Introducing: Practical Project Management

Procurement Management

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SEP 725

Introduction to Procurement and Contract Management

- **Procurement** refers to the acquisition of goods and/or services from an outside source
- Procurement is the term generally used by government,
- The term **purchasing** and **outsourcing** is commonly used by the IT industry while Procurement is used by the Engineering and Construction industries

Outsourcing

- Outsourcing is primarily a **business strategy** in which tasks (including a project, certain activities, or an entire business function) **done in-house** are now being **completed** by a **third-party** vendor.
- Outsourcing comes in 3 location-based types:
  - **Onshore outsourcing**: The outsourcing of services to an external provider that is located within the same country.
  - **Offshore outsourcing**: The outsourcing of services to a provider located in a more distant country.
  - **Nearshore outsourcing**: The outsourcing of services to a provider located in a neighboring or nearby country to yours.

Outsourcing – Benefits and Drawbacks

- Benefits of outsourcing:
  - Help companies save costs by accomplishing the same tasks for less money.
  - Allow firms to focus on core areas.
  - Deliver products and services of higher quality when the outsourcing company lack in-house expertise.
  - Offer labor flexibility as businesses can easily and quickly ramp up and down resources.
- Drawbacks of outsourcing:
  - Lose managerial control and security compromise.
  - Hidden costs and possible quality issues due to lack of control.
  - The language barrier and poor communication between the two parties.

Subcontracting

- Subcontracting is close to outsourcing when a firm **hires a service provider** to **complete the desired task** that typically cannot be done by in-house teams.
- The **subcontracting company** and the vendor **work closely** throughout the **whole project**, and the hiring party has a **reasonable amount of control** over the work.
- Subcontracting **does not** involve **permanently allocating out** entire tasks or a firm's departments and the job is usually agreed upon on a contract basis.
- An example of the subcontracting practice is when a large construction firm **subcontracts some of its projects** to the main service provider, also known as the contractor. Then the contractor can hire a subcontractor to do the work.

Subcontracting – Benefits and Drawbacks

- Benefits of subcontracting:
  - Allow businesses to handle large projects easily.
  - Bring specialized expertise to your business that you don't have among staff.
  - Increasing productivity of the work and the overall performance of your business as the staff is free from excessive workloads.
  - Less expensive than hiring full-time employees.
- Drawbacks of subcontracting:
  - If you hire a contractor that uses a subcontractor to complete the desired task, you have no direct control over the quality of subcontractors' work.
  - Have no chance for the staff development.
  - A threat of poor performance.
  - Contractors will spend more time on researching potential. subcontractors, which can ultimately affect the quality of the project.

Comparison

Outsourcing	vs.	Subcontracting
Used to designate in-house functions to a third-party provider		Mainly used for highly specialized tasks that can't be done in-house
Mostly a long-term or permanent engagement		Mostly a temporary engagement with clear-cut end dates
Mainly used for cost-cutting purposes		Mainly used for time-bound large-scale projects
Terms of payment are usually flexible		Terms of payment are usually fixed
Staff are reporting directly to a manager within the company		Staff work independently, reporting only to the contractor

Make or Buy

Make or Buy

- **Make-or-buy analysis**: determining whether a particular product or service should be made or performed inside the organization or purchased from someone else. Often involves financial analysis.
- Make-or-buy analysis is conducted at the strategic and operational level.
  - the strategic level is the more long-range of the two
- Variables considered at the strategic level include analysis of the future, as well as the current environment.
  - Government regulations
  - Competing firms
  - Market trends

Factors that influence Make (in-house)

- Cost considerations (less expensive to make the part)
- Desire to integrate plant operations
- Productive use of excess plant capacity to help absorb fixed overhead (using existing idle capacity)
- Need to exert direct control over production and/or quality
- Better quality control
- Design secrecy is required to protect proprietary technology
- Unreliable suppliers
- No competent suppliers
- Desire to maintain a stable workforce (in periods of declining sales)
- Quantity too small to interest a supplier
- Control of lead time, transportation, and warehousing costs
- Greater assurance of continual supply
- Provision of a second source
- Political, social or environmental reasons (union pressure)
- Emotion (e.g., pride)

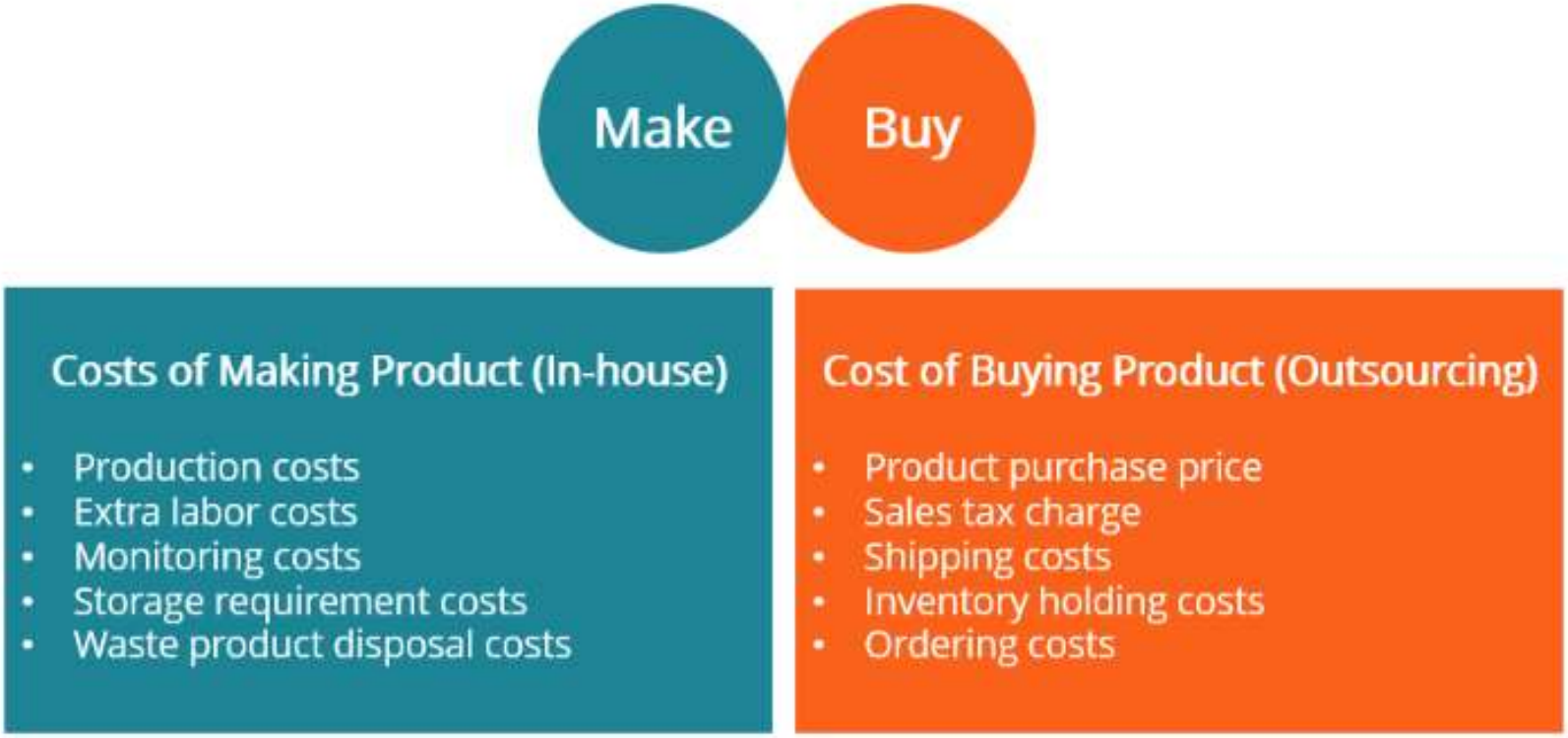
Factors that influence Buy

- Lack of expertise
- Suppliers' research and specialized know-how exceeds that of the buyer
- cost considerations (less expensive to buy the item)
- Small-volume requirements
- Limited production facilities or insufficient capacity
- Desire to maintain a multiple-source policy
- Indirect managerial control considerations
- Procurement and inventory considerations
- Brand preference
- Item not essential to the firm's strategy

Considerations

#	Issue to be Addressed	Make	Buy
1	Item/product is readily available in the marketplace,		√
2	In use in applications similar to yours, with documented success,		√
3	Available at a reasonable price,		√
4	Delivered when you need it, and		√
5	We have time for a competitive procurement process		√
6	Your company wishes to develop such a product for future program use, or as a new market entry	√	
7	Having it subcontracted could establish others as future competitors to you	√	
8	You have the internal resources to develop it. Will not deflect from your current program attention, or eat up resources.	√	
9	Is doing it in-house being pushed by engineering or R&D?	√	
10	The application is special, and integration into your hardware is critical/ difficult/finicky	√	
11	There is much documentation required with each delivered item, hence more CADM work and "paper policing" is required		√
12	The item will require specialized test equipment		√
13	Substantial spares are required		√
14	You can enter into the contract type you prefer		√

Cost Perspective



Problem

- A company is deciding between manufacturing a part in-house that costs $26 per unit, including direct cost, fixed overheads, and variable overheads, as given in the table below.

