

Outline

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Opening Case

Marie McBride could not believe how much money her company was paying for outside consultants to help finish an important *system conversion project*. The consulting company's proposal said it would provide experienced professionals who had completed similar conversions, and that the job would be finished in six months or less with four consultants working full time. Nine months later her company was still paying high consulting fees, and half of the original consultants on the project had been replaced with new people. One new consultant had graduated from college only two months before and had extremely poor communications skills. Marie's internal staff complained that they were wasting time training some of these "*experienced professionals*." Marie talked to her company's purchasing manager about the contract, fees, and special clauses that might be relevant to the problems they were having.

Marie was dismayed at how difficult it was to interpret the contract. It was very long and obviously written by someone with a legal background. When she asked what her company could do because the consulting firm was not following its proposal, the purchasing manager stated that the proposal was not part of the official contract. Marie's company was paying for time and materials, not specific deliverables. There was no clause stating the minimum experience level required for the consultants, nor were there penalty clauses for not completing the work on time. There was a termination clause, however, meaning that the company could terminate the contract. Marie wondered why her company had signed such a poor contract.

Was there a better way to procure services from outside the company?

Importance of Project Procurement Management (1 of 4)

- **Procurement** (purchasing or outsourcing) means acquiring goods and services **from an outside source of the project**
 - The providers are referred to as *suppliers, sellers, vendors, contractors*, etc.
- Deciding ***whether, what, and how to outsource*** is important for many organizations
 - Outsourcing more mature business functions (e.g., *IT, human resources, and finance*) and additional functions (e.g., *real estate, facilities management, and procurement*) continue to grow.
- Outsourcing is also a hot topic for debate, especially on the implications of **offshoring** (i.e., outsourcing to other countries)
 - Offshoring may cause employment and security problems (e.g., intellectual property and data protection) for companies and even nations.
 - Politicians debate whether offshoring helps their own country or not

Importance of Project Procurement Management (2 of 4)

■ Reasons for outsourcing

1. ***Access skills and technologies.*** Organizations can gain access to specific skills and technologies by using outside resources.
2. ***Reduce fixed and recurrent costs.*** Organizations can often reduce hardware, software, and labor costs on projects by outsourcing.
3. ***Allow the client organization to focus on its core business.*** By outsourcing many IT functions, employees can focus on jobs that are critical to the success of the organization.
4. ***Provide flexibility.*** Outsourcing to provide extra staff during peak periods can be much more economical than staffing entire projects with internal resources.
5. ***Increase accountability.*** A well-written ***legally-binding contract*** can clarify responsibilities and sharpen focus on key deliverables of a project.

Importance of Project Procurement Management (3 of 4)

