
- The four components of Life Cycle Costing
- Reliability, Capability, Maintainability, Availability

14. COSTING UNCERTAINTIES

- What risks and uncertainties are inherent in LCC?
- Common methods used for analysis of Risk and Uncertainty
- Quantifying Uncertainty: The use of Monte Carlo Methodology
- Examples and Exercises using Monte Carlo Simulations
- Using @ Risk and Risk + Software

15. ASSESSING THE ECONOMIC FEASIBILITY OF PROJECTS

- Investment project measures (MARR)
- Methods of economic evaluations
- Benefit/Cost Ratio
- Return of Investment (ROI)
- Internal Rate of Return (IRR)
- Break-Even Analysis and Marginal Costing
- The decision making structure
- Sensitivity Analysis using @ Risk

16. CAPITAL PROJECT EXPENDITURE

- Mutually Exclusive Alternatives
- Project Selection using direct and indirect approaches
- Capital rationing (External and Internal)
- Ranking independent projects under budget constraints
- Selection among mutually exclusive projects under budget constraints

17. TRACKING BUDGET AND COST EXPENDITURE

- Establish Information Reporting Requirements
- Analyzing the Cost Performance Requirements
- Earned Value Concept (Budgeted Cost of Work Performed)
- Progress vs. Planned vs. Actual Costs Analysis
- Cost Variance Analysis (CV)
- Cost Performance Key Indicators (CPI)
- Forecasting Cost to Complete Projects

18. COST CONTROL

- Cost Baseline
- Performance reports
- Change Requests
- Cost Management Plan / Cost Change Control System
- Computerized Tools
- Revised Budget and Cost Estimates
- Budget Updates / Corrective Action
- Lessons Learned

19. PROJECT COST REPORTING

- Structured Standard Reports
- Reporting Level, Frequency and Distribution
- Budget Status Reports (BCWS)
- Cost Status Reports (ACWP)