Cost Head	Cost per Unit ($)
Direct Cost	15
Fixed Overhead	4
Variable Overhead	7
Total Cost	**26**

- The same part is available in the market at $23 per unit, including the cost of buying, shipping, and warehousing, as shown in the table below.

Cost Head	Cost Per Unit ($)
Cost of Part	20
Shipping and Warehousing Cost	3
Total Cost	**23**

Make or Buy ?

Solution

- If surplus capacity available will remain idle if the component is bought, out of pocket expenses will be $23 per unit, $1 more than the variable and direct cost of making component which is $22 ($15 + $7).
- Hence it is economical to make it.
- However, if the Firm is utilizing or can utilize the capacity in making some other part which contributes to say $4 per unit in profits, the effective cost of buying the component will be $19 ($23 less $4 contribution from other products).
- In that case, it would be economical to buy the Component at $23 per unit from outside.

Solution

- The relevant calculation for making decision may be as follows:

Particulars	Make ($)	Per Unit Cost Buy & Leave Capacity Idle ($)	Buy and Use Capacity for Other Product ($)
Cost of Making/Buying	22	23	23
Contribution from other Product	–	–	4
Net Relevant Cost	**22**	**23**	**19**

Make-or-Buy Sample Question

EXAMPLE 3 – Make or Buy decision

Mcfarlain Corporation is presently making part U98 that is used in one of its products. A total of 7,000 units of this part are produced and used every year. The company's Accounting Department reports the following costs of producing the part at this level of activity:

	Per Unit
Direct materials	$ 3.70
Direct labor	$ 3.60
Variable overhead	$ 1.40
Supervisor's salary	$ 4.00
Depreciation of special equipment	$ 3.90
Allocated general overhead	$ 4.10

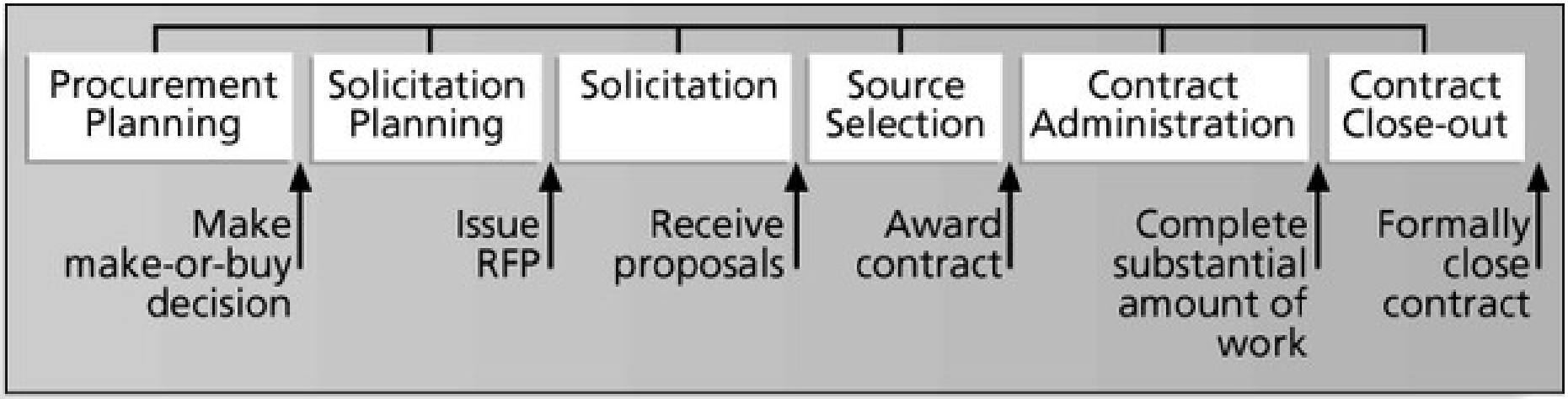
An outside supplier has offered to produce and sell the part to the company for $17.10 each. If this offer is accepted, the supervisor's salary and all of the variable costs, including direct labor, can be avoided. The special equipment used to make the part was purchased many years ago and has no salvage value or other use. The allocated general overhead represents fixed costs of the entire company, none of which would be avoided if the part were purchased instead of produced internally.

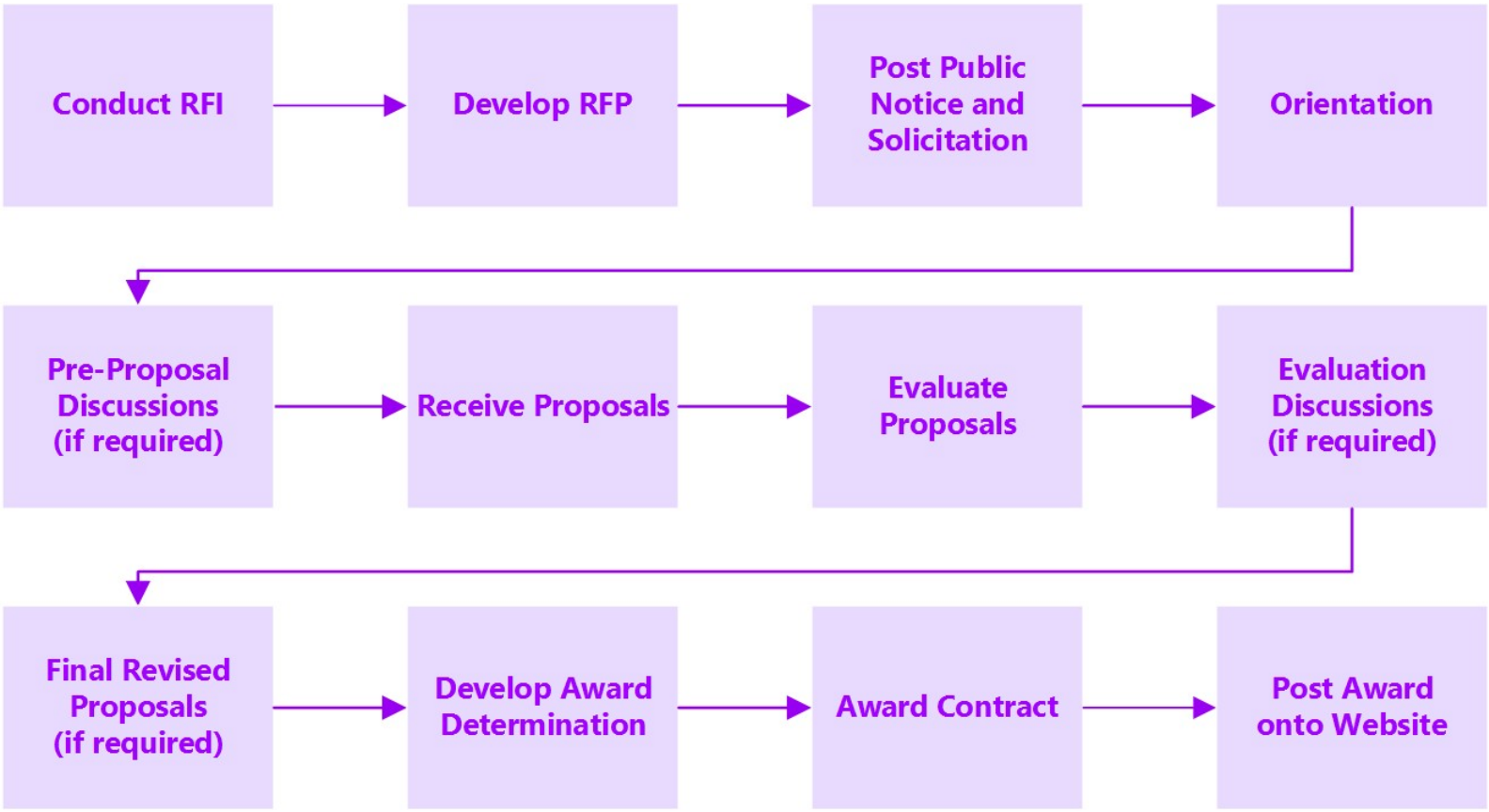
If management decides to buy part U98 from the outside supplier rather than to continue making the part, what would be the annual financial advantage (disadvantage)?

