

Version 6.1 Updated for the 2021 Project Management Professional (PMP)® Exam



Crosswind Success Series: PMP® Exam Bootcamp Manual

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Tony Johnson, MBA, CAPM, PMP, PgMP, PfMP

Version 6.1 aligned with the Project Management Institute, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) - Sixth Edition, Project Management Institute Inc., 2017

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Different types of scope of work
Characteristics of procurement documents and the environment in which they should be used
What a qualified sellers list is and how it's used
Purpose of and the activities that occur at a bidder conference
When to use a noncompetitive form of procurement
Incentive fees
Negotiating goals and options for a win-win result
Characteristics of procurement agreements (formerly known as contract awards)
Differences between standard terms and conditions and special provisions
Difference between the project manager and contract administrator in relation to the contract
Differences between centralized and decentralized contracting environments
What formal acceptance is and what can occur once its been issued

Although helpful, this list is not all-inclusive in regard to information needed for the exam. It is only suggested material that, if understood and memorized, may increase your exam score.

15.1. Plan Procurement Management (Planning Process Group)

During the Plan Procurement Management process, a company analyzes its procurement or outsourcing needs.

The procurement typically relates to a product, result, or service that the organization is unable to produce or undertake due to a lack of expertise, a lack of access (a patented product), or a lack of capacity.

During this process, the organization may involve people specialized in law, purchasing, or contracts.

The organization then completes the solicitation needs for the project, which include creation of documents such as:

- Request for Information (RFI)
- Request for Quote (RFQ)
- Request for Proposal (RFP)
- Evaluation criteria for comparison with the proposal



Plan Procurement Management

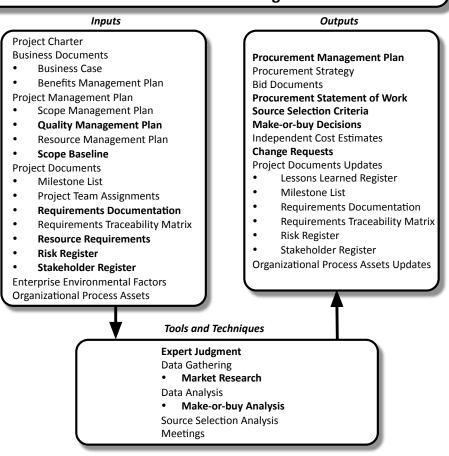


Figure 15-2: Plan Procurement Management Data Flow Diagram

The source for the above figure is the Project Management Institute, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) – Sixth Edition, Project Management Institute Inc., 2017, Figure 12-2, Page 466

Plan Procurement Management (Planning)					
Key Inputs	Quality Management Plan	The quality management plan is a component of the project management plan that details the manner in which the policies, methods, and criteria of the organization are executed. It defines the activities and resources necessary to accomplish quality goals. The plan also enumerates the industry standards and codes applicable to the project, information that is used to create bidding documents such as the Request for Proposal.			

	Plan Procurement Management (Continued)				
Key Inputs (Cont.)	Scope Baseline	The scope baseline is the authorized version of the scope statement, WBS (to the level of work package with individual identification codes), and WBS dictionary. The scope baseline is subject to change control. Note that if the scope is still evolving, the known scope constituents are used to create the Statement of Work (SOW) and the Terms of Reference (TOR).			
	Requirements Documentation	Requirements documentation includes the requirements management plan, technical requirements that must be met by a seller, and requirements that appertain to contractual and legal considerations (such as requirements related to safety, health, intellectual property rights, licenses, security, permits, environmental factors, and equal employment opportunity). Requirements documentation delineates how requirements fulfill the business needs of the project. In order to baseline requirements, they must be measurable, testable, traceable, complete, consistent, and acceptable to appropriate stakeholders. Requirements may be categorized as business requirements, stakeholder requirements, solution (both functional and non-functional) requirements, transition requirements, project requirements, and quality requirements.			
	Resource Requirements	Resource requirements delineate the classes and numbers of resources that are needed for individual activities utilized in the schedule model. Note that resources are not limited to people, but include items such as equipment and office space.			
	Risk Register	The risk register records each identified risk. It typically includes the potential owner of and potential response(s) to each identified risk. It may include a title, category, status, cause(s), trigger(s), impacted activity(ies), date of identification, date range for probable occurrence, and response deadline. Note that some risks may be transferred through the use of a procurement agreement.			