■ Reasons for *NOT* outsourcing

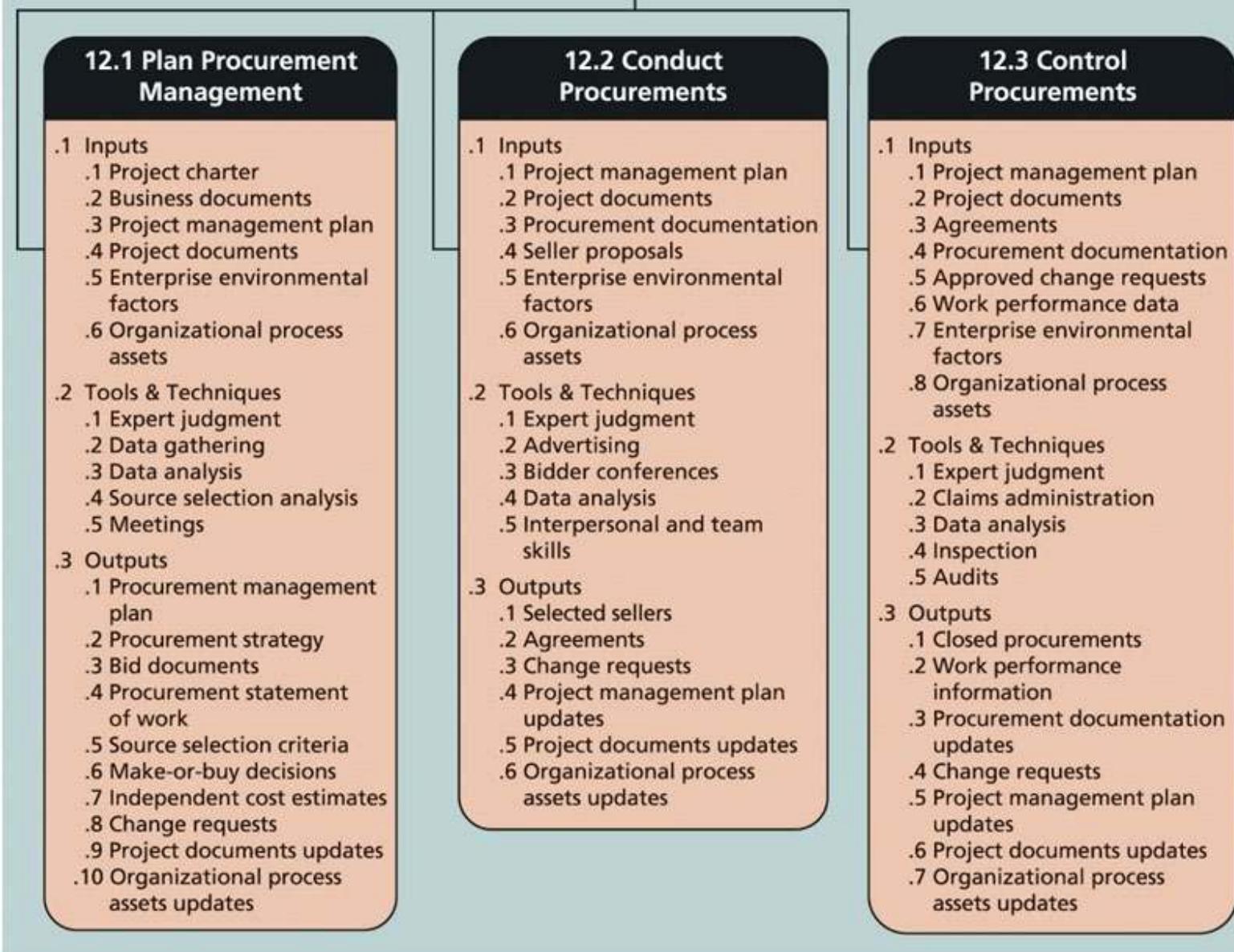
1. When an organization outsources work, it often loses some control over the aspects of projects that suppliers carry out.
2. An organization may become **too dependent on the outsourcing suppliers**. If those suppliers went out of business or lost key personnel, it could cause great damage to a project.
3. Organizations must be careful to protect *core competency* or *strategic information* from the hands of suppliers.

■ Think *carefully* about procurement issues (including *ethical* and *political* issues) and make *wise decisions* based on the unique needs of projects and organizations

Importance of Project Procurement Management (4 of 4)

- Project procurement management includes the processes required to *acquire goods* and *services* for a project from outside the performing organization
- Three main processes
 1. ***Plan procurement management***: determine what to procure and when and how to do it.
 2. ***Conduct procurements***: obtain seller responses, select sellers, and award contracts.
 3. ***Control procurements***: manage relationships with sellers, monitor contract performance, make changes as needed, and close out contracts.
- Figure 12-1 summarizes the inputs, tools and techniques, and outputs of project procurement management

Project Procurement Management Overview



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FIGURE 12-1 Project procurement management overview

1. Plan Procurement Management

- Identify which project needs can be best met by using products or services outside the organization
 - Involves deciding *whether, how, what, how much, and when to procure*
- An important output: **make-or-buy decision**
 - An organization decides whether it should *make* certain products and perform certain services inside the organization *or buy* them from an outside organization.
 - If there is no need to buy any products or services from outside, then there is no need to perform any other procurement management processes
- Inputs include *the project charter, business documents, the P.M. plan, project documents, enterprise environmental factors, and organizational process assets*, such as types of contracts.