A) ($30,800)
B) $25,200
C) $30,800
D) ($25,200)

Procurement Management

Procurement Management Process and Key Outputs




Conduct RFI
Develop RFP
Post Public Notice and Solicitation
Orientation
Pre-Proposal Discussions (if required)
Receive Proposals
Evaluate Proposals
Evaluation Discussions (if required)
Final Revised Proposals (if required)
Develop Award Determination
Award Contract
Post Award onto Website

Procurement Vs. Purchasing

PROCUREMENT	PURCHASING
Refers to the process of receiving goods and services from an external supplier	Activities related to the buying of goods and services from an external supplier
Includes everything that happens before, during and after receiving the goods and services	Only details how the goods and services are bought
An internal process used in production environments	An external process used primarily in wholesale environments
The item's value is more important than the cost	The item's cost is frequently more important than its value
The process aims to identify and fulfill specific needs	Limited only to the activity of buying the goods or services
The process includes identifying needs, sourcing and closing contracts	The process includes ordering the goods or services, expediting and fulfilling payments
Proactively identifies and fulfills needs	A reaction to internal needs
Focuses on building long-term relationships with vendors	Focuses on the transaction rather than the creation of a relationship with the vendor

Procurement Planning

- Procurement planning involves identifying which project needs can be best met by using products or services outside the organization. It includes deciding
  - whether to procure
  - how to procure
  - what to procure
  - how much to procure
  - when to procure

Inputs to Procurement Planning

- The inputs needed for procurement planning include:
  - **The project scope statement.**
  - **Product description.**
  - **Market conditions.**
  - **Constraints and assumptions**.
- It is important to define the scope of the project, the products, market conditions, and constraints and assumptions. However, it is also essential to know exactly **why** you want to procure goods or services.

Contract Types

What is a Contract

- A contract is an exchange of promises between two or more parties to do, or refrain from doing, an act which is enforceable in a court of law
- A contract is a binding legal agreement
- The law provides remedies for breaches of contracts

Elements of a Contract

- **Offer & Acceptance** – a party must make an offer and another party must accept the offer
- **Mutuality of Obligation** – both parties must intend to be legally bound
- **Consideration** – something of value is exchanged for something of value, or for action or inaction
- **Capacity** – each party must be legally able to enter into a contract
- **Legality** – the contract must be for a legal purpose

Liabilities of a Contract

- Contractual Liabilities
  - Liability that one party assumes on behalf of another via a contract
  - Indemnity Agreement & Insurance
- Tort Liability
  - A tort is a civil wrong other than a breach of contract
- Statutory Liability
  - What does the law of the land say

4 Common Types Of Construction Contracts

Lump Sum Or Fixed Price Contract

- Total fixed price for all construction related activities.
- Can include incentives benefits for early termination, or can also have penalties, called liquidation damages, for a late termination.

Cost Plus Contract

- Involve payment of the actual costs, purchases or other expenses generated directly from the construction activity.
- must contain information about covering contractor's overhead and profit.

Time and Materials Contracts

- Preferred if the projet scope is not clear or defined.
- must establish hourly or daily rate.
- Include additional expenses that could arise in process.

Unit Pricing Contracts

- Commonly used by builders and in federal agencies.
- Unit prices can also be set during bidding process as the owner requests specific quantities and pricing for a pre-determined amount of unitized items.

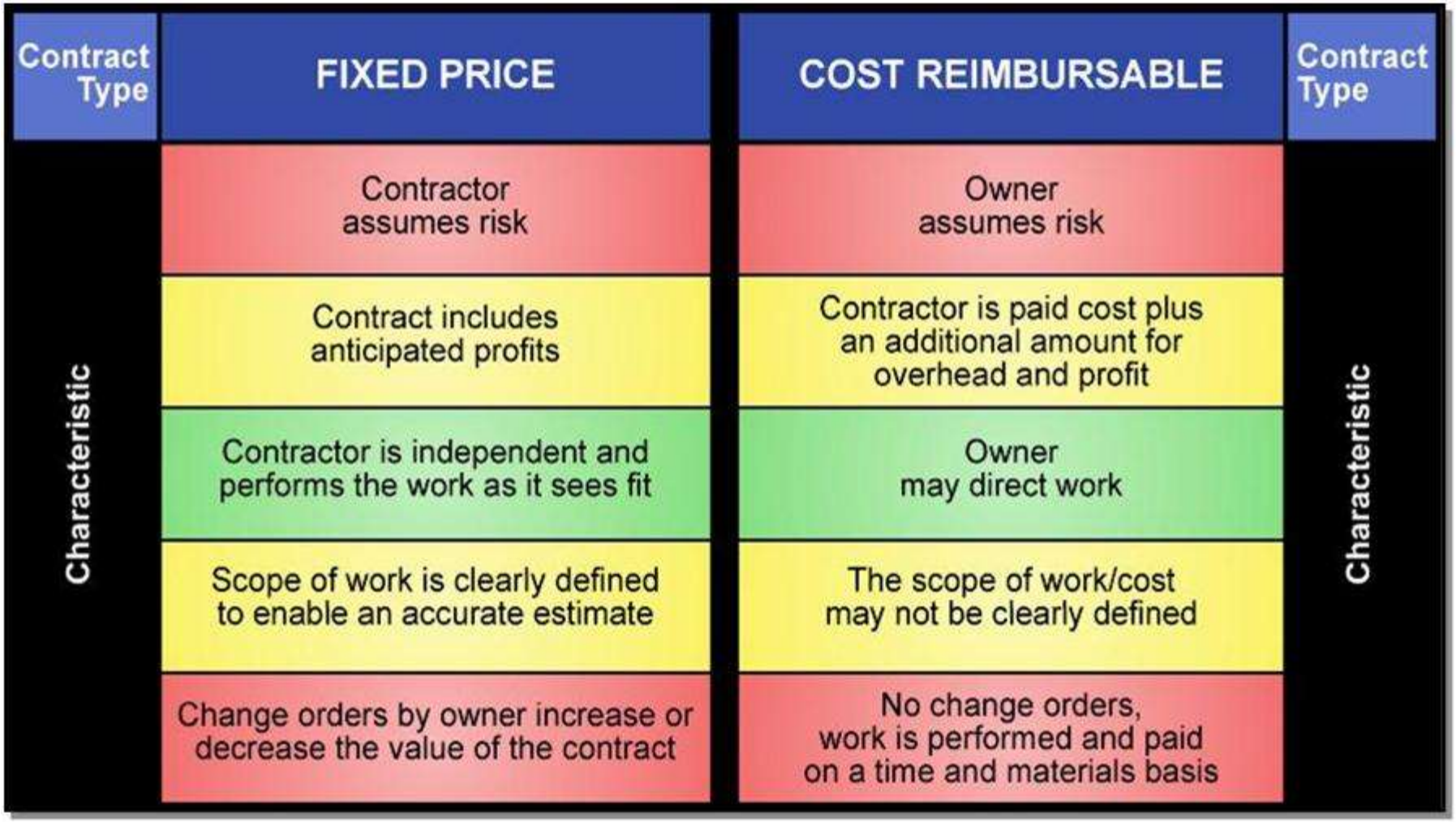
the balance

Types of Contract

- A contract is a mutually and legally binding agreement that obligates the seller to provide specified products or services, and obligates the buyer to pay for them. Different types of contracts are suited to particular circumstances, there are **three broad categories**:
  - **Fixed price or lump sum**: involve a fixed total price for a well-defined product or service.
  - **Cost reimbursable**: involve payment to the seller for direct and indirect costs.
  - **Unit price contracts**: require the buyer to pay the seller a predetermined amount per unit of service.

Fixed Price Contracts	Cost Reimbursable Contracts	Time and Material Contract
The fixed price agreed between the buyer and seller to complete a fixed scope of work.	The seller's costs are reimbursed in addition to some additional amount.	The seller pays for the time and materials used for the project.
The buyer has the least risk as the price is fixed.	The buyer bears the risk as the scope is not well defined.	Time and Material Contracts are priced on an hourly basis or item basis.
Types of FFP Contracts: • Firm Fixed-Price Contract (FFP) • Fixed-Price Plus Incentive Fee (FPIF) • Fixed-Price Plus Award Fee (FPAF) • Fixed-Price with Economic Price Adjustment Contract (FPEPA) • Graduated Fixed-Price (GFP) • Purchase Order (PO)	Types of CR Contracts: • Cost-Plus Fixed Fee Contract (CPFF) • Cost-Plus Incentive Fee Contract (CPIF) • Cost-Plus Award Fee Contract (CPAF) • Cost-Plus Fee (CPF) or Cost-Plus Percentage of Cost (CPPC)	Time and Material Contracts are hybrid of Fixed Price and Cost Reimbursable Contracts.

