PMP and CAPM Study Guide

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Please note that I make no claims as to the accuracy of this information contained in this document, only that I am confident that this information helped me to pass the CAPM certification and I wish to make it available to those studying for other PMI related courses. I used resources from all over the web, Project Management Body of Knowledge – PMBOK and other various sources.

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GENERAL PROJECT MANAGEMENT INFORMATION

Project Life Cycle

- Definition: What you need to do to do the work.
- Sometimes referred to as the organization's methodology for projects.
- Changes by industry or organization.

Project:

- Temporary endeavor with a beginning and an end
- Creates a unique product, service or result
- Is progressively elaborated (More detailed as the project progresses)

Operation: The key differentiator of projects and operations is that, projects are temporary in nature, resulting in unique outputs - where as operations are ongoing in nature.

Projects are often conducted to support the organizations' strategic plan, and to support one or more strategic elements, such as: Market demand, Organizational need, customer request, technological advance and/or a legal requirement.

Project chartering - The process of selection and approval of the right projects for execution is called project chartering. This ensures that, only the approved projects are funded.

- Select the right projects - Select the right projects to execute, which are in line with the organizations strategy.
- Opportunity cost - the opportunity given up, by selecting one project over the other.
- Continuous alignment to the organizational strategy - An organization's business strategy is not static. It changes with the market conditions, hence is very dynamic in nature. When the organizational strategy itself changes, some of the projects can become redundant and at the same time it can open room for some new projects. The right selection of projects, coupled with continuous alignment to the organizations strategy is called as project portfolio management.

Programs - are a collection of projects, which when executed together yields in some additional benefits, than when performed one after the other.

PMO – Project Management Office – A department that centralizes the management of projects. Provides:

- Policies, methodologies, and templates for managing projects
- Support and guidance to others as how they should manage a project
- Project Managers for projects and being responsible for the projects end results

Organizational structures

Functional organization

- Least authority for the project manager
- Project manager plays the role of an Expeditor or Coordinator
- The project team will have a home to go, at the end of the project

Projectized organization

- In a projectized organization, the project manager has maximum authority
- All the project managers, report to the program manager
- No home for project team members after project is finished

Matrix organization

- 2 Bosses – Functional Manager and Project Manager
- A matrix organization is a mix of projectized and functional organization
- A matrix organization can take 3 forms:
  - Strong matrix, the project manager has more authority
  - Weak matrix, the functional manager has more authority
  - Balanced matrix, both share an equal power. (Assume for test)

Triple Constraints

- Time, Scope, and Cost (also includes: Quality, Risk, Customer Satisfaction)
- Fast, Good or Cheap (a handy way to remember)
- Affecting any one of the constraints and you risk impacting the others

Project Management Process

IPECC: **I**nitiating, **P**lanning, **E**xecuting, Monitoring and **C**ontrolling, **C**losing

Project Knowledge Areas

Integration, Scope, Time, Cost, Quietly, HR, Communication, Risk, Procurement

Common inputs: Environmental Factors and Organizational Assets
Common Tools: PMIS, Methodologies and Expert Judgment

KNOWLEDGE AREAS	PROCESS GROUPS				
	Initiating (2)	**Planning (21)**	**Executing (7)**	**Monitoring & Controlling (12)**	**Closing (2)**
Integration	Develop Project Charter	Develop Project Management Plan	Direct & Manage Project Execution	Monitor & Control Project Work	Close Project
	Develop Preliminary Project Scope Statement			Integrated Change Control	
Scope		Scope Planning		Scope Verification	
		Scope Definition		Scope Control	
		Create WBS			
Time		Activity Definition		Schedule Control	
		Activity Sequencing			
		Activity Resource Estimating			
		Activity Duration Estimating			
		Schedule Development			
Cost		Cost Estimating		Cost Control	
		Cost Budgeting			
Quality		Quality Planning	Perform Quality Assurance	Perform Quality Control	
Human Resources		Human Resource Planning	Acquire Project Team	Manage Project Team	
			Develop Project Team		
Communications		Communications Planning	Information Distribution	Performance Reporting	
				Manage Stakeholders	
Risk		Risk Management Planning		Risk Monitoring & Controlling	
		Risk Identification			
		Qualitative Risk Analysis			
		Quantitative Risk Analysis			
		Risk Response Planning			
Procurement		Plan Purchases & Acquisitions	Request Seller Responses	Contract Administration	Contract Closure
		Plan Contracting	Select Sellers		

INTEGRATION MANAGEMENT

DEVELOP PROJECT CHARTER

Main Goal: Develop Project Charter – Formally recognizes the project. Project manager's name and roles and responsibilities are documented and approved by the senior management representative (sponsor), hence the project charter gives authority to the project manager.