	Plan Procurement Management (Continued)				
Key Inputs (Cont.)	Stakeholder Register	The stakeholder register contains information related to identified stakeholders. It includes identification information (name, position, location, project role, and contact information), assessment information (key requirements, potential impact on project results, phase in which stakeholder wields the greatest influence, and expectations), and stakeholder classification (internal/external, impact/influence/power/interest, or other classification model).			
Key Tools & Techniques	Expert Judgment	Expert judgment is judgment based on expertise acquired in a specific area. It is often more significant and accurate than the best modeling tools available and can be provided by stakeholders, company personnel external to the project, professional organizations or groups, and consultants. It is important to consider expertise related to procurement, purchasing, contract types, contract documents, pertinent regulatory information, and pertinent compliance information.			
	Market Research	Market research is a data-gathering method that entails analyzing the capabilities of suppliers. Procurement teams may also use information gained at conferences, online reviews, and other sources to determine market capabilities.			
	Make-or-buy Analysis	A make-or-buy analysis is utilized to determine if it is more advantageous for the project team to perform work/create a deliverable or to contract the work/purchase the deliverable from an outside source. The analysis considers a variety of factors, including the current availability of resources and their proficiency/experience, the need for specialized expertise, control of intellectual property, and receptivity to resource expansion.			

	Plan Procurement Management (Continued)				
Key Outputs	Procurement Management Plan	The procurement management plan is a component of the project management plan that addresses procurement activities. It details the need for international competitive bidding, national competitive bidding, and/or local bidding and delineates the manner in which external financing is aligned with the plan and the project schedule. It often contains guidelines for coordinating procurement with other project processes (project schedule development and control processes), contract management metrics, activity timetables, constraints and assumptions related to procurement, risk issues related to procurement, and stakeholder roles and responsibilities.			
	Procurement Statement of Work	The procurement statement of work for each procurement item depicts the item in sufficient detail for aspiring sellers to determine if they have the ability to provide the expected service, product, or result. It typically includes specifications, quantity, quality level, required performance data, and other requirements. The SOW is elaborated from the scope baseline and is limited to the part of the project scope that is addressed by the related contract.			
	Source Selection Criteria	Source selection criteria are the standards by which the buyer judges the quality of each aspiring seller's proposal to provide the expected service, product, or result. Criteria typically include product cost; life cycle cost; delivery dates; the knowledge transfer program; intellectual property rights; and the seller's capability, capacity, management experience, technical proficiency, technical approach, relevant experience, references, and financial soundness. The criteria is scored and considered when selecting the seller.			
	Make-or-buy Decisions	Make-or-buy decisions are reached as a result of a make-or-buy analysis. The analysis is utilized to determine if it is more advantageous for the project team to perform work/create a deliverable or to contract the work/purchase the deliverable from an outside source.			
	Change Requests	Change requests are requests for modification that have not been formally approved through the change control process. Modifications to the cost and schedule baselines or to other impacted components of the project management plan may be requested as the result of procurement decisions.			

Situational Question and Real World Application

Failure to conduct the Plan Procurement Management process effectively can result in: incomplete source selection criteria, which could lead to an unsatisfactory seller; unclear procurement statements of work, which could lead to unrealistic seller responses; and unsatisfactory make-or-buy decisions, which could lead to excessive project cost.

15.1.1. Procurement Management Plan

The procurement management plan:

- Formalizes the types of contracts and procurement documents that will be used
- Details procurement metrics, assumptions, constraints, and risk management issues
- Indicates if, and when, independent estimates will be used
- Designates any prequalified sellers
- Describes the manner in which multiple suppliers are managed
- Describes the manner in which make-or-buy decisions are conducted
- Describes the manner in which the project management team will work with the procurement department of the performing organization
- Describes the manner in which procurement is coordinated with other project processes, such as scheduling and reporting

The procurement management plan helps the project manager and team do the following:

- Determine make vs. buy for the various needs of the project
- Establish what procurement documents (RFP, RFI, RFQ) are needed for the project
- Create the procurement documents for the project
- Run bidder conferences
- Address single source and sole source procurement
- Select vendors to do work
- Establish contract(s) with vendors

15.1.2. Make-or-buy Decisions

One of the basics of procurement is the make-or-buy decision. There are a number of considerations a company can use in making this decision.