	Lump Sum	Unit Price	Time & Materials	Actual Costs	
Description	Contractor is paid one lump sum for completing the Work	Contractor is paid unit prices for completing items of the Work	Contractor is paid time-based rates for personnel and equipment undertaking work	Contractor is reimbursed its actual costs for the Work – <u>without mark-up</u> – plus a fee	
How is Contractor's overhead handled?	Overhead is included in the lump sum	Overhead is included in unit prices	Overhead is included in time & materials rates	Overhead is included as part of the fee Overhead is not reimbursed as part of the actual costs	
How Contractor earns its profit	The amount of contractor's profit is a function of how efficiently it completes the entire scope of work	The amount of contractor's profit is a function of how efficiently it completes each unit of work	The amount of contractor's profit is a function of how many hours its personnel and equipment work	<u>% Fee:</u> Profit goes up along with higher costs	<u>Fixed Fee:</u> Profit is fixed no matter what the cost
Incentive created for Contractor	Complete work for less than the amount of the lump sum	Complete each item for a cost less than the unit price	Deploy as many people and as much equipment as possible (subject to good industry practices)	<u>% Fee:</u> Spend as much as possible (subject to good industry practices)	<u>Fixed Fee:</u> Spend as little as possible


Contract Type
FIXED PRICE
COST REIMBURSABLE
Contract Type
Characteristic
Contractor assumes risk
Owner assumes risk
Contract includes anticipated profits
Contractor is paid cost plus an additional amount for overhead and profit
Contractor is independent and performs the work as it sees fit
Owner may direct work
Scope of work is clearly defined to enable an accurate estimate
The scope of work/cost may not be clearly defined
Change orders by owner increase or decrease the value of the contract
No change orders, work is performed and paid on a time and materials basis
Characteristic

Contract Model Consideration

- CHOOSE Cost-Reimbursable When…
  - The scope is vague and the cost is hard to estimate.
  - There are uncertainties in the future that would affect the cost.
  - The customer wants to be involved in managing the work and might change the scope significantly or frequently.
  - The customer is in a hurry and does not want to wait for the scope to be more fully defined or does not want to wait for a competitive fixed-price procurement process.
  - The customer is willing and able to take the cost risk.
  - Cost reimbursable works best if the customer is willing to exert some supervision of the seller's management of the work, and/or if trust exists in the relationship.

Contract Model Consideration

- CHOOSE Fixed Price When…
  - The scope is tightly defined, can be tightly estimated, and is not subject to many future changes by the customer.
  - The customer needs to know the final cost before deciding to go ahead. (In other words, is not willing to assume the cost risk.)
  - There are potential sellers interested in doing the work, willing to offer competitive prices, and willing to take the cost risk.
  - A possible advantage of fixed price contracts is that it discourages the customer from making changes.
  - With fixed price, the customer usually just has to monitor the schedule and quality being
  - delivered.

Fixed Price Contracts

- **Fixed price** or **lump sum contracts** involve a fixed total price for a well-defined product or service. These contracts are particularly suited where supplies or services can be clearly specified before tenders are invited. The buyer incurs little risk in this situation.
- Fixed price contracts may also include **incentives** for meeting or exceeding project objectives. They may also include safeguards in the form of **penalty clauses**, however these may be difficult to apply before the consequences of delay are felt.
- An **important consideration** is that any changes to resource requirements due to **project revision** (change) is likely to lead to additional claims by, and **extra payment to the contractor.**

Cost Reimbursable Contracts

- **Cost reimbursable or cost-plus** contracts involve payment to the seller for direct and indirect actual costs. These contracts are often used for projects that include the provision of goods and services associated with new technologies. The buyer absorbs more risk with the type of contract, which has three forms:
  - **Cost plus incentive fee (CPIF):** the buyer pays the seller for allowable performance costs plus a predetermined fee and an incentive bonus.
  - **Cost plus fixed fee (CPFF):** the buyer pays the seller for allowable performance costs plus a fixed fee payment usually based on a percentage of estimated costs.
  - **Cost plus percentage of costs (CPPC):** the buyer pays the seller for allowable performance costs plus a predetermined percentage based on total costs.

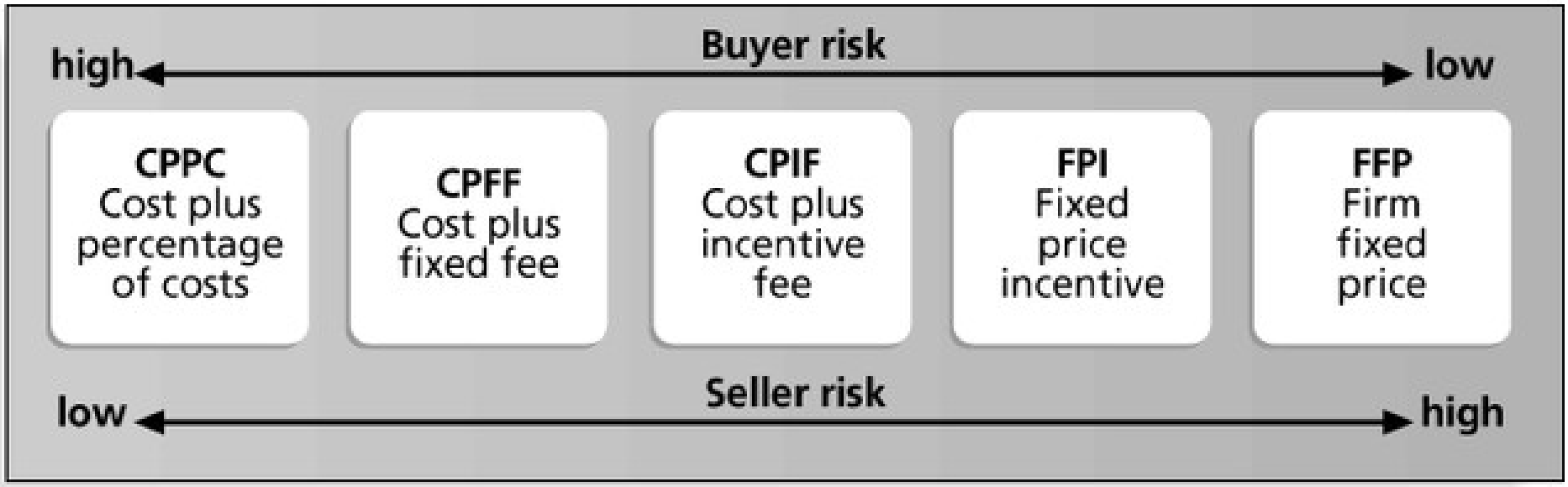
Unit Price Contracts

- **Unit price contracts** require the buyer to pay the seller a predetermined amount per unit of service, and the total value of the contract is a function of the quantities needed to complete the work.

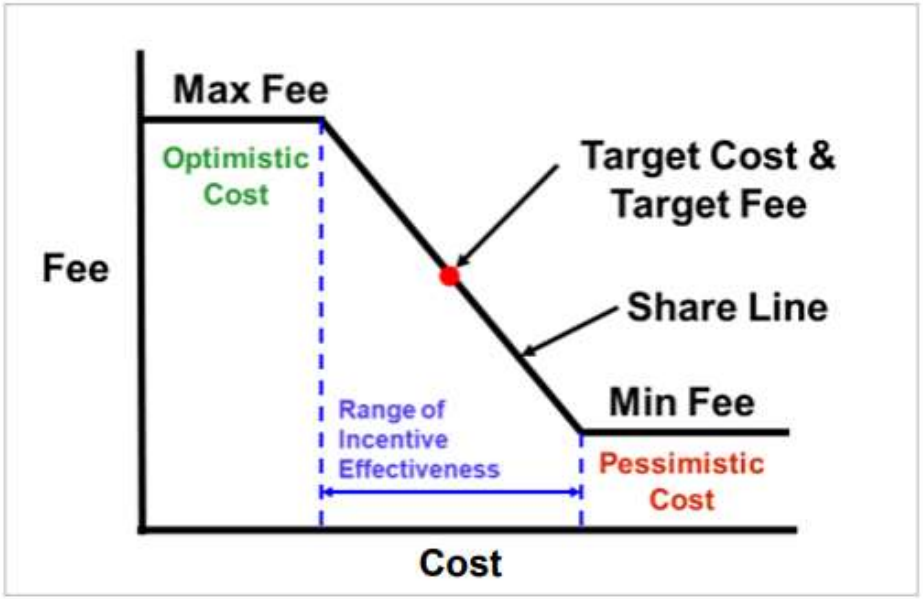
- Unit price contracts are also called a **time and materials contract**, and may incorporate volume discounts.

- This type of contract is often used for services that are needed when the work cannot be clearly specified and total costs cannot be estimated in a contract. Many contract programmers and consultants prefer to use unit price contracts.

