

The Body of Knowledge

Cost Estimating does not exist in a vacuum. While it provides vital information to decision makers, the Body of Knowledge of cost estimating must therefore include much more than techniques for gathering data and using it to estimate costs. The cost estimator must be skilled in the broad application of construction systems. The Body of Knowledge was created based on job analysis study and is the bases upon which test items are created to cover content deemed essential for the practice of the profession.

The National Certification Board prepares a job task analysis revision every five years to ensure validity in the certification examinations.

The Society has chosen the following as a working definition of cost estimating.

Cost estimating deals with the tasks of conceptual modeling, measurement, and evaluation and comparison of the costs of each alternative.

In a different context, cost estimating is all related models, techniques, tools, and data bases required to accurately predict the cost of an appropriately described scope of work.

Associated with each task are the skills and techniques required to perform it. The skills and techniques necessary for the performance of the cost estimating tasks form the Body of Knowledge for this profession.

BASIC SKILLS BODY OF KNOWLEDGE

These basic skill areas form the background knowledge for cost estimating. It is rather broad areas of knowledge as opposed to particular techniques or concepts. Admittedly, it would be the exceptional cost estimator who was thoroughly proficient in all these basic skills. Generally, each basic skill can be acquired in undergraduate college courses and/or through work experience.

Operations Planning and Control
Methods and Standards
Project Management
Economics
Computer Science
Scheduling

Managerial Economics
Probability and Statistics
Cost Accounting
Technical Report Writing
Public Speaking

COST CONCEPTS

The remainder of the Body of Knowledge is more closely associated with the particular tasks of cost estimating. The first tasks associated with conceptual modeling are concepts of cost. The cost concepts are the elementary ideas about which cost estimating is concerned.

Not-to-Exceed Cost

Direct Cost

Indirect Cost

Variable Cost

Fixed Cost

Average Cost

Marginal Cost

Incremental Cost

Life Cycle Cost

Revenue

Profit

Overhead

Differential Cost

Direct Labor

Incurred Cost

Markup Rate

Process Costing

Job Order Costing

Constant Dollars

Risk/Uncertainty

Internal Economies

ROM (Rough Order Magnitude)

Operating and Support Costs

Acquisition Costs

Allowable Costs

Labor Burden

Design-to-Cost

Fee

Cost Escalation

G & A (General & Administrative Cost)

Performance Factors

DATA AND MEASUREMENT

The cost concepts with which the cost estimator would ideally work are frequently not measured precisely. As a result, cost estimators must work with data that are approximate measures of concepts. Cost estimators must fully understand the elements of data and measurement.

Labor Hour Standards

Cost Accounting Systems and Standards

Standard Hour Cost

Construction of Cost Factors

Run Time

Index Numbers

Share-Line

Transfer Pricing and Imputed Values

Scrap Rate

Sampling Techniques

Escalation

Cost Elements

Work Breakdown Structures

Alternatives Determination

Cost Baseline

Composite Labor Rates

Contract End Items

Contract Types

Equipment/Labor/Material Cost

Electronic Measuring Estimating Software