Types of Contracts (1 of 3)

- An important consideration in procurement management. Different types of contracts can be used in different situations.
- Three categories of contracts
 - i. Fixed price or lump sum contracts
 - ii. Cost-reimbursable contracts
 - iii. Time and material contracts
- A single contract can include all three categories if it makes sense for a particular procurement
- Project teams must understand and decide which approaches to use to meet their project needs

Fixed Price or Lump Sum Contracts (1 of 3)

- Fixed price or lump sum contracts involve **a fixed total price** for a *well-defined* product or service
 - The buyer incurs little risk under this type of contracts because the price is predetermined.
 - The sellers often *exaggerate their estimate* to reduce their risk and increase profit, while maintaining a competitive price.
 - A **firm-fixed-price** (FFP) contract has the least amount of risk for the buyer, followed by a **fixed-price incentive fee** (FPIF) contract (which includes *incentives* for meeting or exceeding selected project objectives)
- Fixed-price with economic price adjustment contracts (FP-EPA) include *a special provision* for *predefined final adjustments* to the contract price due to inflation or the changes in cost of specific commodities
 - This contract is intended for **protecting** both the buyer and seller from external conditions beyond their control

Fixed Price or Lump Sum Contracts (2 of 3)

- Contracts can include incentives to prevent or reduce cost overruns
 - For example, FPIF contracts can include a Point of Total Assumption (PTA), which is the cost at which the contractor assumes total responsibility for each additional dollar of contract cost
 - Contractors do NOT want the cost to reach the PTA because it hurts them financially. So, they have an incentive to prevent cost overruns.

$$PTA = \text{target cost} + \frac{\text{ceiling price} - \text{target price}}{\text{buyer's sharing ratio}}$$

- **Ceiling price**: the highest price the buyer will pay to the contractor
- **Target price**: target cost of the contractor plus target fee paid to the contractor
- **Buyer's sharing ratio**: the buyer's portion on sharing the cost savings or cost overrun

Fixed Price or Lump Sum Contracts (3 of 3)

■ Payment calculation

- i. If the actual cost is **below** the target cost, the buyer may pay either **the target price** (i.e., seller retains all cost savings) or a price below the target price (i.e., buyer and seller share the savings)
- ii. If the actual cost is **between** the target cost **and** PTA, the buyer pays **the target price plus the buyer's share of cost overrun** (i.e., actual cost minus target cost)
- iii. If the actual cost is **above** PTA, the buyer pays **the ceiling price**.

■ Example: suppose we have the following information:

- Target cost = \$1,000, Target price = \$1,100, Ceiling price = \$1,250
- Buyer's share = 75%

$$PTA = 1,000 + \frac{1,250 - 1,100}{75\%} = 1,200.$$

- Thus, the seller pays \$1,250 if the actual cost is above \$1,200.

Cost-reimbursable Contracts (1 of 2)

- **Cost-reimbursable contracts** involve payment to the seller for direct and indirect costs
 - Often used for projects that include providing goods and services which **involve new technologies**
 - Often include fees, such as **a profit percentage** or **incentives** for meeting or exceeding selected project objectives
 - The buyer absorbs more of the risk with cost-reimbursable contracts than with fixed-price contracts
- Four types of cost-reimbursable contracts
 1. **Cost plus fixed fee (CPFF) contracts**: the buyer pays the supplier for allowable costs **plus a fixed fee payment** (e.g., a percentage of estimated costs)
 2. **Cost plus incentive fee (CPIF) contracts**: the buyer pays the supplier for allowable costs (as defined in the contract) **plus a predetermined fee** and **an incentive bonus**