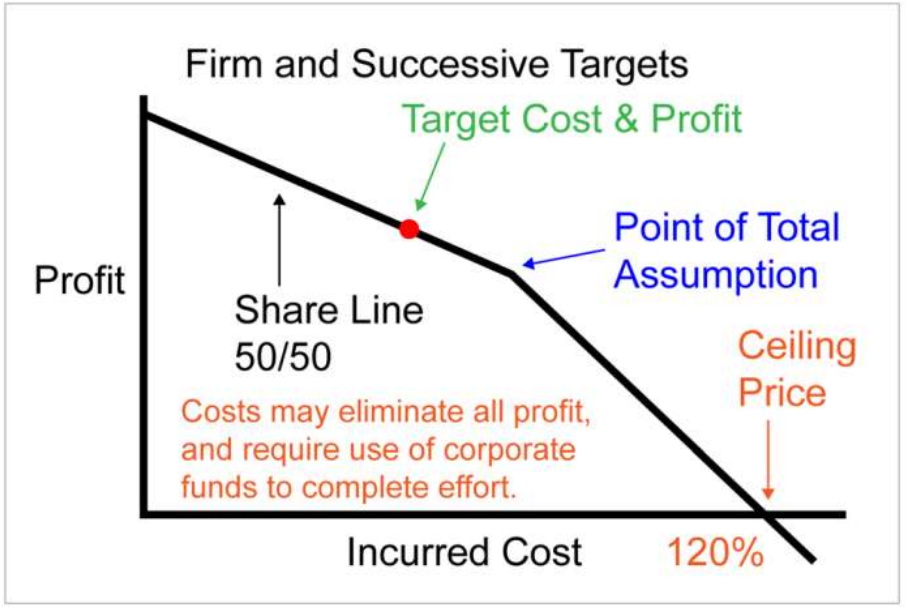
Contract Types Vs. Risk



Cost-Plus-Incentive Fee Contracts



Fixed-Price Incentive Contracts



CONTRACT TYPES – HOUSE PAINTING EXAMPLE

- You want to paint the rooms on the ground floor of your house. There are about 2000 square feet of wall space.
- It would take about 200 hours for the painters to do the work. The painting contractor would have to pay about $180 for the paint. The contractor would have to pay the union rate for painters of $8.19/hr. It would be normal in these market conditions for the painter to expect to get about a 10% “fee” on top of the labour and material costs to cover corporate overhead and profit.
- If everything goes according to plan, any of the methods below will result in a final price of about $2000.

CONTRACT TYPES – HOUSE PAINTING EXAMPLE

- **Firm Fixed Price (FFP):**
  - I'll paint all the rooms on the ground floor of your house for $2,000. That includes supplying the paint.
- **Cost Plus Percentage of Cost (CPPC):**
  - I have to pay my painter $8.19 per hour, and I will buy the paint. You reimburse me for those actual direct costs and pay me 10% "fee" on the labour and materials to cover my overhead and profit.
- **Cost Plus Fixed Fee (CPFF):**
  - I'll paint all the rooms on the ground floor of your house. I have to pay my painters $8.19 per hour, and I will buy the paint. You reimburse me for those actual direct costs and pay me a $180 "fee" to cover my overhead and profit.

CONTRACT TYPES – HOUSE PAINTING EXAMPLE

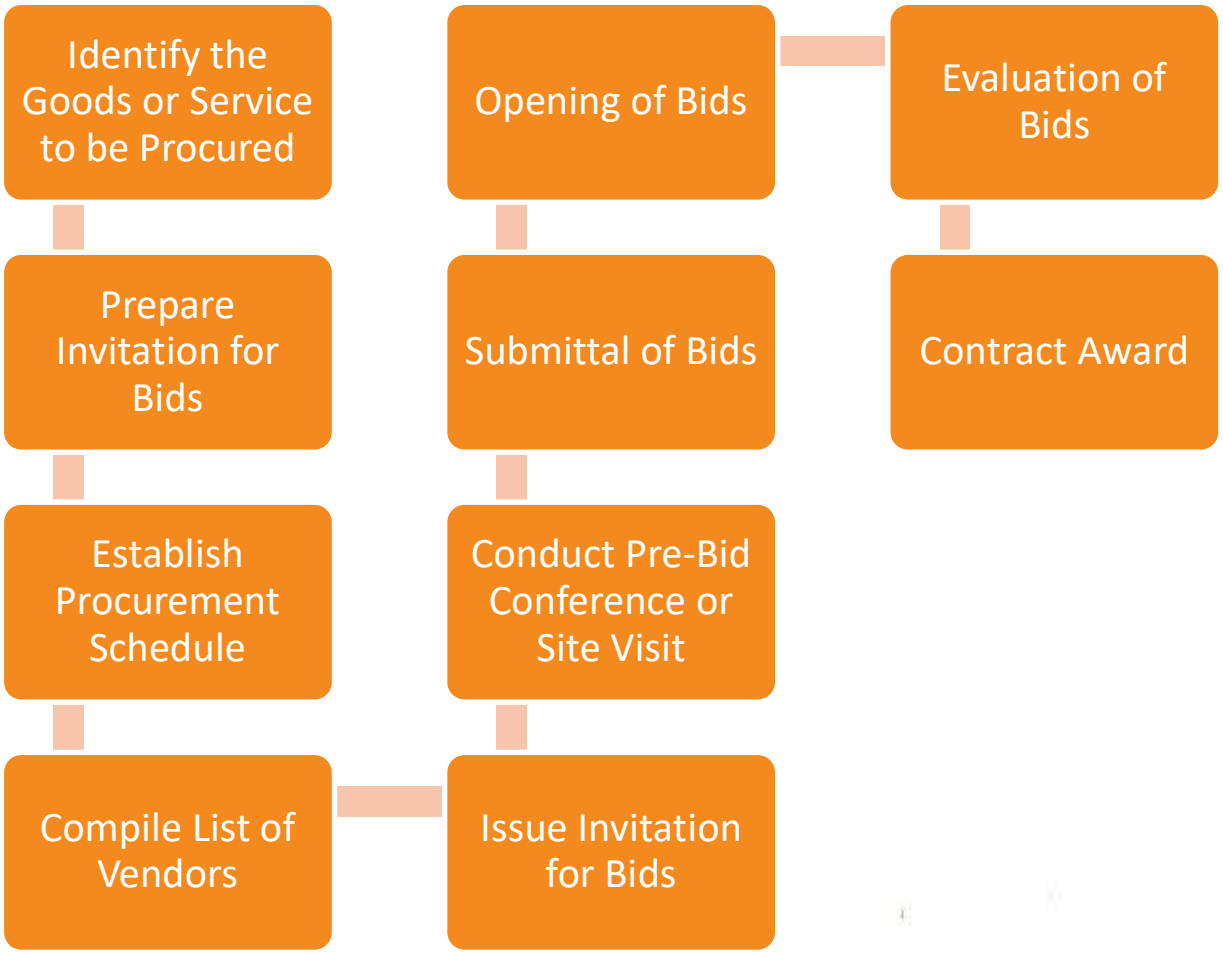
- **Cost Plus Incentive Fee (CPIF):**
  - I'll paint all the rooms on the ground floor of your house. I have to pay my painters $8.19 per hour, and I will buy the paint.
  - You reimburse me for those actual direct costs and pay me a $180 "fee" to cover my overhead and profit. I estimate that the direct cost will be $1,818. If the direct costs actually cost less, then my "fee" increases by 10% of the under-run. If the direct costs actually cost more, then my "fee" decreases by 10% of the overrun.
- **Time & Materials (T&M):**
  - I'll paint any rooms you want. You pay me $9.10 per hour for the painters. I will also buy the paint and bill you for the cost of it.
- **Unit Price:**
  - I'll paint any rooms you want for $1.00 per square foot of wall. That includes supplying the paint.