Key Points:

- Any changes to the project charter needs to be approved by the sponsor

Inputs:

- Contract – If project work is being done for a external customer
- Project Statement of Work – Created by the sponsor, describes the product scope, sponsor's needs and how project fits with strategic plan
- Project Select Process - For this we use ratios like NPV (net present value), IRR (internal rate of return), BCR (benefit cost ratio), Payback period etc. This ensures that the right projects, which are in alignment to the organizational strategy and which will give the maximum benefits within a desired time frame only are selected for execution
  FV n = PV (1+r) ^ n
  PV/DCF = FV/[(1+r)POW n]
  where n - the number of years and r is the percentage of interest.
- Environmental Factors and Organizational Assets

Tools:
Project Selection Methods:

- Benefit measurement – Benefit compared to Cost
- Constrained optimization – Mathematical approach
- PMIS, Methodologies and Expert Judgment

Outputs:
Project charter - It contains;

- Vision statement of the project
- Business case
- Project sponsor name and his/her roles and responsibilities
- Project manager's name and his/her responsibilities
- High level scope of the projects
- Key risks, assumptions and dependencies
- Milestones

DEVELOP PRELIMINARY PROJECT SCOPE STATEMENT

Main Goal: Develop the Preliminary Project Scope Statement. This statement helps to get the PM and the sponsor on the "same page" as it is the first attempt to determine the project's scope – what must be done to accomplish the project objectives.

Key Points:

Inputs:

- Charter
- Project Statement Of Work

Tools:

- Common Tools: PMIS, Methodologies and Expert Judgment

Outputs:

- Preliminary Scope Statement – Contains preliminary info on:
  - Work Breakdown Structure
  - Cost Estimates
  - Schedule milestones
  - Initial Risks
  - Project organization
  - What is and is not in the project
  - Acceptance Criteria
  - Project Requirements

DEVELOP PROJECT MANAGEMENT PLAN

Main Goal: Determine how to plan, manage and control scope, time, cost etc for the project. Develop a project plan that is B.A.R.F.:

- **B**ought into
- **A**pproved
- **R**ealistic
- **F**ormal

Key Points:

- ALL changes have to be ANALYZED and then APPROVED
- What is in the Project Management Plan?
  - PM processes and how they will be applied to the plan
  - How the work will be performed
  - Change Management system for the project (manages all changes to the project, holding version numbers for schedule, scope and other components)
  - How project performance will be monitor and controlled
  - Subsidiary management plans from other knowledge areas

Inputs:

- Project charter and the high level scope statement forms the input for project planning phase from the project initiation phase.
- Project Statement Of Work

Tools:

- PMIS, Methodologies and Expert Judgment

Outputs:

- Project Management Plan
- (Schedule Management Plan)

DIRECT AND MANAGE PROJECT EXECUTION

Main Goal: Integration of all executing processes into one coordinated effort to accomplish the project management plan.

Key Points:

- Deliverables = Completed Work

Inputs:

- Approved Chg Req, Corr Actions, Prevent Action, Defect Repair
- Validated Defect Repair
- Administrative Close Procedures

Tools:

- PMIS, Methodologies and Expert Judgment

Outputs:

- Deliverables
- Work Performance Info
- Implemented the following:
  - Corrective actions
  - Preventative actions
  - Defect Repair
  - Previously approved changes

MONITOR AND CONTROL PROJECT WORK

Main Goal: A control function used to monitor how the project is progressing from Initiation through project closing, used for recommending changes and forecasting.

Key Points:

Inputs:

- PM Plan
- Rejected Chg. Req
- Work Performance Info

Tools:

- PMIS, Methodologies and Expert Judgment
- Earned Value Technique – Technique used to measure project progress and to forecast future project performance.

Outputs:

- Forecasts
- Chg. Requests
- Recommend the following:
    - Corrective Actions
    - Preventative Actions
    - Defect Repair

INTEGRATED CHANGE CONTROL

Main Goal: A control function used to monitor how the project is progressing from Initiation through project closing, used to control changes.

Key Points:

- PM needs to say NO when necessary
- Change Control Board – Team empowered to approve or reject requested changes. May include stakeholders, PM, customer, experts, the sponsor, and others.
- In order to adequately analyze a change, follow this process:
    1. Evaluate a change request (ALWAYS FIRST… ALWAYS)
    2. Create options
    3. Get internal buy-In
    4. Get customer buy-In
- Change To = Get approval from…
    - Charter = Sponsor
    - Baselines or constraints = Management/Sponsor
      Adjustments not accounted for in the plan (ie – The project completion date needs to be extended)
    - Any change within PM Plan = Project Manager
      If adjustments are allowed and the PM has authority to make the change (ie – Crashing, Fast Tracking, Re-estimating, etc)

Inputs:

- PM Plan
- Work Performance Info
- Requested the following:
    - Corrective Actions
    - Preventative Actions
    - Defect Repair

Tools:

- PMIS, Methodologies and Expert Judgment

Outputs:

- Project Management Plan updates
- Approved or Rejected Prevent., Corrective, Defect repair requests
- Validated Defect Repair

CLOSE PROJECT

Main Goal: Finalizes all activities across all process groups to formally close out the project or project phase.

Key Points:

- Always close out a project, no matter the circumstances under which it stops, is completed or is terminated.
- Close Project includes PLANNING of how the project is to be closed out. In all other processes, planning is done under the Planning process group. Administrative and Contract closure procedures is planned as part of the Closing process.