Cost-reimbursable Contracts (2 of 2)

- Four types of cost-reimbursable contracts (cont'd)
 3. Cost plus award fee (CPAF) contracts: the buyer pays the supplier for allowable costs **plus** an award fee based on the satisfaction of subjective performance criteria (which is usually NOT subject to appeals).
 4. Cost plus percentage of costs (CPPC) contracts: the buyer pays the supplier for allowable costs **plus** a predetermined percentage based on total costs.
- CPPC contracts are the least desirable type of contract for the buyer, because **the supplier has no incentive to save costs**
 - Rather, the supplier may be motivated to increase costs, because doing so will automatically increase profits based on the percentage of costs
 - This type of contract is sometimes used in private industries, particularly in the construction industry. **All risk is borne by the buyer!**

Media Snapshot

- On August 1, 2007, tragedy struck Minneapolis, Minnesota, when an Interstate bridge on I-35W over the Mississippi River collapsed, killing 13 motorists and injuring 150 people.
- The Minnesota Department of Transportation (*MnDOT*) acted quickly to find a contractor to rebuild the bridge and **provided a strong incentive** to finish the bridge **ASAP**, ensuring quality and safety along the way.
- Peter Sanderson, project manager for the joint venture of Flatiron-Manson, led his team in completing the rebuilding project **three months ahead of schedule**. The new bridge opened on September 18, 2008.
 - The contractors earned **\$25 million in incentive fees** on top of their \$234 million contract for completing the bridge ahead of schedule.
- MnDOT justified the incentive payment by saying that each day the bridge was closed it cost road users more than \$400,000.

Time and Material Contracts

- Time and material (T&M) contracts are a hybrid of fixed-price and cost-reimbursable contracts
 - Often used for required services when *the work cannot be specified clearly*, and *total costs cannot be estimated* in a contract.

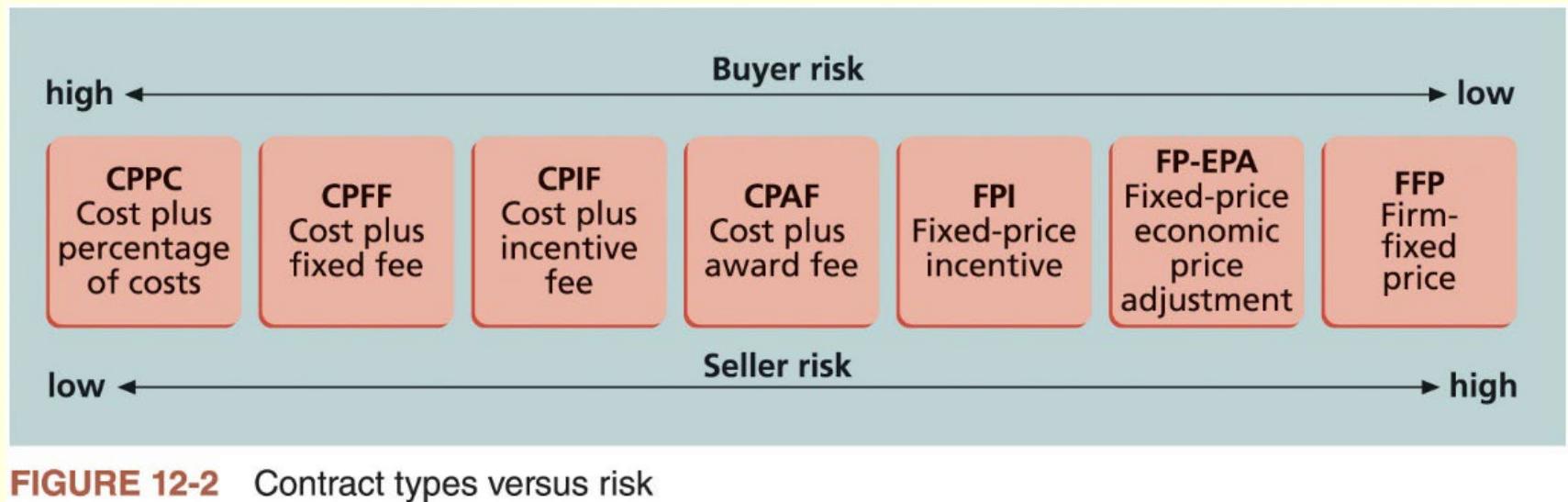
For example, an independent computer consultant might have a contract with a company based on a fee of \$80 per hour for services, plus a fixed price of \$10,000 for providing specific project materials.