Statement of Work (SOW)

- A statement of work is a description of the work required for the procurement
- Many contracts, or mutually binding agreements, include SOWs
- A good SOW gives bidders a better understanding of the buyer's expectations

Solicitation Planning

Typical Bidding Process

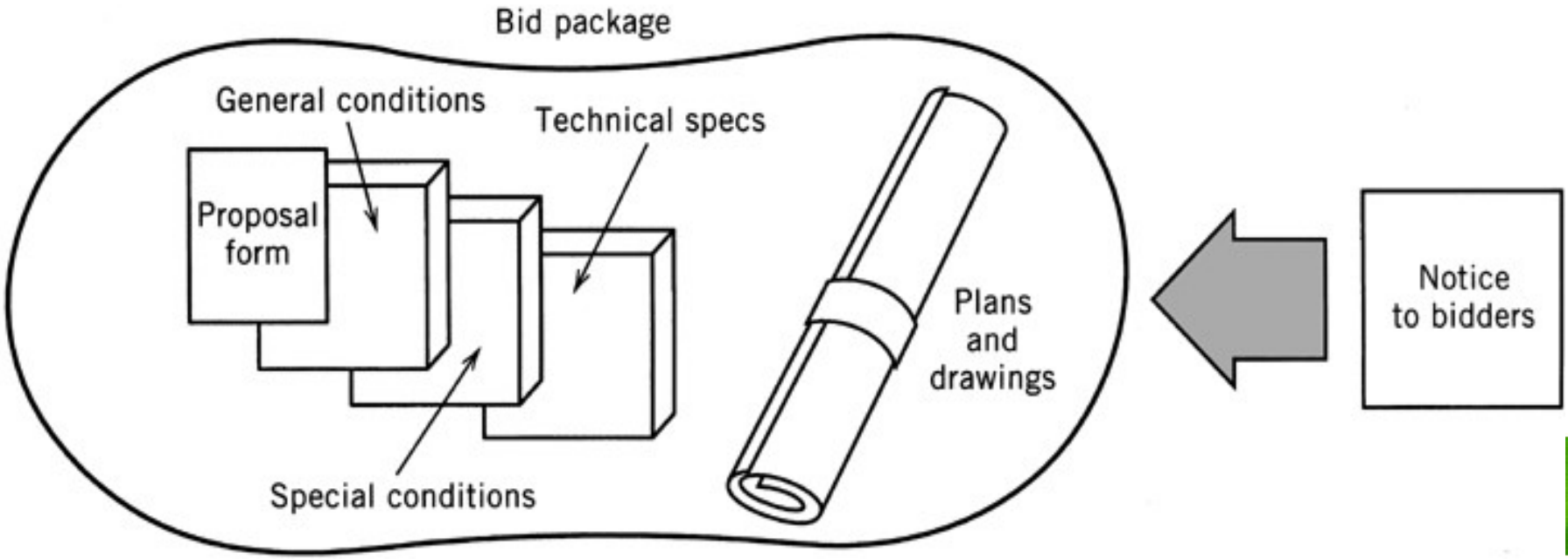


Bidding Documents

- Instructions to Bidders ("ITB")
  - This document provides information to help Bidders prepare their Bids and describes the procedures for the submission, opening, and evaluation of Bids and the award of Contracts. The text of the clauses in this section shall not be modified.
- Bid Data Sheet ("BDS")
  - This document sets out the particular requirements for the specific procurement and supplements the information.
- Bid Review, Evaluation Criteria, and Bidder Qualification Requirements
  - This document describes the criteria and requirements to determine the lowest evaluated responsive Bid and the qualifications of the Bidder to perform the Contract.
- Bidding Forms
  - This document contains the forms which are to be completed by the Bidder and submitted as part of its Bid.

Bid Package

- Documents available to the contractor and on which he must make a decision to bid or not
  - A set of plans and technical specifications, Proposal form, general conditions, special conditions,
- Description of the project to be constructed



Solicitation Planning

- Solicitation planning involves preparing several documents:
  - Request for Proposals: used to solicit proposals from prospective sellers
  - Requests for Quotes: used to solicit quotes for well-defined procurements
  - Invitations for bid or negotiation and initial contractor responses are also part of solicitation planning

Outline for a Request for Proposal (RFP)

I. Purpose of RFP

II. Organization's Background

III. Basic Requirements

IV. Hardware and Software Environment

V. Description of RFP Process

VI. Statement of Work and Schedule Information

VII. Possible Appendices

- A. Current System Overview
- B. System Requirements
- C. Volume and Size Data
- D. Required Contents of Vendor's Response to RFP
- E. Sample Contract

Solicitation & Selection

Solicitation

- Solicitation involves obtaining proposals or bids from prospective sellers
- Organizations can advertise to procure goods and services in several ways
  - approaching the preferred vendor
  - approaching several potential vendors
  - advertising to anyone interested
- A bidders' conference can help clarify the buyer's expectations

Source Selection

- Source selection involves
  - evaluating bidders' proposals
  - choosing the best one
  - negotiating the contract
  - awarding the contract
- It is helpful to prepare formal evaluation procedures for selecting vendors
- Buyers often create a "short list"

I. MANDATORY REQUIREMENTS	YES	NO
1. Compliance with the Request for Proposal submission requirements		
2. Minimum corporate experience (number of similar assignments) per requirements		
3. Minimum personnel qualification per requirements		
4. Compliance with the terms and conditions of the Request for Proposal. The Proponent must sign and return a copy of page one (1) of the RFP (or equivalent form)		

II. RATED REQUIREMENTS	MAX PTS	SCORE
1, TECHNICAL PROPOSAL		
a) understanding of the scope and importance of the requirement	10.0	
b) proposed approach, methods of handling	8.0	
c) level of effort	5.0	
d) potential problems & methods of handling	5.0	
e) originality and innovation	4.0	
Minimum acceptable points (75%)	24/32	
2. TRAINING & EXPERIENCE		
a) relevant training & experience of personnel	15.0	
b) corporate background & experience	12.0	
c) references	8.0	
Minimum acceptable points (75%)	26/35	
3. ORGANIZATION		
a) adequacy, availability and allocation of personnel	8.0	
b) time management, including work schedule and commitment to completion dates	10.0	
c) liaison with necessary parties	5.0	
d) overall organization of the project	10.0	
Minimum acceptable points (75%)	25/33	
TOTAL POINTS AVAILABLE	100	

III. CONTRACTOR SELECTION-ASSESSED BEST VALUE		
MERIT: Proponent's Overall Total Point Score/Highest Overall Total Point Score X 80		
COST: Lowest Total Estimated Cost/Proponent's Total Estimated Cost X 20		
ASSESSED BEST VALUE (MERIT + COST)		

[5] from a Government of Canada RFP, 2002

Sample Proposal Evaluation Sheet

		Proposal 1		Proposal 2		Proposal 3	
Criteria	Weight	Rating	Score	Rating	Score	Rating	Score
Technical Approach	30%						
Management Approach	30%						
Past Performance	20%						
Price	20%						
Total Score	100%						

Detailed Criteria for Selecting Suppliers

Criteria	Possible Points	Supplier 1 Points	Supplier 2 Points	Supplier 3 Points
Project manager s educational background and experience	10	8	6	9
Project manager is PMP certified	5	5	0	5
Presentation on management approach	5	4	3	5
Organization s project management methodology	10	7	4	9
Total Score	30	24	13	28

Contract Administration

Contract Administration

- **Contract administration** ensures that the seller's performance meets contractual requirements.

- ***Contracts are legal relationships***, are subject to the contract law in the country where the project is conducted, and in the case of international projects, the country of supply.

Contract Administration

- However, due to their complexity, many project managers ignore contractual issues.

- ***This can result in serious problems.*** Ideally, the project manager and the project team should be actively involved with contract law experts in the preparation and administration of contracts.

Contract Administration

- Project members must be aware of the legal problems they might cause by not understanding a contract. In particular, most projects involve changes, and these ***changes must be handled properly for items under contract.***

What is a Change Order?

A change order is an amendment to the original contract that **outlines changes** to the project's **scope, duration**, and **price**.