Inputs:

- PM Plan
- Work Performance Info
- Contract Documents
- Deliverables

Tools:

- PMIS, Methodologies and Expert Judgment

Outputs:

- Administrative Closure Procedure
- Contract Closure Procedure
- Final Product
- Updates to Organizational Assets

SCOPE MANAGEMENT

SCOPE MANAGEMENT

Main Goal: Managing the scope of the project. Making sure to give the customer what they asked for, no more, no less. Scope Management involves both managing both Product and Project scope.

Key Points:

- Be careful to note whether questions ask for Product or Project scope
  - Product: Requirements that relate to the product of the project.
  - Project: The work done to deliver the product of the project.
- Scope management plan, like most plans, is iterated in stages and can be changed (if approved by Sponser).
- Scope management means:
  - Constantly checking to make sure you are completing all work
  - Not letting people randomly add to the scope (gold plating)
  - Making sure all changes fit within the project charter
  - Defining and controlling what is and is not included in the project
  - Preventing extra work

Inputs:

- Project Charter
- Preliminary Scope Statement
- Project Statement Of Work
- Environmental Factors and Organizational Assets

Tools:

- Templates
- Forms
- Standards
- Expert Judgment

Outputs:

- Project Scope Management Plan

SCOPE DEFINITION

Main Goal: Define what is or is not included in the project. Elaborates on the Preliminary Scope Statement to address all the stakeholders needs.

Key Points:

Inputs:
Approved Changes
Scope Management Plan

Tools:

- Product Analysis – Turn customer objectives into tangible requirements.
- Stakeholder Analysis – Factor in stakeholders needs, wants and expectations.
- Alternatives

Outputs:

- Project Scope Statement

CREATE WORK BREAKDOWN STRUCTURE

Main Goal: Create a deliverable-oriented, breakdown of the work to be performed. Graphically depicted as a hierarchy of the project.

Key Points:

- Deliverable = Completed Work
- The WBS is VERY important – Need one for every project
- WBS does not show dependencies
- Decomposition is the process of breaking down the project work into smaller, more manageable pieces called work packages that:
    - Can be estimated confidently
    - Cannot be divided further
    - Can be completed quickly
    - Have meaningful conclusion/deliverable
    - Can be completed without interruption
    - Are typically numbered for ease of locating
- Work Packages are further divided into schedule activities
- The decomposition is created with the help of the team
- Includes only work needed to create deliverables
- Work not in the WBS is not in the project
- May utilize Control Accounts. Control Accounts allow you to estimate work at a higher level in the hierarchy, rather than having to estimate each individual work package.

Inputs:

- Scope Statement
- Scope Management Plan
- Approved Changes

Tools:

- Decomposition
- Templates

Outputs:

- Work Breakdown Structure (WBS)
- WBS Dictionary – Details regarding each work package
- Scope Baseline

SCOPE VERIFICATION

Main Goal: Scope Verification is the process of checking the work (project deliverables) against the project management plan and the project scope management plan, WBS and WBS dictionary – then meeting with the customer to get formal acceptance of the deliverables.

Key Points:

- Scope Verification can be done at the end of each phase and during the monitoring and controlling process group.
- Primary focus of Scope Verification is customer acceptance of the deliverables.

Inputs:

- Accepted Deliverables
- Scope Statement
- Scope Management Plan
- WBS+Dictionary
- Schedule Baseline

Tools:

- Inspection

Outputs

- Accepted Deliverables
- Requested Changes
- Recommended Corrective Actions

SCOPE CONTROL

Main Goal: Control the scope and analyzing the impact of scope changes to the other knowledge areas.

Key Points:

- Extremely proactive

Inputs:

- Scope Statement
- Scope Management Plan
- WBS+Dictionary
- Schedule Baseline

Tools:

- Change Control System
- Variance Analysis (better read as “analyze the variances”)
- Replanning (if changes occur)
- Configuration Management System

Outputs:

- Updates to many plans and Scope Statement
- Requested Changes
- Recommended Corrective Actions

TIME MANAGEMENT

ACTIVITY DEFINITION

Main Goal: Defining the work that needs to be done. Continuing to decompose or breakdown the Work Packages into Activities, until they are small enough to be estimated, scheduled, monitored and managed.

Key Points:

- Milestones create at… = are imposed by…
    - Charter / Preliminary Scope Statement = Sponsor
    - Activity Sequencing / Schedule Dev = Project Manager

Inputs:

- Project Statement Of Work
- Project Scope Statement
- WBS + Dictionary
- Project Management Plan
- Environmental Factors and Organizational Assets

Tools:

- Decomposition
- Templates
- Expert Judgment
- Rolling Wave Planning – Summary activities are not planned to the detail needed to manage the work until the start of the project management process for that phase of the project life cycle. AKA – Waiting to define the work until you are about ready to actually do it.

Outputs:

- Activity List + Attributes – Definition of the activities and the details of the activities being completed.
- Milestone List – Significant events within the project schedule. is a rolled up schedule, which will show only the major milestones. A project manager uses a milestone chart to communicate the project status to necessary stakeholders.
- Requests for Changes

ACTIVITY SEQUENCING

Main Goal: Sequence the work to be performed into a logical order.