The **materials fee** might also be based on approved receipts for purchasing items, with a ceiling of \$10,000. The consultant would send an invoice to the company each week or month; the invoice would list the materials fee, the number of hours worked, and a description of the work produced.

- Many contract programmers and consultants, such as those Marie's company hired in *Opening Case*, prefer T&M contracts.

Types of Contracts (2 of 3)

- Unit pricing can be used in various types of contracts to require the buyer to pay the supplier a *predetermined amount per unit* of product or service
 - Often involve volume discounts (i.e., more units purchased => lower unit price), which is advantageous to both the buyer and seller
- Figure 12-2 summarizes the spectrum of risk to the buyer and the supplier for different types of contracts



Types of Contracts (3 of 3)

- Any type of contract should include **specific clauses** that account for unique project issues
 - For example, if a company uses a T&M contract for consulting services, the contract should stipulate different hourly rates based on the level of experience of the individual contractors.
 - The contract should include a **termination clause**, which allows the buyer or supplier to end the contract
- Important to understand **why** a company wants to procure goods or services and **what inputs** are needed to plan purchases and acquisitions
 - Also, important to clearly define *the scope of the products, services, or results required, market conditions, constraints, and assumptions before signing an outsourcing contract*

Tools and Techniques for Planning Procurement Management (1 of 2)

- Several tools and techniques are available to help project managers and their teams in planning procurement management
 - i. Make-or-buy analysis
 - ii. Expert judgment
 - iii. Market research
- **Make-or-buy analysis** determines whether an organization should make or perform a particular product or service *inside the organization* or *buy from outside*
 - It involves estimating the internal costs of providing a product or service and comparing the estimate to the cost of outsourcing.
 - It also helps organizations to decide whether to **purchase** or **lease** items for a project. In general, leasing is cheaper for meeting short-term needs, but more expensive for meeting long-term needs.

Tools and Techniques for Planning Procurement Management (2 of 2)

- **Expert judgment**, both internal and external, is an asset in making many procurement decisions
 - Project teams often need to consult experts within their organization as part of good business practice.
 - Important to consult **legal experts** because contracts for outsourced work are legal agreements.
 - Experts outside the company, including potential suppliers themselves, can also provide expert judgement.
- **Market research** is VERY important in planning procurement
 - Many potential suppliers are often available for goods and services. The project team must choose suppliers carefully.
 - A wealth of information is available online. Many conferences are held where attendees can see and discuss new products.

Procurement Management Plan (1 of 2)

- Procurement management plan (*P.M.P.*) describes *how the procurement processes will be managed* from developing documentation for making outside purchases or acquisitions to contract closure
- Contents of *P.M.P.* (depending on project needs)
 - i. Guidelines for **types of contracts** to be used in different situations
 - ii. Standard procurement documents or templates to be used
 - iii. Guidelines for creating contract WBS, statements of work, and other procurement documents
 - iv. **Roles and responsibilities** of the project team and related departments, such as the purchasing or legal department
 - v. Guidelines for using independent estimates to evaluate sellers
 - vi. Suggestions for managing multiple providers

Procurement Management Plan (2 of 2)

■ Contents of *P.M.P.* (cont'd)