Make Decision Qualities	The buyer owns intellectual property associated with the work and considers doing the work internally in order to maintain control of the information. The buyer has excessive qualified capacity.
	The buyer has excessive qualified capacity.
Buy Decision	The buyer doesn't possess the skills needed for the work.
Qualities	The buyer doesn't possess the capacity to do the work.



Procurement

15.1.3. Procurement Strategy

The procurement strategy is created after the make-or-buy analysis is complete and the decision to acquire the product, service, or result from outside of the project has been made.

The strategy addresses delivery methods, contract payment types, and the advancement of the procurement through its phases.

Delivery methods for professional services include buyer/services provider with no subcontracting allowed, buyer/services provider with subcontracting allowed, joint venture between buyer and services provider, and buyer/services provider acting as the representative.

Delivery methods for industrial projects or construction projects include, but are not limited to, turnkey, design build (DB), design bid build (DBB), design build operate (DBO), and build own operate transfer (BOOT).

Contract payment types are coordinated with the buying organization's internal financial systems. They include, but are not limited to, lump sum, firm fixed-price, cost plus award fees, cost plus incentive fees, time and materials, and target cost. Note that fixed-price contract payment types are used with projects that have stable and well defined requirements, as well as predictable work. Also note that cost plus contracts are used with projects where the work is evolving, is likely to change, or is not well defined and incentives/awards may be utilized as a means of aligning the objectives of the buyer and seller.

Procurement phase information typically includes phasing/sequencing of the procurement with phase descriptions and objectives, procurement performance indicators and milestones, criteria for the movement from phase to phase, a monitoring and evaluation plan for tracking progress, and a knowledge transfer process that will be used in subsequent phases.

15.1.4. Rent or Buy Calculation

It is very important to know the rent or buy calculation for the exam. The components are typically as follows:

- Purchase cost and daily maintenance with the purchase option
- Daily (or weekly, monthly) rental fee, which usually includes maintenance fees for the rent option

Typically, related exam questions focus on calculating the point where it makes sense to either rent or buy the product.

You are the project manager for a housing developer. The development requires a skid loader to clean out the lots where the houses will be built. You can rent the skid loader for \$100 per day (including maintenance) or you can purchase one for \$750, with a \$50 per day maintenance cost. What is the maximum time you would want to rent this tool before considering purchasing it?

To determine the answer, first convert the information to a formula. The options from the above sample question show rental at \$100 per day or purchase at \$750 with \$50 per day maintenance.

The formula is (\$ per day) x (number of days) = purchase price + (maintenance fee per day x number of days) or, in algebraic terms, \$100x = \$750 + \$50x, where x is the number of days.

Step 1. (-\$50x + \$100x) = \$750 or \$50x = \$750 (Move any item with the variable x to one side of the equation, changing the operator of the item moved, in this case change positive \$50x to negative \$50x.)

Step 2. \$750 / \$50 = x (Divide to determine the value of x.)

Step 3. \$750 / \$50 = 15

Step 4. x = 15 (the maximum number of days renting the tool makes more sense than purchasing it.)

15.1.5. Contract

When awarding a contract, the buyer establishes a relationship with the seller to obtain sufficient information to determine that the seller is able to provide the needed product, results, or services at terms acceptable to the buyer.



A contract is a mutually binding legal agreement between buyer and seller. Other names for a contract could be a purchase order (PO), subcontract, or agreement.

For the exam, it is important to know the requirements for a contract.