Key Points:

- In its pure form, a network diagram shows dependencies.
- Adding duration estimates could also show the critical path.
- Dummy shows task dependencies, represented by a dotted line, but does not indicate work or time. Dummies = dependencies ONLY

Inputs:

- Approved Changes
- Scope Statement

Tools:

- Dependency Determination:
    - Mandatory or Hard logic - are dependencies on which the project manager do not have any say.
    - Discretionary or soft logic - are dependencies on which the project manager has a say
- Leads - starting an activity before its predecessor finishes (Getting a head start on the next activity.)
- Lag – delaying a subsequent activity after its predecessor finishes (Don't construct the building until the new concrete has hardened.)
- PDM, ADM – Choosing a diagram
- Templates

Outputs:

- Project Schedule Network Diagram
    - Precedence-Diagramming-Method (PDM) or Activity-On-Node (AON) – Most common diagram used:
        - Four relationships = F-S, S-F, S-S and F-F
        - No Dummies
        - Boxes = Tasks, Arrows = Dependencies
    - Arrow-Diagramming-Method (ADM) or Activity-On-Arrow (AOA)
        - One relationship = F-S
        - Has Dummies
        - Nodes = Dependencies, Arrows = Tasks

ACTIVITY RESOURCE ESTIMATING

Main Goal: Determine the type and quantity of the resources needed.

Key Points:

- Uses the WBS and Dictionary to determine the resources needed

Inputs:

- Resource Availability
- Activity List and Attributes

Tools:

- Alternative Analysis
- Published Estimating Data
- Bottom-Up Estimating – Using the team to estimate the work at the activity level, then moving up the WBS structure to ultimately arrive at the total estimate for the entire project.

Outputs:

- Resource Breakdown Structure (RBS) – List of resources organized into a hierarchy, to show the breakout of the different resources needed by the resource category and type.
- Resource Requirements – Simple list of the resources and how many are needed for each activity.
- Req Changes

ACTIVITY DURATION ESTIMATING

Main Goal: Determine how long each activity will take to complete.

Key Points:

Inputs:

- Environmental Factors and Organizational Assets
- Activity Duration Estimates
- Resource Requirements
- Project Management Plan:
    - Risk Register
    - Activity Cost Estimates

Tools:

- Expert Judgment
- Estimating Methods:
    - Analogous Estimating – (expert judgement) Using past projects to estimate what a similar project will cost
    - Parametric – Uses historical records (metrics) to calculate how much time it will take to complete the project:
        - Regression Analysis (scatter diagram) – Tracks two variables to see if they are related and is used to future estimating.
        - Learning Curve – 100th room painted will take less time than the first, because of improved efficiency.
    - Reserve Analysis
        - Contingency – Used for addressing risks after response
        - Management – Used to provide protection for unforeseen risks
    - 3-Point Method

Dist Triangle	Mean	(M+O+L)/3
	Std Deviation	(P-0)/3
PERT	Mean	(4M+O+L)/6
	Std Deviation	(P-0)/6

Outputs:

- Activity Duration Estimates
- Activity Attribute Updates

SCHEDULE DEVELOPMENT ***(this one is a long one!)***

Main Goal: Putting the activities into a calendar-based schedule.

Key Points:

- ES and EF = Early Start and Early Finish
- LS and LF = Late Start and Late Finish
- Critical Path
  - Longest path in the network or shortest time in which the project can be completed (zero float) – Can be multiple critical paths.
  - Determining critical path
    - Forward pass determines Early figures (ES and EF)
      (Will use example of 3 for all activity durations)
      First Activity
      Start at the first node, its ES is 0 = 0
      Add est. activity duration to reach EF = 3
      Second Activity (move forward in diagram)
      Take the EF value from Activity 1 and transfer to the next activities ES value = 3
      Add est. activity duration to reach EF = 6
      Continue to next activity
    - Backward pass determine Late Figures (LS and LF)
      Start at the Last node, its LS is the same as the ES value of the activity(ex. ES = 9) = 9
      At the Last node, its EF is the same as the LF value of the activity (ex. ES = 12) = 12
      Predecessor Activity (moving backward in diagram)
      Take the LS value from Last Activity and transfer to its predecessors LF value = 9
      Subtract this activities est. activity duration to reach the LS value (ex. Duration est = 3) = 6
      Predecessor Activity (moving backward again)
      Take the LS value from the previous Activity and transfer to its predecessors LF value = 6
      Subtract this activities est. activity duration to reach the LS value (ex. Duration est = 3) = 3
      Continue to next activity
  - The critical path CAN run over a dummy
  - Near-critical path = any path impacted by change to crit. path
- Float / Slack
  - Float and Slack are the same thing
  - To determine Float:
    LS-ES or LF-EF
  - Total Float is the amount of time an activity can be delayed, without affecting the project's end date.
  - Free Float is the amount of time an activity can be delayed, without affecting the next activity.
  - Project Float is the amount of time a project can be delayed, without affecting an externally imposed end date.