- vii. **Processes** for coordinating procurement decisions with other project areas, such as scheduling and performance reporting
- viii. **Constraints and assumptions** related to purchases and acquisitions
- ix. **Lead times** for purchases and acquisitions
- x. **Risk mitigation strategies** for purchases and acquisitions, such as insurance contracts and bonds
- xi. Guidelines for identifying prequalified sellers and organizational lists of preferred sellers
- xii. **Procurement metrics** to assist in evaluating sellers and managing contracts

Statement of Work (1 of 3)

- A **statement of work** (*S.O.W.*) is a description of the work required for the procurement
 - Organizations also use this term for a document that describes internal work
- **Contract S.O.W.** is a *S.O.W.* used **as part of a contract** to describe the work required for that particular contract
 - A **type of scope statement** that describes the work in sufficient detail to allow prospective suppliers to determine if they can provide the required goods and services and to determine an appropriate price.
 - Should specify 1) *the products and services required*, 2) *the location of the work*, 3) *the expected period of performance*, 4) *specific deliverables* and *when they are due*, 5) *applicable standards*, 6) *acceptance criteria*, and 7) *special requirements*.
 - Be clear, concise, as complete as possible, and use appropriate wording, such as “*must*” instead of “*may*”.

Statement of Work (2 of 3)

- Many organizations use samples and templates to generate SOWs
 - Figure 12-3 provides a basic outline or template for a contract SOW that Marie's organization could use when hiring outside consultants or purchasing other goods or services.

For example, for the operating system conversion project, Marie's company should specify *the manufacturer and model number for the hardware involved*, the former operating systems and new ones for the conversion, and *the number of pieces of each type of hardware involved*.

They should also specify the location of the work, the expected period of performance, specific deliverables and when they are due, applicable standards, acceptance criteria, and special requirements.

- A good contract SOW gives bidders a better understanding of the buyer's expectations
 - Should be **part of the official contract** to ensure the buyer gets what the supplier bids on

Statement of Work (3 of 3)

Statement of Work (SOW)

- I. **Scope of Work:** Describe the work to be done in detail. Specify the hardware and software involved and the exact nature of the work.
- II. **Location of Work:** Describe where the work must be performed. Specify the location of hardware and software and where the people must perform the work.
- III. **Period of Performance:** Specify when the work is expected to start and end, working hours, number of hours that can be billed per week, where the work must be performed, and related schedule information.
- IV. **Deliverables Schedule:** List specific deliverables, describe them in detail, and specify when they are due.
- V. **Applicable Standards:** Specify any company or industry-specific standards that are relevant to performing the work.
- VI. **Acceptance Criteria:** Describe how the buyer organization will determine if the work is acceptable.
- VII. **Special Requirements:** Specify any special requirements such as hardware or software certifications, minimum degree or experience level of personnel, travel requirements, and so on.

FIGURE 12-3 Statement of work (SOW) template

Procurement or Bid Documents (1 of 2)

- Planning procurements also involves **preparing the documents** needed for potential sellers to bid on a project and **determining the evaluation criteria** for the contract award
 - The project team often uses *standard forms* and *expert judgment* as tools to help create relevant procurement documents and evaluation criteria
 - Three common procurement documents
 - Request for Proposal (RFP), Request for Quote (RFQ), Request for Information (RFI)
1. **RFP** is a document used to **solicit proposals** from prospective sellers
 - **Proposal** is a document prepared by a seller when there are **different approaches** for meeting buyer needs
 - Organizations must plan properly to ensure that they adequately describe *what they want to procure*, *what they want sellers to include in their proposals*, and *how they will evaluate proposals*.

