

PROJECT COST ENGINEERING

Our Mission

"To provide a wide range of cost-effective services by applying engineering and project management principles to client projects."

Overview

Providing professional cost engineering services has been the core of PT&C's success since 1982. In order to better serve our clients, we have divided Cost Engineering services from our other managed practice groups; thereby enabling us to be more responsive to our clients' needs.

The Cost Engineering practice group provides their clients with construction and environmental cost estimating, scheduling, cost analysis and related services applicable to projects and programs. The practice covers all disciplines—architectural, structural, civil, mechanical, electrical and environmental—and serves architect-engineers, government agencies, developers, contractors and facility owners.

Services

PT&C's Cost Engineering practice group provides expertise in three major areas:

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| Project Planning | <ul style="list-style-type: none">• Technical Scope Development• Cost Estimating• Schedule Management• System Integration• Value Engineering/Analysis |
| Project Management | <ul style="list-style-type: none">• Project Control• Change Control• Risk Analysis• Forecasting• Life Cycle Analysis |
| Program Management | <ul style="list-style-type: none">• Cost Management• Most Efficient Organization (MEO) Analysis• Process and Productivity Improvements• Independent Review• Bid Comparison• Budget Development |

Areas of Expertise

The professionals in this practice group have provided services on all types of construction and environmental projects. Specialists with expertise in different types of construction projects such as health care, educational, commercial, storage and mixed-use facilities are available. PT&C also has professionals available who specialize in providing services for large and small environmental projects.

Benefits

PT&C's unique combination of experience, commitment to the utilization of computer resources and specialized training to maximize the benefits of these resources all bear directly on our quality and value to our clients.

PT&C offers an unmatched combination of professional staff, experienced in all aspects of cost engineering and support services and the most advanced automation resources, both hardware and software, to facilitate the highest quality services. Review comments on our work have indicated a high degree of satisfaction with the timeliness of our response and the accuracy of the work prepared by our company. A few representative comments include:

"PT&C is commended for their performance. Work was accomplished in a professional, timely, and cooperative manner. The construction cost estimates...were well documented and beneficial to completion of the design memorandum."

*Patrick Jones,
USACE Portland District*

"Project Management on this delivery order was excellent."

*Olton Swanson,
USACE Seattle District*

"...quality and quantity of work; ...dedication, willingness to work long hours and support DOE. Personnel assigned to the task have demonstrated requisite skill sets."

*Cynthia Anderson,
DOE-American Recovery and Reinvestment Act (ARRA)
Program Manager*



PROJECT PLANNING

Overview

Project planning services focus on the initial planning phase of a project, from conceptual design through the bidding process. PT&C is skilled at developing all parts of a project plan including technical scope, cost and schedule. Our staff of certified cost professionals can help anticipate project scope requirements during the conceptual design phase and estimate the cost associated with those requirements. PT&C has developed many customized planning systems which integrate the project scope, cost and schedule with a common work breakdown structure. PT&C understands the importance of developing accurate planning documents as future funding authority is often determined at an early stage in the project.

Technical Scope Development

Technical scope elements are outcome-oriented and must clearly identify the requirements of the project or task in order to define a measurable standard. PT&C assists clients in the development of project technical scope requirements in order to determine what approach and resources are necessary to meet their needs.

Cost Estimating

PT&C takes a carefully developed and highly disciplined approach to estimating the cost of its clients' projects. Our Certified Cost Engineers/Certified Cost Consultants have diverse backgrounds that include not only engineering, architecture and construction, but also business, finance, accounting and management. Our typical approach is to identify a PT&C team whose members are fully knowledgeable of the technology involved, who know and understand the costs involved, and who are trained in the appropriate methodologies. The firm maintains updated databases of costs for a wide range of environmental, construction, manufacturing, waste management and related applications. State-of-the-art computer systems produce clear, concise cost estimates. In the accompanying reports, the PT&C team will state the approach taken, the scope of work covered, the assumptions used and the limitations of the estimate. PT&C can develop cost estimates from highly conceptual information to very detailed designs.