Inputs:

- Project Scope Statement
- Defined Activities
- Network Diagram
- Activity Resource Estimates
- Activity Duration Estimates

Tools:

- Schedule Network Analysis:
  - Critical Path Method
    - Sets minimum project duration and finish date
    - Uses buffers for flexibility (amount of float)
    - Uses Early Start, Late Start, Early Finish, Late Finish
  - Schedule Compression – Adjusting the project to account for completion dates that are not possible to meet or to bring a project back into line when it falls out of control (off baselines)
    - Fast tracking - The process of performing tasks in parallel – typically causes rework
    - Crashing - The process of reducing the duration of a task by deploying more resources – typically causes more $$$ or time
    - What-If Scenarios (Monte Carlo) – Probability of completing the project on any specific day, on any specific cost. Probability of activity being on critical path. Project risk.
  - Resource Leveling – Produce resource limited schedule
  - Crit. chain method – Diagram using the most likely estimates.

Outputs:

- Project Schedule (Bar Charts, Milestone Charts
- Schedule Baseline

SCHEDULE CONTROL

Main Goal: Measure project schedule using schedule baseline and schedule management plan. Make requested changes and corrections as necessary.

Key Points:

- Adjust future parts of the project to account for delays, rather than ask for more time.

Inputs:

- Schedule Management Plan
- Work Performance Info
- Approved Changes
- Schedule

Tools:

- Progress Reporting
- Schedule Change Control System
- Performance Measurements
- Project management software (PMS)
- Variance Analysis

Outputs:

- Performance Measurements
- Requested Changes
- Recommend corrective actions

COST MANAGEMENT

- **50/50 rule** - A task is considered 50% complete when it begins and gets credit for the last 50%, only when it is completed.
- **20/80 rule** - A task is considered 20% complete when it begins and gets credit for the last 80% only when it is completed.
- **0/100 rule** - A task does not get credit for partial completion, only for full completion.

COST ESTIMATING

Main Goal: Estimate cost for each activity.

Key Points:

- What is estimated? - Quality efforts, Risk efforts, Project Manager's time, Costs of Project Management activities
- Direct and Indirect Costs
    - Direct: Costs directly associated with project (ex. Man hours, costs per sq foot, etc.)
    - Indirect: General business overhead (ex. Salaries of management, office bills, etc.)
- Accuracy of Estimates – The level that the estimates are accurate. As the project progresses and becomes more defined, the estimates will become more accurate:

1.	Rough Order of Magnitude	=	-50	to	+100%
2.	Order of Magnitude	=	-25	to	+75%
3.	Budget Estimate	=	-10	to	+50%
4.	Definitive estimate	=	-5	to	+10%

Inputs:

- Control Account
- WBS + WBS Dictionary
- Project Scope Statement
- Project Management Plan (Schedule, Staff plans and Risk Register)
- Project Statement Of Work
- Environmental Factors and Organizational Assets

Tools:

- Cost of Quality
- Analogous Estimating – (expert judgement) Using past projects to estimate what a similar project will cost
- Bottom-Up Estimating - Using the team to estimate the work at the activity level, then moving up the WBS structure to ultimately arrive at the total estimate for the entire project.
- Parametric – Uses historical records (metrics) to calculate how much time it will take to complete the project:
    - Regression Analysis (scatter diagram) – Tracks two variables to see if they are related and is used to future estimating.
    - Learning Curve – 100th room painted will take less time than the first, because of improved efficiency.
- Reserve Analysis
    - Contingency – Used for addressing risks remaining response
    - Management – Used to provide protection for unforeseen risks
- Life Cycle Costing – Looking at the cost of the whole life of the product, not just the cost of the project.
- Value Analysis – Finding ways to do the same work for less.
- Cost Risk – Who has the most risk given a type of contract? More in the risk section

Outputs:

- Activity Cost Estimates
- Cost Management Plan

COST BUDGETING

Main Goal: Developing a budget to manage and control the project, and determine whether the project is on track to be completed.

Key Points:

- Roll-up any costs and include the reserves to reach final budget

(Example:)

1. Activities-($80 activity = $80)
2. Work packages-(Additional 1 activities @ $20/per = $100)
3. Control Account-(Additional 2 packages @ $30 per = $160)
4. Project-(Additional 1 acct @ $40 per = $200)
5. Contingency Reserves-($50 reserve = $250)
6. Cost Baseline-(Total so far = $250 = $250)
7. Management Reserve-($20 reserve = $270)
8. Cost Budget-(End total = $270)

Inputs:

- Activity Cost Estimates
- Schedule Baseline

Tools:

Outputs:

- Cost Baseline
- Project Funding Requirements- Planned cash flow.

COST CONTROL

Main Goal: Analyzing costs and keeping project on track.

Key Points:

- Negative numbers are bad (-3)
- Positive numbers are good (+10)
- Low numbers are bad (10%)
- High numbers are good (95%)

Inputs:

- Performance Reports, Approved Changes
- Cost Management Plan
- Funding reqs
- Cost Baseline

Tools:

- Cost Change Control System
- Performance Measurement Analysis / Earned Value Technique
  - CV
  - SV
  - CPI
  - SPI
- Calculations:

Cost Variance	EV-AC
Schedule Variance	EV-PV
Cost Index	EV/AC
Schedule index	EV/PV
Estimate To Complete	EAC-AC
Estimate At Complete	BAC/CPI
	AC+ETC
	AC+(BAC-EV)
	AC+(BAC-EV)/CPI

Outputs:

- Forecasted Completion:
  - Estimate At Completion (EAC)
  - Estimate To Completion (ETC)
- Performance Measurements
- Requested Changes and Corrective Actions

QUALITY MANAGEMENT

“Quality is the degree to which the project fulfills requirements…”

Key Points:
The project manager has the ultimate responsibility for the quality of the product

Theorists:

- Deming
  - “85% of cost of quality is in management’s control and is management’s responsibility”
  - Plan-Do-Check-Act

- Juran
  - Developed 80/20 rule – 80% issues caused by 20% root causes.