Procurement or Bid Documents (2 of 2)

- Developing a good RFP is often a time-consuming process. Expertise is invaluable.
 - Refer to Tables 12-1 and 12-2 of textbook for an example
- 2. **Request for quote** (RFQ) is a document used to **solicit quotes or bids** from prospective suppliers
 - A **bid**, also called a *tender* or *quote*, is a document prepared by sellers providing pricing **for standard items** clearly defined by the buyer.
 - Organizations often use an RFQ for solicitations **that involve specific items**.
 - RFQs usually do not take nearly as long to prepare as RFPs, nor do responses to RFQs. Selections are often based on the lowest bid.
- 3. **Request for information** (RFI) is used before issuing an RFP or RFQ to **get information** on the goods and services to be acquired

Source Selection Criteria

- Important to prepare some **evaluation criteria** for source selection, preferably before issuing a formal RFP
 - Organizations use criteria to **rate or score proposals** and often assign a weight to each criterion to indicate its importance.
 - The criteria should be **specific** and **objective**. Losing bidders may pursue legal recourse if the buyer does not follow a fair evaluation process.
- Important factors in evaluating bids
 - Bidder's past ***performance records***, understanding of the buyer's need, technical and financial capabilities, ***management approach*** to the project, and ***price*** for delivering the desired goods and services
- Organizations can also require potential sellers to deliver **a technical presentation** as part of their proposal
 - **Visits to contractor sites** can also help the buyer get a better feeling for the seller's capabilities and management style.

2. Conduct Procurements (1 of 4)

- Conducting procurement involves
 1. Deciding whom to ask to do the work
 2. Sending appropriate documentation to potential sellers
 3. Obtaining proposals or bids
 4. Selecting a seller
 5. Awarding a contract
- Main outputs: a selected seller and agreements
- Organizations can **advertise** to procurement in different ways
 - i. Approach a specific preferred supplier
 - ii. Take a competitive bidding strategy by providing information to many potential suppliers and receiving bids from them

2. Conduct Procurements (2 of 4)

- A **bidders' conference** is a meeting with prospective sellers prior to preparation of their proposals or bids
 - It helps ensure that everyone has a clear, common understanding of the buyer's desired products or services.
- **Source selection** involves evaluating proposals or bids from sellers, choosing the best one, negotiating, and awarding the contract
 - Can be a long, tedious process, especially for large procurements.
 - *Key stakeholders* in the procurement process should be involved in selecting the best supplier for the project.
 - *Different teams of people* (e.g., technical, management, cost teams) are responsible for evaluating various major areas of the proposals.
 - Buyers typically develop *a short list* of the top three to five suppliers to reduce the work involved in selecting a source.

2. Conduct Procurements (3 of 4)

- Formal proposal evaluation sheets should be used during source selection
 - Figure 12-4 provides a sample proposal evaluation sheet the project team might use to help create a short list of the best three to five proposals.
- *Technical criteria* should *NOT* be given more weight than *management* or *cost* criteria
 - Many organizations have suffered the consequences of paying too much attention to the technical aspects of proposals.
 - Often the supplier's *management team*, *NOT* the technical team, that makes procurement successful.

		Proposal 1		Proposal 2		Proposal 3		Etc.
Criteria	Weight	Rating	Score	Rating	Score	Rating	Score	
Technical approach	30%	90	27	80	24	70	21	
Management approach	30%	85	25.5	75	22.5	85	25.5	
Past performance	20%	95	19	70	14	75	15	
Price	20%	75	15	95	19	80	16	
Total score	100%		86.5		79.5		77.5	

FIGURE 12-4 Sample proposal evaluation sheet

2. Conduct Procurements (4 of 4)

- After developing a short list of possible sellers, organizations often follow *a more detailed* proposal evaluation process
 - If the criteria and evaluation are done well, **the seller with the most points** based on all the criteria should be offered the contract.
- **Contract negotiations** are common during the source selection process
 - Sellers on the short list are often asked to prepare *a best and final offer*.
 - Top managers from both the buying and selling organizations usually meet before making final decisions.
- **Final output**: a contract that obligates the seller to provide the specified products or services and obligates the buyer to pay for them
 - May be appropriate to prepare **a contract management plan** that describes how the contract will be managed.