- Capacity (individual legal entities who are competent and are of legal age)
- **Consideration** (the remuneration given to the seller by the buyer)
- Offer (the proposition that the seller will provide a product, service, or result for remuneration)
- Legal purpose
- **Acceptance** (the buyer's willingness to accept the offer from the seller)

A memory tool for the contract is CCOLA—Capacity, Consideration, Offer, Legal, Acceptance.

Additional Components That May Be Included in Contracts					
Statement of Work (SOW)	Deliverables Description	Performance Reporting			
Period of Performance	Roles and Responsibilities	Sellers Place of Performance			
Pricing	Payment Terms	Place of Delivery			
Inspection and Acceptance Criteria	Warranty	Product Support			
Limitation of Liability	Fees and Retainage	Penalties and Incentives			
Insurance and Performance Bonds	Subordinate Subcontractor Approvals	Change Control Procedures			
Termination and Alternative Dispute Resolution	Service Level Agreements				

15.1.6. Buyer and Seller Names

The table below delineates a number of terms that can be used to describe the buyer and seller.

Buyer	Seller
Client	Contractor
Customer	Subcontractor
Prime Contractor	Vendor
Contractor	Service Provider
Acquiring Organization	Supplier
Government Agency	
Service Requester	
Purchaser)



Note that, depending on circumstances, the terms for the buyer and seller can change during the project.

If the outsourced work is not just for materials or products, the seller usually manages the project. In this case, the buyer becomes the customer.

The seller's team is concerned with all the details of the project, not just procurement, and has a greater degree of input into the overall project planning, than if it is merely providing an existing product.

The seller's title can also change during the project. For example, typically, the seller starts as a bidder, then becomes a selected source, and then a vendor.

Note that this is a case for a greatly customized scope of work.

15.1.7. Contract Type Selection

Knowledge of contract type selection is very important for the exam.

There are four main types of contracts available for use on a project: purchase order (PO), fixed-price (FP), cost reimbursable (CR), and time and materials (T&M).

Each of these contracts can involve variations including incentives, fees, and more.

It is very important to know the types of contracts and, for each type, the outstanding features, when it should (and should not) be used, and the risks to the buyer and seller.



their advantages and

disadvantages.



Figure 15-3: Contract Type Selection

Contract Type	Risk for Buyer	Risk for Seller	Description	Example
Purchase Order (PO)	Neutral	Neutral	The purchase order is a unilateral agreement that requires approval by only one party because the other party has offered the product for the predefined price.	A company purchases 27" computer monitors for \$99.00 each.
			Typically, a PO is used for commodity items. Some consultants mentioned that the workplace typically gets a contract type signed off and then gets a PO. For the exam, a PO is considered a separate contract type.	
Firm Fixed- Price (FFP) also known as Lump Sum	Minimal	Significant	The firm fixed-price contract is one of the most common contracts in business today, popular because a company can budget for a fixed price. Because it requires detail for the seller to estimate accurately, a firm fixed price contract is typically used when there is a detailed scope of work. For the seller, profit is everything after cost is covered and the downside is cost containment.	A company purchases the company-wide implementation of a computer network from an outside vendor for \$2,000,000, after providing the vendor a detailed scope of work.

Contract Type	Risk for Buyer	Risk for Seller	Description	Example
Fixed-Price Incentive Fee (FPIF)	Minimal	Significant	The fixed-price incentive fee contract has a fixed-price component plus incentive fees to motivate the seller to produce at a rate greater than the minimum required. An FPIF is usually used to help accelerate a buyer's need, such as a market opportunity. It provides an opportunity for the seller to determine what is needed to make additional profit via the incentive fee.	A city buys services from a company to construct a new freeway for \$4,000,000 and agrees to pay an additional \$65,000 for each week the construction is completed prior to the target completion date.
Fixed-Price Economic Price Adjustment (FP-EPA)	Minimal	Significant	The fixed-price economic price adjustment contract has components that are similar to the fixed-price incentive fee contract and is typically associated with a multi-year contract. To compensate for economic changes from year to year, the economic price adjustment is factored in. The item determining the amount of change from year to year is usually some national economic metric not directly tied to the buyer or seller.	A city buys services from a construction company to build a new freeway for \$4,000,000, over three years. At the start of each year, the amount varies relative to the national cost of living or some other negotiated standard.
Cost Plus Fixed Fee (CPFF)	Medium	Minimal	The cost plus fixed fee contract is typically used when the buyer knows generally what is needed but lacks details. The CPFF covers the cost of the seller and includes a predefined fee for the work.	A buyer hires a vendor to produce a video training series before finalizing all the details for the video and agrees to pay the vendor for cost plus a \$37,000 fee.