- Crosby
  - Prevention over Inspection (zero defects) – Conformance

QUALITY PLANNING

Main Goal: Take existing quality standards and determine how the project can meet them.

Key Points:

- Eliminate GOLD PLATING (adding unauthorized extras to the project)

Inputs:

- Project Scope Statement
- Project Management Plan
- Project Statement Of Work
- Environmental Factors and Organizational Assets

Tools:

- Cost-Benefit Analysis
- Benchmarking
- Design of Experiments (DOE) – Experimenting with different combinations of variables to see which improves quality.
- Cost of Quality – Cost of work added to the project to ensure quality:
    - Conformance
        - Costs include: Quality training, studies and surveys
    - Non-Conformance
        - Typically costs more
        - Costs include: rework, scrap, costs to inventory/warranty

Outputs:

- Quality Management Plan
    - Standards
    - Who manages quality
    - Meetings
    - Reports
    - Metrics
    - Deliverables to be measured
- Quality Metrics – Used to ensure compliance with all standards
- Quality Checklists – Used to inspect for quality
- Process Improvement Plan – Plan to improve processes
- Quality Baseline

PERFORM QUALITY ASSURANCE

Main Goal: Determining whether standards are being met, continuously improve the work and correcting defects.

Key Points:

-

Inputs:

- Quality Management Plan
- Quality Metrics
- Process Improvement Plan
- Work Performance Info
- Approved Change Requests
- Quality Control Measurements
- Implemented Changes Requests, Defect Repairs, Corrective and Preventative Actions

Tools:

- Quality Audits
- Process Analysis

Outputs:

- Requested Changes
- Recommended Corrective Actions

PERFORM QUALITY CONTROL

Main Goal: Determine the correctness of the work, using inspection.

Key Points:

- Population/Sample-Whole/Part-Determine how much to inspect
- Probability – The likelihood that something will occur
- Normal Distribution–(Bell Curve) Chart used to measure variations
- Just in time - Approach to decrease the amount of inventory a company carries, by synchronizing supply to the planning and control
- Standard Deviation – A measure of a range is its standard deviation, or how far you are from the MEAN. Typically uses Sigma levels:
  +/- 1 sigma = 68.26%
  +/- 2 sigma = 95.46%
  +/- 3 sigma = 99.73%
  +/- 6 sigma = 99.99%

Inputs:

- Work Performance Info
- Quality Metrics – Used to ensure compliance with all standards
- Quality Checklists – Used to inspect for quality
- Process Improvement Plan – Plan to improve processes
- Quality Baseline

Tools:

- Seven Basic Tools of Quality:
  - Cause and Effect Diagram (fishbone or Ishikawa)
  - Flowcharting – How a process flows from beginning to end
  - Pareto Chart (Histogram) – 80/20 rule – 80% of all issues stem from 20% of root causes
  - Run Chart – Viewing history to see if variation patterns exist
  - Scatter Diagram – Tracks 2 variables to see if they are related
    - Control Charts – Used to determine if process is within acceptable limits. Uses 3 and 6 sigma for upper/lower limits
    - MEAN line shows the middle of acceptable variation
    - Out of control states a data point falls outside defined limits
    - Rule of Seven states if 7 consecutive data points fall on one side of MEAN, it is not random and is out of control

Outputs:

- Quality Control Measurements
- Validated Deliverables and Defect Repair
- Quality Baseline updates
- Recommended Changes and Corrective Actions

HUMAN RESOURCES MANAGEMENT

Human resource planning involves forecasting of human resource requirements and devising strategies for getting the human resources on board as and when required.

Powers of a PM

1. Reward (Best)
2. Expert (Best)
3. Penalty (Worst)
4. Referent
5. Formal
6. Representative

Theorists

Maslow's hierarchy of needs:

1. Physiological
2. Safety
3. Social
4. Esteem
5. Self actualization

Herzberg's theory:

1. Hygiene factors
2. Motivating agents

Stages of team formation

1. Forming
2. Storming
3. Norming
4. Performing

Leadership styles

- Directing
- Facilitating
- Coaching
- Supporting
- Autocratic
- Consultative
- Consensus

HUMAN RESOURCE PLANNING

Main Goal: Making sure roles and responsibilities are clear.