Schedule Management

Schedule management combines practical construction knowledge with the latest automation advances, without major capital investment in computer

equipment or personnel. Our approach starts with an understanding of the client's scope of work, an appreciation of the technology involved, and the selection of the appropriate scheduling platform. PT&C's schedulers and planners then produce design schedules, summary schedules, detailed construction schedules, as-built schedules, etc. that maximize the efficiency of the project's resources. The schedules provide computerized logic reports and automated plots that can be updated easily as a project progresses. Projects can be resource-loaded and can generate cash flow and other economic information.

System Integration

Today, managers are required to perform more work with fewer resources. Access to information is the key to making informed, responsive decisions. PT&C can assist you in assessing, integrating, aligning, designing, developing, implementing, training and troubleshooting new and existing systems and networks to facilitate access to information.

Value Engineering/Analysis

As defined by the Society of American Value Engineers (SAVE), value engineering is a function-oriented, systematic, facilitated team approach to improve value in a product, process, system or service. Often, this is focused on cost reduction; however, it is also a powerful tool for developing and enhancing products, processes, systems, designs, and even entire organizations. Implemented savings from value engineering efforts can exceed \$10 for every \$1 spent on the value engineering effort. Value engineering techniques can be applied to any product, process, procedure, system or service in any kind of business or economic sector.

PT&C can provide an analysis of your operations or project in order to suggest potential improvements. PT&C will help identify areas with unreasonable or excessive expenses which can be reduced. PT&C's value engineers can ensure that you are implementing the best solutions.

This process typically looks at verifying the economic viability of a course of action or comparing two differing courses of action for the most economically advantageous. PT&C teams, staffed with professionals knowledgeable of the conditions and technology, apply proven economic methodologies and report the findings.



PROJECT MANAGEMENT

Overview

Project management services focus on the execution phase of a project. PT&C can help clients track and measure project performance, maintain control of contract scope changes, review and revise project risk elements, and accurately predict the profit at the end of the project. Successful project management requires a continuous knowledge of current project performance as well as the ability to foresee and adjust to change.

Project Control

For effective project management and control, PT&C promotes a graded and structured approach to managing client projects. This approach ensures that project objectives are comparable with the dollar value, complexity and visibility; are measured and evaluated; and it identifies potential risk to the project. These grading factors are the basis for determining the degree to which the elements of the project control system are to be implemented.

PT&C provides a process using a structured set of techniques for planning and controlling the life cycle of a project, which include risk management, cost estimating, planning and scheduling, and performance measurement.

Project control is a specialized subset of project management. It is the part of the project management process that establishes a project and schedule criteria or goals; measures progress toward those goals; and determines current project profitability.

PT&C incorporates the ANSI (American National Standards Institute) 748B standard requirements into all project control systems developed for our clients. This permits PT&C to utilize a graded approach in developing project controls systems that will best meet the needs of the client's projects.

Change Order Control

Any type of change in schedule or scope can cause a "domino" effect. That is, more things can go wrong as a result of one small change. PT&C provides change order control services to ensure that necessary changes don't result in unnecessary delays or further changes.

Risk Analysis

Risk and cost analysis are critical factors in any project. What adverse effects can occur during this project, and how can we prevent them from occurring? How much will a project cost, and is it worth it? PT&C can assist you in analyzing your project's risks and costs to help prevent careless oversights and costly overruns.

PT&C regularly conducts risk and cost analyses to determine the probability that a project or effort will not exceed its budget. Because these projects often have large budgets and often must be committed to without full knowledge of all the conditions, this type of analysis is often undertaken for non-building, capital construction, environmental restoration and waste management projects. PT&C consultants can also develop risk-modeling templates for repeating situations as well as conduct simulation analysis.

Forecasting

The project control tools provide a process to collect and provide information that measures the physical accomplishment of work on a project, looking backward. This information can be used to establish performance trends and predict future productivity. Forecasting methods allow the project manager to anticipate potential future obstacles to success and either account for them by assigning an appropriate cost or developing alternative courses of action. Where project control methods help the manager understand past performance and current profitability, forecasting helps the manager look forward and predict final project profitability.



PROJECT MANAGEMENT

Life Cycle Analysis

When capital improvements and purchases are necessary, PT&C can provide Life Cycle Cost Analysis (LCCA) consultation services. Life cycle analysis breaks down the cost of a product according to how long it will last, making budgets more accurate and helping determine when a replacement or an upgrade is necessary.