3. Control Procurements (1 of 3)

- **Controlling procurements** ensures the seller's performance meets contractual requirements
- Contracts are legal relationships and subject to contract laws
 - **VERY important** that appropriate legal and contracting professionals be involved in writing and administering contracts
 - Project team members **MUST** be aware of potential legal problems they might cause by not understanding a contract.
 - For example, most projects involve *changes*, which must be handled properly for items under contract.
- The project team should watch for **constructive change orders**
 - **Oral or written acts or omissions** by someone with **actual or apparent authority** that can be construed to have the same effect as a written change order

3. Control Procurements (2 of 3)

For example, if a member of the buyer's project team has met with the contractor on a weekly basis for three months to provide guidelines for performing work, the team member can be viewed as an apparent authority.

- If the team member tells the contractor to redo part of a report that has already been delivered and accepted by the project manager, the action can be viewed as a constructive change order and the contractor can legally bill the buyer for the additional work.
- Likewise, if the team member tells the contractor to skip parts of a critical review meeting in the interests of time, the omission of that information is not the contractor's fault.

■ Suggestions for change control in contracts

- i. Any changes on the contract need to be *reviewed, approved, and documented* by the same people in the same way that the original part of the contract was approved
- ii. Evaluation of any change should include **an impact analysis**
- iii. **Changes must be documented in writing**
- iv. Use tools and techniques, such as a contract change control system, buyer-conducted performance reviews, inspections and audits, etc.

3. Control Procurements (3 of 3)

- **Closing procurements** or contract closure, involves completing and settling contracts and resolving any open items
 - The contract itself should include requirements for formal acceptance and closure
 - The project team should 1) determine if all work was completed correctly and satisfactorily, 2) update records to reflect final results, and 3) archive information for future use
- Tools to assist in contract closure
 - **Procurement audits** identifies **lessons learned** in the procurement process
 - **Records management system** provides the ability to organize, find, and archive procurement-related documents
 - Ideally, all procurements should end in a **negotiated settlement** between the buyer and the seller. If this is not possible, some type of alternate **dispute resolution** such as *mediation* (调停) or *arbitration* (仲裁) can be used; if all else fails, *litigation* (诉讼) in courts can be used to settle contracts.

Use Software to Assist in Project Procurement Management

- Organizations have used various types of **productivity software** to assist in project procurement management
 - *Word-processing software*: write proposals and contracts
 - *Spreadsheet software*: create proposal evaluation worksheets
 - *Databases*: track suppliers
 - *Presentation software*: present procurement-related information
- **e-procurement** software assists in organizations procuring various goods and services **electronically**
 - Refer to ProSmart for an example and the textbook for more discussions
- Use internet, industry publications, and discussion groups to research and compare various suppliers
- Organizations should practice good procurement management in selecting new software tools and managing relationships with the chosen suppliers

Case Wrap-Up

After reading the contract for her company's consultants carefully, Marie McBride found a clause giving her company the right to terminate the contract with a one-week notice. She met with her project team to get suggestions. The team still needed help completing the system conversion project. One team member had a friend who worked for a competing consulting firm. The competing firm had experienced people available, and their fees were lower than those in the current contract. Marie asked this team member to help her research other consulting firms that could work on the conversion project. She then requested bids from these companies. She personally interviewed people from the top three suppliers' management teams and checked their references for similar projects.

Marie worked with the purchasing department to terminate the original contract and issue a new one with a new consulting firm that had a much better reputation and lower hourly rates. This time, she made certain the contract included a statement of work, specific deliverables, and requirements for the minimum experience level of consultants provided. The contract also included incentive fees for completing the conversion work within a certain time period. Marie had learned the importance of good project procurement management.

Complementary Reading

- Chapter 12 “*Project Procurement Management*” of Schwalbe (2018)
- Chapter 12 “*Project Procurement Management*” in Part 1 of *PMBOK® Guide* (2017)