Common Reasons for Change Orders

Unforseen Obstacles

Incorrect Building Plans

Inspection Requirements

Additional Features

Delivery Days

Inaccurate Budgets

Types of Change Orders

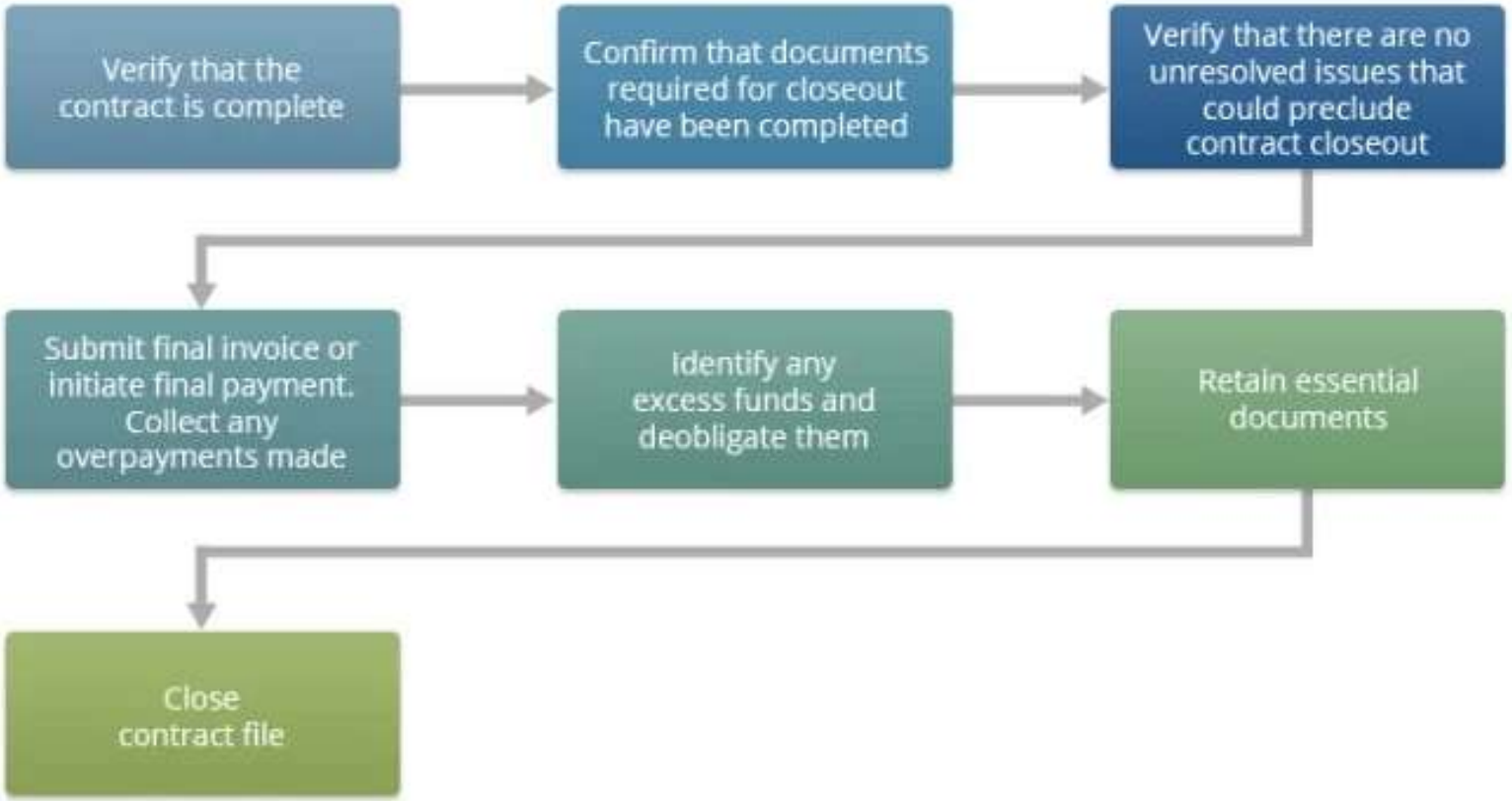
- **Budget**:
  - When any changes are made to the amount of money a client can pay or the amount that a contractor or subcontractor needs to complete a project.
- **Timeline:**
  - When a construction job is expected to take longer or to be completed sooner than expected.
- **Cost of Materials:**
  - Sometimes, the cost of materials can change between the time an agreement is made and when the work is done. When this happens, the original contract must be modified with a change order.
- **Changes in Scope of Work:**
  - It is nearly impossible to predict how a project can change from start to finish. When a client or subcontractor decides to make changes to the work being done, change orders allow for new terms to be established.

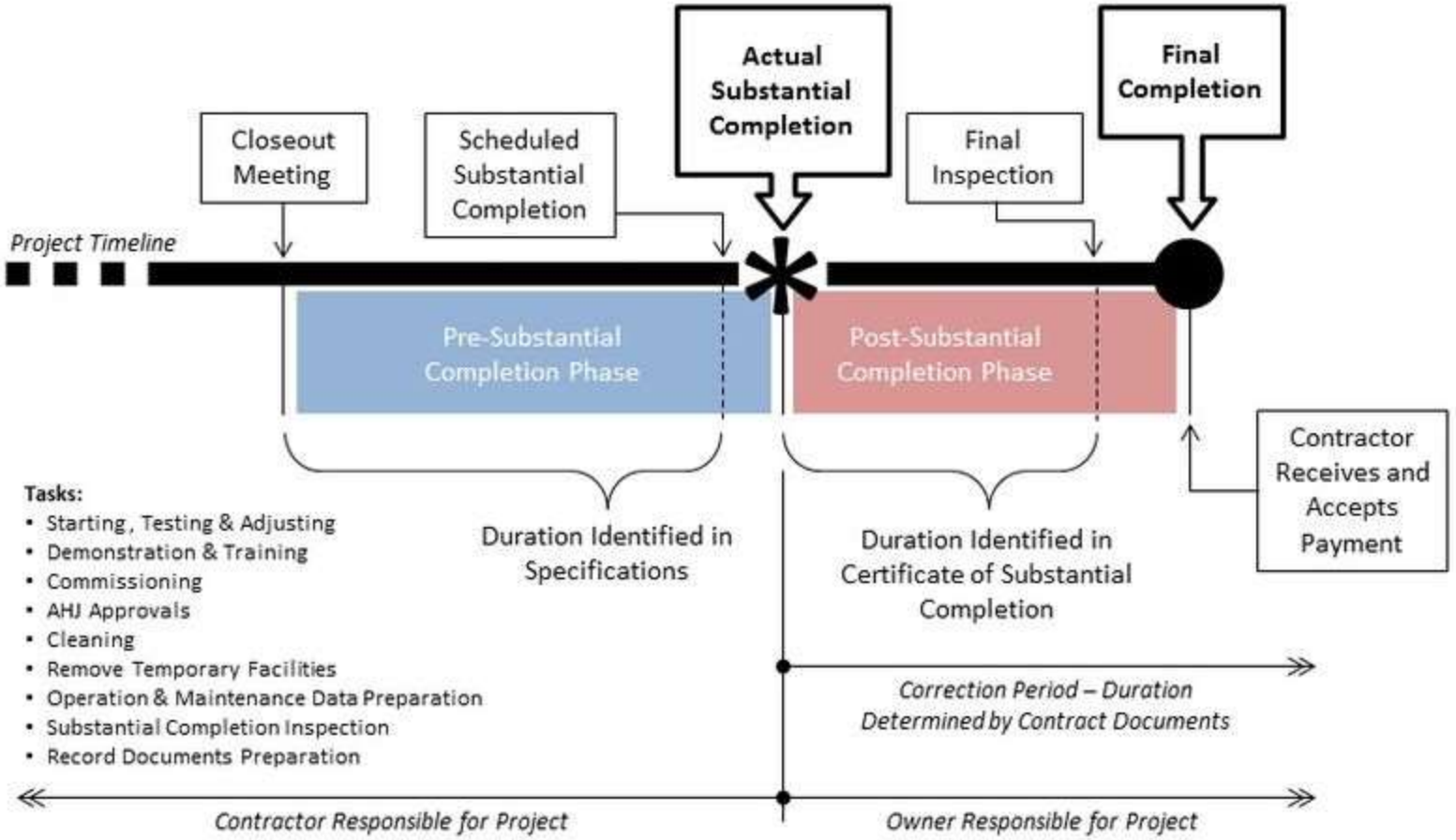
Contract Close Out

Contract Close-Out

- Contract close-out is the final project procurement management process. It includes:
  - **Product verification** to determine if all work was completed correctly and satisfactorily.
  - **Administrative activities** to update records to reflect final results.
  - **Archiving information** for future use.
- **Procurement audits** are often undertaken during contract close-out to identify lessons learned in the procurement process.

Contract Close Out




Actual Substantial Completion
Final Completion
Closeout Meeting
Scheduled Substantial Completion
Final Inspection
Project Timeline
Pre-Substantial Completion Phase
Post-Substantial Completion Phase
Contractor Receives and Accepts Payment
Tasks:
• Starting, Testing & Adjusting
• Demonstration & Training
• Commissioning
• AHJ Approvals
• Cleaning
• Remove Temporary Facilities
• Operation & Maintenance Data Preparation
• Substantial Completion Inspection
• Record Documents Preparation
Duration Identified in Specifications
Duration Identified in Certificate of Substantial Completion
Correction Period – Duration Determined by Contract Documents
Contractor Responsible for Project
Owner Responsible for Project

Key Contractual Clauses

Pre-Contract Requirements: Site Inspections, Review Of Contract Documents and Representation

- Careful consideration of site conditions and geotechnical inspection reports insulate the contractor from potential liability for change orders, delay clauses, and payment for post construction remediation efforts.
- The owner undertakes a duty of disclosure, which, if made accurately and timely, may shield the owner from liability and shift the responsibility to the contractor

Differing/Unanticipated Site Conditions

- Differing site condition ("DSC") clauses relate to construction site conditions which are materially different from those ordinarily encountered during construction and/or from conditions described and specified in the contract documents.
- Such clauses affect the owner by binding contractors to perform the work under typical construction conditions or conditions envisioned by the project documents.
- Such clauses affect the contractor by providing a possible remedy and a potential contract cost adjustment if unexpected conditions are encountered during construction.

Warranty and Guarantee Clauses

- Warranty Clause
  - GCs obligation to ensure the quality of the workmanship and materials used during the construction process.
  - Warranty Clause applies during the construction process,
- Guarantee Clause
  - GCs willingness to return and correct deficiencies in the completed work for a limited period of time.
  - The Guarantee Clause becomes important to resolve disputes regarding defects in workmanship discovered after the project completion.

