Cost Engineering Specific Topics

The role of Cost Engineer

Cost engineering describes an area of engineering practice that has its concern on the application of scientific principles and techniques to problems of cost estimating, cost control, business planning and management science, profitability analysis, project management, and planning and scheduling. The goal of cost engineering is to make cost information available at the time design choices are to be made. Therefore it is a discipline that embraces facets of project management and engineering.

The key job objectives of a cost engineer are to arrive at accurate cost estimates and also to avoid cost overruns. These are the skills a cost engineer should possess:

- Cost and Cost Estimation
- Planning and Scheduling
- Progress and Cost Control
- Project Management
- Economic Analysis
- Statistics Probability and Risk

Some common approaches to estimating costs include:

- "Rule of thumb" - it quickly gives a rough sizing of a specific activity in terms of cost.

- "Grass-root"/"bottom-up" - it makes detailed estimates at relatively low levels in the work breakdown structure.
- Analogy - it uses the cost of previous activities as a reference for predicting the cost of a new activity.
- Parametric estimating - it correlates cost and manpower information with other parameters that describe the activity or item involved. Cost-Estimation Relationships CERS are formulated and applied accordingly to produce cost outputs.
- Competitive supplier proposals - it uses supplier proposals to calculate costs.

Project management and cost control

Operations are often on an ongoing yet repetitive basis. Projects, on the other hand, are temporary and unique. With the discipline of PM you apply your knowledge, skills, tools, and techniques to meet project requirements. In other words, you as a Project Manager are responsible for project cost, schedule and performance. Given the wide range of issues a PM must manage, the ability to set goals, measure progress, track deadlines, and assign responsibilities in a controlled and repeatable manner is essential. And because project involves a degree of uncertainty, you must be flexible and skillful enough to handle sudden changes.

To be precise, Project Management PM is the defining, planning, scheduling, and controlling of the tasks that must be completed to reach your goal and the FAIR allocation of the resources to perform those tasks. According to the Theory of Constraints, the rate of throughput is often limited by at least one constraining process. Every project comes with quite many constraints. You must do your best to make it possible for the various project functions to increase throughput at the constraining processes so that the overall throughput can be increased, thus leading to improvement in project delivery. On the other hand, a Project Performance audit is an audit for helping you to understand the current capability of your project