Contract Type	Risk for Buyer	Risk for Seller	Description	Example
Time and Materials (T&M)	Minimal	Minimal	The time and materials contract is typically used for smaller initiatives, staff supplementation, the initial piece of a project where discovery occurs before the full details of the project are known, or for materials on an initiative to complement the labor.	A buyer hires a technical writer at \$75 per hour to supplement its staff or a buyer has a bathroom added to her house at \$50 per hour plus the cost of materials.

15.1.8. Share

A share is a contract component that divides any remaining money (typically the difference between the total price and actual seller's costs) between the buyer and the seller. It is normally a negotiated split between the two parties. It is typically different from a traditional incentive fee in that an incentive fee pays compensation based on certain measurable performance metrics that have been established and agreed upon.

It is very important to understand and be able to calculate the total share and the amounts that will be allotted to the buyer and to the seller.

Example: The buyer and seller have contracted for the seller to provide a debit card add-on system in all 50 of the buyer's retail stores. The total price is to be \$50,000. The need for implementation is great because the old systems are being leased and must be returned by a particular date. Both parties negotiate and agree that if the project's actual cost is below the baseline (target) cost, the buyer and seller split the difference 60%/40%. The project accrues an actual cost of \$45,000 when complete. Calculate the share total amount and the share for the buyer and seller.

The project has a \$5,000 share amount (\$50,000 - \$45,000). Of that \$5,000, 60% goes to the buyer and 40% to the seller. The buyer keeps \$3,000 and the seller gets \$2,000. With the actual cost of \$45,000 and the share amount of \$2,000, the seller is paid \$47,000 on the contract.

15.1.9. Point of Total Assumption

The calculation for the point of total assumption establishes the point in a cost curve where the seller's profit starts to diminish when taking into consideration the share ratio on cost overruns. As costs increase past the point of total assumption, a reduction in seller profit occurs until the ceiling price is met. Once the ceiling price is met, every dollar in cost results in a dollar loss for the seller. Contrary to what fixed-price may imply, a contract of this sort can be negotiated so that the buyer agrees to share in cost overruns or under-runs. This calculation is typically used in government or defense-type contracts.

Po	int of Total Assumption Variables and Calculation for a Fixed Price Incentive Fee (FPIF) Contract		
Purpose	To calculate the point in a cost curve where the seller's profit starts to diminish when taking into consideration the share ratio for cost overruns		
Target Cost (TC)	The expected cost of the work in the contract (Ex: \$1,000,000)		
Target Profit (TP)	The expected profit of the work in the contract (Ex: \$200,000)		
Profit Rate at Target Cost	The profit margin of the target profit compared to the target cost (target profit/target cost) (Ex: 20%)		
Target Price	The total of the target cost and target profit; i.e. the total target value of the contract work barring any cost savings or overruns (Ex: \$1,200,000)		
Ceiling Price	A firm price cap which may be expressed as a percent of the target cost (Ex: 140% of cost or \$1,400,000) Note that the buyer is not expected to pay more than the ceiling price.		
Share Ratio (SR)	The ratio that establishes the percentage of cost savings or cost overruns that will be assigned to the buyer and to the seller (Ex: 70/30) Note that cost savings or overruns impact the total contract amount and profit.		
Point of Total Assumption (PTA)	The point in a cost curve where the seller's profit starts to diminish when taking into consideration the share ratio on cost overruns (Ex: \$1,285,714.29) Note that as seller costs exceed the target price and the point of total assumption is met, the cost overruns are shared between buyer and seller until the ceiling price is reached. After the ceiling price is reached any additional cost overruns are entirely assumed by the seller.		
Point of Total Assumption Formula	PTA = [Ceiling Price - Target Price] + Target Cost		
	$$1,285,714.29 = \left[\begin{array}{c} \frac{$1,400,000 - $1,200,000}{0.70} \end{array}\right] + $1,000,000$		
	Note that the difference between ceiling price and target price is divided by the buyer's share.		