Key Points:

- RAM – Responsibility Assignment Matrix – Does not show time (when the person will do their jobs)

Inputs:

- Resource Requirements
- Project Management Plan
- Project Statement Of Work
- Environmental Factors and Organizational Assets

Tools:

- RAM
- RBS
- Organizational Charts and Position Descriptions
- Organizational Breakdown Structure
- Position descriptions

Outputs:

- Roles and responsibilities (RAM chart)
- Project Organizational Charts
- Staff Management Plan
    - Resource Histogram
    - Recognition and Rewards plan

ACQUIRE PROJECT TEAM

Main Goal: Read as “acquire Final project team”

Key Points:

Inputs:

- Roles and responsibilities (RAM chart)
- Project Organizational Charts
- Staff Management Plan
- Environmental Factors and Organizational Assets

Tools:

- Pre-assignment – Resources are pre-assigned
- Negotiation – Negotiate for existing resources
- Acquisition – Hire additional resources
- Virtual Teams – Team members are not face to face

Outputs:

- Project Staff Assignments
- Resource Availability

DEVELOP PROJECT TEAM

Main Goal: Developing the team to improve individual skills, improve teamwork and reduce turnover.

Key Points:

- How to Develop Team

Inputs:

- Project Staff Assignments
- Resource Availability

Tools:

- General Management Skills
- Team building activities
- Training
- Ground rules
- Recognitions and Rewards
- Co-Locating team members
- Assess team member performance

Outputs:

- Team Performance Assessment

MANAGE PROJECT TEAM

Main Goal: Measuring team member performance.

Key Points:

- Conflict root causes:
    - Schedules
    - Project priorities
    - Resources
    - Technical opinions
    - Administrative procedures
    - Cost
    - Personality (Not considered a main source of conflict)

Inputs:

- Work Performance Information
- Team Performance Assessment

Tools:

- Issue Log
- Observation and Conversation
- Project Performance Appraisals – Appraising individual performance
- Team Performance Assessment – Appraising team's effectiveness
- Conflict Management
    1. Confront (Problem Solving) = Solve the problem = Win / Win
    2. Compromise = Each side gives up something = Lose / Lose
    3. Withdrawal = Avoid finding a solution
    4. Smoothing = Emphasize agreement
    5. Forcing = Push a decision

Outputs:

- Request for changes
- Recommended corrective actions
- Updates

COMMUNICATIONS MANAGEMENT

COMMUNICATIONS PLANNING

Main Goal: Identifying the information and communications needs of the stakeholders.

Key Points:

- Sender (Encoder)
- Receiver (Decoder) – ultimately responsible for understanding the message
- 55% of all communications are non-verbal

Inputs:

- Project Statement Of Work
- Project Scope Statement
- Project Management Plan
    - Constraints and Assumptions
- Environmental Factors and Organizational Assets

Tools:

- Communications Requirements Analysis
- Communications methods
    - Determine number of communication lines

      N (N - 1) / 2

Outputs:

- Communications Management Plan – Document that shows how to manage and control communications.

INFORMATION DISTRIBUTION

Main Goal: Implementing the communication management plkan along all communication channels.

Key Points:

Inputs:

- Communications Management Plan
- Performance Reports

Tools:

- Communications Skills
- Information Gathering and Retrieval Systems
- Information Distribution Methods
- Lessons Learned Process
-

Outputs:

- Requested Changes
- OPA updates

PERFORMANCE REPORTING

Main Goal: Creating and sending performance reports to stakeholders.

Key Points:

- Performance Reporting vs Information Distribution = Info Dist is the process of distributing ALL general information, whereas Perf Reporting is focused on collecting and reporting on project activities.

Inputs:

- Work Performance Info
  - Status reports
  - Progress reports
  - Trend report
  - Forecasting report
  - Variance report
  - Earned Value
  - Lessons Learned
- Performance Measurements
- Quality Control Measurements

Tools:

- Status Review Meetings - Rules for meetings:
  - Set a time limit and keep to it
  - Schedule meeting in advance
  - Meet with team regularly
  - Have a purpose
  - Create an agenda beforehand
  - Stick to the agenda
  - Let people know their responsibilities in advance
  - Bring the right people together
  - Chair and lead the meeting with a set of rules
  - Assign deliverables and time limits for all work
  - Document and publish meeting minutes
- Time and Cost Reporting Systems

Outputs:

- Performance Reports
- Forecasts
- Requested changes, corrective actions and updates

MANAGE STAKEHOLDERS

Main Goal: Address Stakeholder needs and resolve their issues.

Key Points:

-

Inputs:

- Communications Management Plan

Tools:

- Communications Methods
- Issue Logs

Outputs:

- Resolved Issues
- Approved Change Requests and Approve Corrective Actions
- Updates

RISK MANAGEMENT

RISK MANAGEMENT PLANNING

Main Goal: Define how risk process will be structured and performed for the project.

Key Points:

- Threats – any event that negatively impacts a project
- Opportunities – Any event that positively impacts a project
- Uncertainty – Lack of knowledge about an event that reduces confidence in conclusions drawn from data
- Risk Factors
    - Probability that it will occur
    - Range of possible outcomes
    - Expected timing in the project life cycle
    - Anticipated frequency of risk events from that source
- Risk Tolerances – Areas of risk that are acceptable or unacceptable
- Thresholds – Amount of risk that is acceptable.
-

Inputs:

- Project Statement Of Work
- Project Scope Statement
- Project Management Plan
- Environmental Factors and Organizational Assets

Tools:

Outputs:

- Risk Management Plan
    - Methodology – How to perform risk management
    - Roles and responsibilities – Who will do what
    - Budgeting
    - Timing
    - Risk Categories
    - Definitions of probability and impact
    - Stakeholder tolerances
    - Reporting formats
    - Tracking
- Risk Categories

RISK IDENTIFICATION

Main Goal: Risks are identified.