Changes and Change Orders

- A CO is a written authorization to a contractor approving a change from original plans, specifications, and other contract documents.
- A CO often authorizes an increase or decrease in contractor compensation or time to perform.
- Key Elements:
  - Elements of Recovery
  - Notice & Timing
  - Standard of Proof
  - Change Order Vs Change Directive

Substantial Completion and Final Completion

- Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or use the Work or a ***portion*** thereof for its intended use. (AIA)
- Key Elements:
  - Retainage release
  - Warranty period
  - Determination of any actual or liquidated damages
  - Running of the statute of limitations and repose

Contract Termination

- Termination can occur by mutual agreement of the parties or one party's exercise of a contractual right to terminate the contract.
- In the construction industry, contract termination usually takes one of two forms,
  - termination for convenience or
  - termination for cause
- Key Elements:
  - What conditions (if any) must be satisfied before a contract can be terminated,
  - What your rights are if a contract is terminated, and
  - What steps, if any, you must take to preserve a claim for compensation.

Delay Issues and Liquidated Damages

- Delays are typically measured from the contractually required completion date to the actual completion date.
- Liquidated Damage provision: the owner is paid (by deduction from monies otherwise owed the contractor) an agreed daily rate for each day of delay of completion of the project that is not excused by a provision of the project.
- The liquidated damage rate is supposed to be a reasonable approximation of the damages that will actually be suffered by the owner due to a delay in completion.

Delay Issues and Liquidated Damages

- Delays are characterized as 4 types:
  - ***Excusable delay***: the contractor is entitled to a time extension, but not compensation under the terms of the contract.
    - Examples: are weather, strikes, or acts of god
  - ***Nonexcusable delay:*** the contractor is not entitled to a time extension under the terms of the contract.
    - Examples: late deliveries of contractor ordered materials, subcontractors failures, or simply taking longer than planned to perform a particular aspect of construction;
  - ***Compensable delay:*** the contractor is entitled to both a time and extension as well as associated damages under the terms of the contract.
    - Examples are owner directed changes and differing site conditions;
  - ***Concurrent delay:*** Multiple delays which occur that at least partially overlap with each other. This term is generally only used to describe overlapping delays that are of different types of delays.

Dispute Resolution and Avoidance

- One construction participant's failure to perform its obligations on the project can significantly impact other participants' abilities to perform their work.
- Key Elements:
  - Mediation
  - Arbitration
  - Litigation

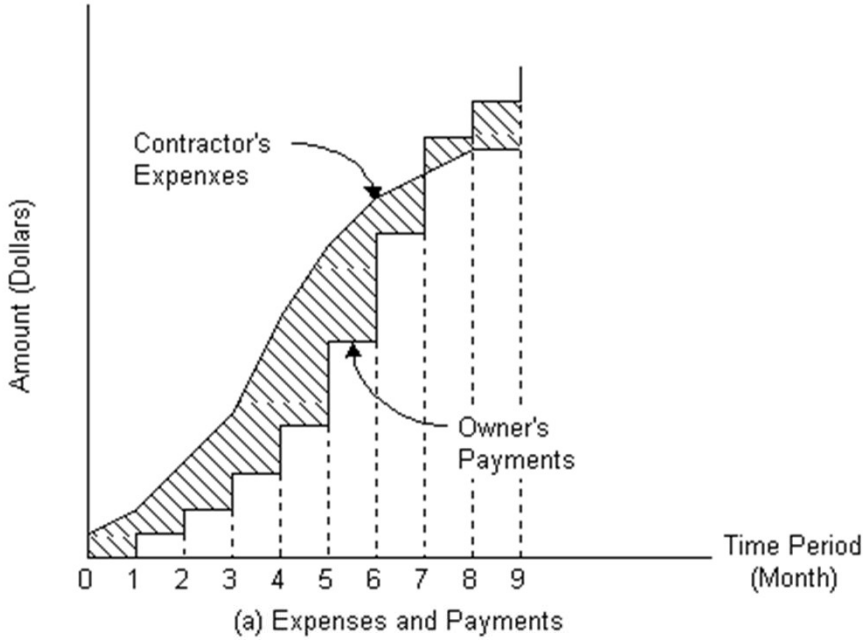
Arbitration Provision

- Arbitration is often more cost-effective and efficient than litigation.
- The arbitration discovery process can range from being very limited to being broader than what may ordinarily be permitted under federal procedural rules, which do not apply to arbitration.
- There is great flexibility in dictating the terms under which an arbitration can proceed, such as through the use of “high-low agreements” whereby the parties can choose the limits within which an award must be rendered.
- Arbitration is a non-public proceeding that can be made confidential.

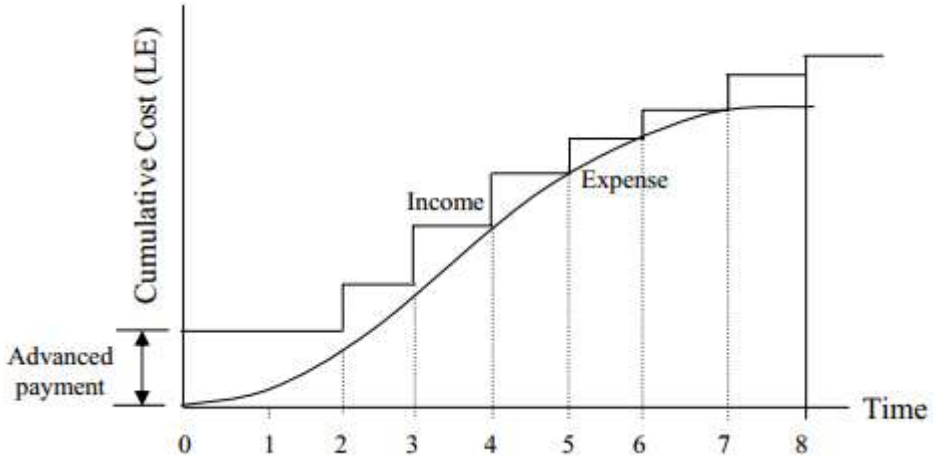
Venue Provision

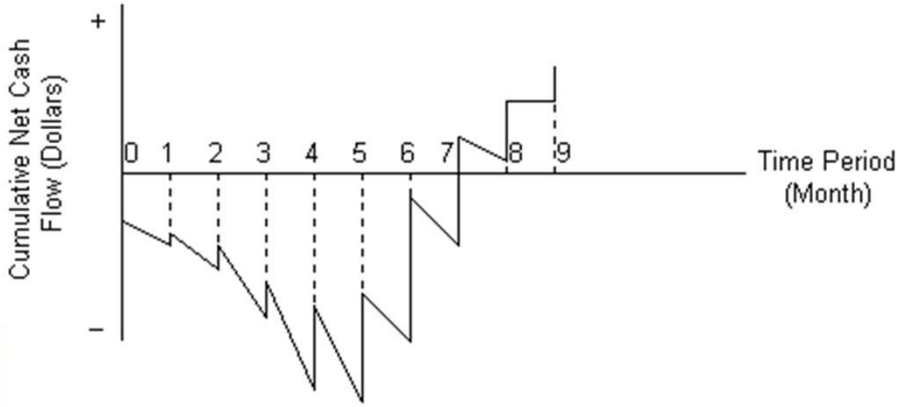
- Venue provisions or forum selection clauses, as their names suggest, are used to designate a particular province/state/country or court as the jurisdiction in which parties will litigate disputes arising out of a contract and their contractual relationship.
- Such clauses allow parties enormous flexibility in predetermining what jurisdiction will decide their disputes should there be any.
- Venue provisions often select the owner's principal place of business.
- Obviously, this allows the party drafting the contract to ensure home-field advantage, which in some instances may prove to be outcome determinative.

Progress Payment



(a) Expenses and Payments





(b) Cumulative Net Cash Flow of Contractor

Conclusion

- It is essential that organizations obtain good contracts that minimize risk while ensuring optimum results through effective contract administration.
- With the current competitive and demanding conditions found in information technology projects, ***it is very important to prepare contracts with great care and expert assistance***. It is equally important to ***initiate and follow effective contract administration procedures.***

Conclusion

- The following guidelines can help can assist in preparing proposals, contracts and administrative procedures:
  - Use **checklists** and **templates** where appropriate.
  - **Evaluate risks** by reference to suggested contract provisions where appropriate.
  - All major proposals and contracts, and contracts with questionable provisions, should be reviewed by a **contract law expert**.
  - **Appropriate pricing** and/or **insuring of risk** under the contract.
  - **Periodic review, improvement** and **updating** of contract preparation and administration procedures.

Any Questions?