15.1.10. Scope of Work

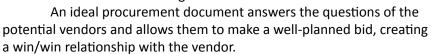
Scope of work is typically the part of the contract that describes what the seller will do for the buyer. When the scope of work is complete, the main work of the contract is complete and closing can begin. Because the level of detail and planning in a contract may vary, there are two main approaches available to develop the scope of work in the contract.



Scope of Work	Description	Example	
Design	Design is a scope of work type in which the buyer provides the seller with the exact details of what is required. Design is typically used when buyers know exactly what they want and want no variance from specifications. It typically works with fixed-price	A company hires a vendor to build a prototype cabinet to house telecom equipment and provides the vendor with specifications for the cabinet, which must hold a number of devices already created.	
	contracts.		
Functionality	Functionality is a scope of work type in which the buyer details to the seller the functionality needed in the new system or development	A company hires a vendor to implement a phone system and provides only functional requirements; as long as those requirements are met, the vendor can build the solution at its discretion.	
	Functionality allows sellers to propose their own solutions as long as the end-results are achieved. It typically works with cost plus (CP) contracts.		

15.1.11. Procurement Documents

The documents associated with the procurement process lay the foundation for vendor relationships. They apply to the selected vendors and those who are considering the work.





Be familiar with all types of procurement documents and know the environments in which to use them.

Document Type	Typical Purpose	Description	Example
Request for Information (RFI)	An RFI is typically used to solicit information to learn more about a company that could provide service for a buyer	An RFI is a document that requests information about a service provider's qualifications.	An example is a request from a state government to determine if a consulting company has the appropriate experience to bid for the project.
Request for Quote (RFQ)	An RFQ is typically used to solicit proposals for a small dollar amount or used for commodity type of products that do not require a great degree of customization.	An RFQ is a document that requests a price for a standard item. There is a general assumption that negotiation is not associated with this type of procurement document.	An example is a request for prospective sellers wishing to provide pricing for customer-established server criteria: Quantity 50 XYZ Servers with 64G RAM, 4TB hard drive to be purchased within 90 days of submittal.

Document Type	Typical Purpose	Description	Example
Request for Proposal (RFP) sometimes called Request for Tender (RFT)	An RFP is typically used to solicit proposals for larger, higher priced customized services or products. In response, the seller describes the detailed solution approach it proposes to take and includes a list of related experiences.	An RFP is a document that requests an approach, price, and significant detail about how the seller proposes to do the requested work. The general assumption is that negotiations occur based on the scope, schedule, and cost of the buyer's request and in consideration of the seller's suggestions.	An example of as RFP is request to prospective sellers to propose the design, implementation, and training for a data warehouse to consolidate five different enterprise databases at a fortune 500 company named Widgets, Inc.
Invitation for Bid (IFB) sometimes called Request for Bid (RFB)	An IFB is used for government sealed bidding processes with characteristics similar to those for an RFP (request for proposal).	An IFB is a document that requests an approach, price, and significant detail about how the seller proposes to do the requested work The general assumption is that negotiations occur based on the scope, schedule, and cost of the buyer's request and in consideration of the seller's suggestions.	An example of an IFB is a request from a branch of the U.S. government to sellers regarding the design, implementation, and training of an enterprise reporting system; the selection process is sealed bid and the contract is awarded on March 25 th .

The source for the above text is the Project Management Institute, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) – Sixth Edition,
Project Management Institute Inc., 2017, Pages 466-481

15.2. Conduct Procurements (Executing Process Group)

Conduct Procurements incorporates soliciting responses from the sellers, selecting a seller, and awarding the contract. The team will request bids or proposals from potential sellers, apply the defined selection criteria to the bids or proposals received to determine the selected seller, and award the contract to the selected seller.

Major procurements may require iterations of this process and include negotiation.



Procurements.