



**PDHonline Course P104H (8 PDH)**

---

# **Project Cost Management**

*Instructor: William J. Scott, P.E.*

**2012**

**PDH Online | PDH Center**

5272 Meadow Estates Drive  
Fairfax, VA 22030-6658  
Phone & Fax: 703-988-0088  
[www.PDHonline.org](http://www.PDHonline.org)  
[www.PDHcenter.com](http://www.PDHcenter.com)

An Approved Continuing Education Provider

# **PROJECT MANAGEMENT ASSOCIATES, INC**

*2100 Southwinds Circle  
Birmingham, Alabama 35244*

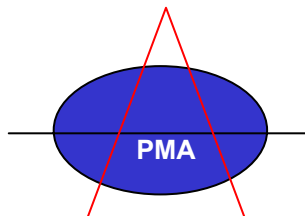
**Presents**

## **Project Cost Management**

**Via**

## **WEB BASED LEARNING**

*Author: William (Bill) J. Scott, PMP, PE*



## **Module 2**

### **Project Financial Management**

#### **Overview**

Running a project is much like running a business – in essence, running a company within a company. Many of the same business management skills used to run the company apply to running the projects within that company. Project financial management is a broad category of skills necessary to ensure successful project outcome. Project financial management is more than just cost management (although cost management is of great importance). It also involves managing all aspects of the project that result in project gross margin, project income, project cash flow and ultimately the resulting financial impact on the bottom line of the company.

Although project financial management overlaps portions of most of the project management knowledge areas, this course will focus specifically on project income, project cash flow and the components that affect each. Later Modules also provide more in-depth analysis on project cost management and project financial reporting.

#### **Project Revenue and Revenue Recognition**

1. Project revenue is money received in exchange for project deliverables.
2. Like company revenue, project revenue can be recognized according to various methods as defined by the company. These methods must however be in accordance with GAAP.
3. Recognition of revenue is generally consistent among all projects in the company's project portfolio. There are some exceptions to this however, especially for companies that handle projects with widely variable scopes and time duration.
4. Recognition of revenue sometimes occurs prior to actual receipt of cash for goods and services supplied.
5. There must be a reasonable expectation that the client will pay for the goods and services supplied.
6. Jobs of varying scope, complexity, and risk may require different methods of revenue recognition.

#### **Examples of Revenue Recognition Methods**

1. **Completed Contract Basis:**
  - Revenue is recognized for the entire contract at the completion of the contract.
  - This is typical of small projects in which it is acceptable for project costs to be financed by the company until completion of the project.

- This method is almost never used for projects with values over \$100,000 or durations over 6 months.
  - An example would be the design, fabrication, and supply of a \$40,000 diesel-powered back-up generator system.
2. Cash Received Basis:
- Revenue is recognized as cash is received in accordance with the contract payment terms.
  - This method is typical of projects (usually small) in which progress payments are made throughout the project.
  - An example would be monthly progress billings and payments on a construction contract.
3. Cost Incurred Basis:
- Revenue is recognized on a periodic basis (usually monthly) based on cost incurred to date.
  - The cost incurred is correlated to percent completion of the project, and revenue is recognized according to the percent completion.
  - The cost of internal labor is incurred as the labor is used. Accounting should report internal labor costs for the period.
  - For material purchases and subcontracts, cost incurred may be figured using various methods:
    - a. Invoices Received – costs are incurred as invoices are received against the project.
    - b. Costs Committed – costs are incurred based on commitments (purchase order agreements and subcontracts).
    - c. Estimates – costs are incurred based on estimates of project completion.

### Risks Associated with Revenue Recognition

1. Revenue recognition according to completed contract or cash received are not very aggressive and hence offers low levels of risk to the project financial outcome. For example, there is almost no risk involved with recognizing revenue on a completed contract as there is no work left to be done, no gap remains to be filled.
2. As revenue recognition becomes more accelerated (in the case of cost incurred methods), the risk to overall project financial outcome increase. For example, a project may be 90 percent completed according to costs committed even though only 70 percent of the project deliverables have been completed.
3. The following table shows the general trend of risk versus revenue recognition:

<u>Revenue Recognition Method</u>	<u>Risk Level</u>
Completed Contract	Lowest
Cash Received	Low
Cost Incurred – Invoices Received	Moderate
Cost Incurred – Costs Committed	High
Cost Incurred – Estimates	Highest

## Project Costs

During the execution phase of a project, costs are categorized as follows:

1. Cost Committed:
  - Any costs that have been committed by the company.
  - Issuance of a purchase order for materials is a commitment to pay for the supply of materials and is hence a committed cost.
  - Internal labor is committed as it is posted.
  - For subcontracts, cost committed may be a function of the commercial terms of the subcontract agreement.
2. Cost Incurred (Cost to Date):
  - Any costs that have been posted to the project.
  - Invoices against purchase orders are recorded as costs incurred.
  - Internal labor is posted as it is incurred.
3. Open P.O. Cost:
  - For costs pertaining to buy-out items, the open P.O. cost is the Cost Committed minus the Cost Incurred.
4. ETC Cost:
  - Estimated cost to complete.
  - Represents costs over and above committed costs that are required to move the task from the current status to completion.
5. EAC Cost:
  - Estimated cost at completion.
  - Represents the best estimate of the total cost of a task or project at completion of the project.
  - $EAC\ Cost = Cost\ Incurred + Open\ P.O.\ Cost + ETC\ Cost$