LCCA involves evaluating alternative buildings and building-related projects, systems or components that have different costs while providing an acceptable level of service (e.g., occupant comfort, safety and useable space). Typically, LCCA is used to evaluate alternative designs that have higher initial costs, but lower operating-related costs over the project life than the lowest-initial-cost design. LCCA is especially useful for evaluating the costs and benefits of energy conservation and water conservation projects in buildings. With LCCA, the life cycle costs of two or more alternative designs are computed and compared to determine which has the lowest life cycle cost and is therefore most economical in the long run. LCCA can be used for evaluating alternative designs in both new and existing buildings. In fact, LCCA can be used to evaluate alternative designs for almost any project type in which higher capital investment costs results in lower future operating-related costs.



PROGRAM MANAGEMENT

Overview

Program management differs from project management in that programs involve multiple projects for an extended period of time—usually several years. Tasks typically not involved in projects are an integral part of programs, and managers often manage programs as integrated business units rather than discrete individual projects. Successful program management requires the ability to consistently and methodically define, coordinate, standardize and manage the life cycle of multiple projects all at once, and to know how the life cycle of each project potentially impacts the rest of the program. The life cycle process includes planning, contracting, design, construction and facilities management.

Cost Management

Traditional cost estimating has its limitations: estimates are really only as reliable as the information from which they are developed. If the estimator provided inaccurate information about the project, obviously the estimate's reliability will suffer as a result. For this reason, total cost management is becoming increasingly popular. Cost management involves assigning a senior cost professional with management experience to participate in your program from its inception. He or she will ensure that your program adequately and accurately evaluates its financial considerations from the earliest of planning phases to closeout. The level of involvement can be at a very high level with little involvement in the fine details, at ground level with duties such as producing and updating spreadsheets after any cost-related decisions are made, or anywhere in between. In providing cost management services, we can work for an owner or a program management contractor. Either way, total cost management involves working with both parties to ensure the best possible outcome.

Most Efficient Organization (MEO) Analysis

PT&C assists clients in performing management studies for determining the Most Efficient Organization (MEO) for a project. In determining the MEO, PT&C assists clients in properly planning for the study; determining the appropriate methodology; collecting data on the organization, facilities and requirements involved; preparing appropriate documentation, including a management plan and a quality assurance surveillance plan; analyzing operations and identifying problems, alternatives and manpower requirements; and reporting on results, conclusions and recommendations based on the analysis or data collected during a study. PT&C also assists government agencies in the development of

solicitations and requests for proposal when necessary to complete an A-76 or other privatization study.

Process and Productivity Improvements

PT&C can examine, analyze and help improve business processes through a re-engineering approach that addresses both human and systems issues. PT&C analyzes and redesigns work processes by involving those who actually do the work. Engaging in ongoing process and productivity improvements prevents major overhauls down the road.

Independent Review

PT&C has developed a thorough, meticulous approach to independent assessments, reviews and evaluations. It can include documentation review, interviewing key personnel, determining organizational structures, researching issues, analyzing technical areas, identifying insufficient data, developing work breakdown structures, identifying costs, modeling multiple scenarios, developing schedules, estimating risk and costs, writing reports and presenting findings.

Bid Comparison

The core of PT&C's business is cost estimating. PT&C cost estimating professionals assist clients in comparing in-house bids to other prices, such as bids from potential sources. By using PT&C's Certified Cost Engineers/Certified Cost Consultants for these comparisons, clients are assured that the comparisons are conducted by those who are most familiar with various types of estimating software, formats and requirements. During the comparison process, PT&C professionals identify areas that are incomplete or that are in need of clarifications.

Budget Development

Early budget development is essential to the success of a program. The most important part of budget development is ensuring that it is realistic, based on accurate estimates of both the funding for the program and of the expected program costs. Because the nature of budgeting involves anticipating when program dollars will be coming in and going out, our budget developers work with experienced schedulers in order to best predict when certain program milestones will be met, and what monies will be coming in and going out as a result. Depending on our clients' needs, their budgets can be adaptable and flexible or absolutely rigid. Budgets can be stand-alone tools or can be integrated with their schedules and management plans. After budget development, PT&C can also assist in budget management and total cost management.