## Cost Types and Examples

1. Direct Costs – can readily be traced to cost objects. These costs are posted directly to the individual project that received the benefit of the work. Examples are:
  - Internal labor used to execute projects
  - Purchased materials used to make the product
2. Indirect Costs – cannot readily be traced to a specific task. Therefore, these costs may be allocated proportionally to various projects. These costs vary from company to company and are usually determined by company policy. Examples are:
  - Research and Development
  - Depreciation of Assets
  - SG&A
    - a. Overhead Expenses
    - b. Corporate Charges
    - c. Bonuses
    - d. Commissions
    - e. Depreciation
    - f. Building Rent

3. Fixed Costs – costs that do not change with respect to volume or time.

Examples are:

- SG&A
- Building Rent

4. Variable Costs – costs that change with time, production levels, etc.

- Internal labor used to execute projects
- Purchased materials used to make the product
- Bonuses
- Commissions
- Depreciation

#### Notes:

1. Costs can be classified as direct or indirect and as either fixed or variable.
2. Direct costs may also be classified as fixed or variable. Likewise, indirect costs may also be classified as fixed or variable.
3. This leads to compound categories such as direct variable costs (raw materials for example) and indirect fixed costs (building rent for example).

### Project Cash Flow

The overriding similarity between project cash flow and company cash flow is that there are only two ways for cash to flow: **in** and **out**. There's no secret as to which is preferable here.

### Objectives of Cash Flow Management

1. Initiate and maintain positive cash flow throughout life cycle of project.
2. Maximize sources of cash.
3. Minimize uses of cash.
4. Minimize time lag for sources of cash.
5. Maximize time lag for uses of cash.

### Basic Cash Flow Management Concepts

#### **Cash In:**

1. Invoicing / Payment Terms:
  - Favorable payment terms should be negotiated in order to provide the potential for positive cash flow. An example is net 30 with interest charges for delinquent payments. No holdbacks.
  - Partial payment up front as well as interim progress payments should be negotiated.
  - Final payment should be tied to a specific and realizable date and or event. It should not be vague. Clauses such as “payment upon successful start-up” or “payment upon acceptance” are too fuzzy. It is too difficult to determine when the criteria have been met.

- Invoicing must be according to plan. This means that the project must remain on schedule for any hope of positive cash flow.
  - Invoices should be technically correct (according to contract requirements) to prevent delay of payments. This is especially important for large, complex projects where invoice submittals can require large amounts of back-up documentation.
2. Receivables Management:
- Aging analysis reports must be maintained.
  - Delinquent payments should be flagged and forwarded from accounting to the appropriate project manager.
  - Project manager should address the delinquent payments through the proper chain of command within the client organization.
  - Corrective action should be taken to prevent future delinquencies.
3. Contract Change Orders:
- Contract change orders (adders or deducts) provide opportunities not only to improve margins but also project cash flow.
  - Like the original contract, favorable terms and conditions should be negotiated for change orders.
  - Adders should be invoiced separately and front-end loaded.
  - Deducts should be applied to the original contract and back-end loaded.
  - Change orders should be done in real time. Don't let them pile up until the end.

### **Cash Out:**

1. Internal Resource Allocation:
- Internal labor resources must be managed effectively. Labor costs are expensive and generally hit the project early and then again late.
  - Allocation of labor should be allocated to the project according to plan. Variances should be noted and corrective actions taken.
  - Labor reports must be timely and accurate to allow for proper control.
2. Contractors / Subcontractors:
- Subcontracts should be negotiated with favorable payment terms and conditions.
  - Payments should be tied to specific deliverables, schedules, and quality levels.
  - Retainage should always be applied to subcontracts.
  - Never let your subcontractor get ahead of you on cash for work completed (Earned Value).
3. Payables Management:
- Payment terms should be extended to the greatest possible extent without damaging strategic relationships.
  - Payment of vendor invoices should only be approved by the project manager or by an authority assigned by the project manager.
  - Disputed invoices should be held pending resolution; however, resolution efforts should not be delayed simply to improve cash flow.
  - Retainage to invoices should be applied where appropriate.

4. Contract Disputes:

- Dispute resolution should be attempted with project financial performance in mind.
- Disputes should be addressed in a timely and vigorous manner. Generally, the longer a dispute lingers without resolution, the more likely it is that the cost impact will worsen.

5. Dispute Resolution:

- Negotiation – Negotiation of the dispute between the two parties is the first line of defense as well as the least expensive. This may be accomplished at various levels within the organizations involved (project manager to company president). Hopefully, resolution can be reached prior to the involvement of professionals.
- Mediation – Mediation can sometimes provide help to reaching a resolution without going to binding arbitration or litigation.
- Arbitration – Arbitration allows both parties to plead their cases to a professional arbitrator who will render a binding decision in the dispute. While more costly than both negotiation and mediation, binding arbitration is typically much less expensive than litigation.
- Litigation – When all else fails, lawyers and court actions will produce results although at great cost to both parties. Whether the case is settled in or out of court, the legal costs can be enormous.

### Cash Flow / Timing of Cash

1. The project work breakdown structure (WBS), project schedule, and project budget should be used to estimate the Cash Out for various phases of the project.
2. Analysis of contract terms should be used to estimate the Cash In for various phases of the project.
3. Cash flow management should be planned by comparison of the anticipated Cash In and Cash Out values.
4. Project cash flow should be tracked and reported periodically along with other project financial information.