Key Points:

- EVERYONE is involved in risk identification.

Inputs:

- Risk Management Plan
-

Tools:

- Document Reviews
- Information gathering techniques
    - Brain Storming
    - Delphi Technique (remote experts)
    - Interviewing
    - Root Cause Analysis
    - Strengths, weaknesses, opportunities and threats (SWOT)
- Checklist Analysis
- Assumptions Analysis
- Diagramming Techniques (flowcharts, cause and effect, etc)

Outputs:

- Preliminary Risk Register – Maintains most risk information
    - Lists of risks
    - List of potential responses
    - Root causes of risks
    - Updated risk categories

QUALITATIVE RISK ANALYSIS

Main Goal: Establish risk probability and rating.

Key Points:

-

Inputs:

- Risk Management Plan
-

Tools:

- Risk Probability and Impact Assessment
- Probability and impact matrix
- Risk Data Quality Assessment
- Risk Categorization
- Risk Urgency Assessment

Outputs:

- Risk Register Updates
    - List of prioritized risks and their probability and ratings
    - Risks group by categories
    - List of risks requiring additional analysis and response
    - Watchlist (non-critical risks to be monitored)
    - Trends

QUANTATIVE RISK ANALYSIS

Main Goal: Numerical analysis of the probability and impact of the highest risks on the project.

Key Points:

- RISK ASSESSMENT = Risk ID through Quantitative risk analysis
- Determine the following:
    - Which risk events warrant a response
    - Overall project risk (risk exposure)
    - Quantified probability of meeting project objectives
    - Cost and schedule reserves
    - ID risks requiring the most attention
    - realistic and achievable cost, schedule and scope targets

Inputs:

- Risk Management Plan

Tools:

- Determining Probability and Impact:
    - Interviewing
    - Cost and time estimates
    - Delphi Technique
    - Historical records
    - Expert judgment
    - EMV analysis
      Probability X Impact = EMV
    - Monte Carlo analysis
    - Decision Tree

Outputs:

- Risk Register Updates
    - Prioritized list of quantified risks
    - Probability of achieving time and cost objectives
    - Amount of contingency time and cost reserves
    - Trends in quantified risk analysis

RISK RESPONSE PLANNING

Main Goal: Plans to mitigate or eliminate negative risks, or enhance or exploit opportunities.

Key Points:

- Most important subject to address in meetings = RISK
- Responses include:
  - Eliminate risks before they happen
  - Decrease probability and/or impact of threats
  - Increase probability and/or impact of opportunities
- For remaining or residual risks:
  - Contingency plans
  - Fallback plans if contingencies fail

Inputs:

- Contingency Plans

Tools:

- Contingent Risk Response Strategies (risk mitigation strategies)
  Negative Risk response strategies
  - Acceptance
  - Avoidance – Eliminate threat
  - Mitigation – Reduce impact
  - Transference – Make another party responsible (ie warranty, insurance, guarantees, etc)

  Positive Risk response strategies
  - Acceptance
  - Exploit – Making sure opportunity occurs
  - Enhanced - Increase likelihood
  - Share – Allocate ownership to a third party

Outputs:

- Risk Register Updates
  - Risk Response Owners
  - Secondary Risks
  - Risk Triggers
  - Contracts
  - Residual Risks and Contingency Plans
  - Fallback Plans and Reserves

MONITOR AND CONTROL RISK

Main Goal:

Key Points:

- Risk Identification is done during RISK ID and RISK MONITORING AND CONTROL

Inputs:

- Risk Management Plan
- Risk Register
- Performance Data
- Approved Changes

Tools:

- Risk Audits
- EMV
- Risk Assessments
- Variance and Trend Analysis
- Reserve Analysis
- Status Meetings

Outputs:

- Requested Changes and Csorrective Actions
- Risk Register Updates

PROCUREMENT MANAGEMENT

General Rules:

- Contracts require formality
- All product and project management requirements should be stated in the contract
- If it is not in the contract, it can only be done if a change is issued
- If it is in the contract, it must be done or a change order, signed by both parties, is issued
- Changes must be in writing
- Contracts are legally binding
- Contracts should help diminish project work
- Most governments back all contracts by providing a court system for dispute resolution
- Project manager must be assigned before a contract is signed

PLAN PURCHASE AND ACQUITITIONS

Main Goal: What goods and services are needed for this project?

Key Points:

Inputs:
- Environmental Factors and Organizational Assets
- Project Statement Of Work
- Project Scope Statement
- Work Breakdown Structure + Dictionary
- Project Management Plan
    - Risk Register, Risk contracts, Resource reqs, Project Schedule, Activity Cost Estimates and Cost Baseline

Tools:
- Make-or-buy analysis
- Contract Types
    - Cost Reimbursable / Cost Plus - Sellers cost is reimbursed
        - Most risk to the Customer
        - Use if scope is not formed/need expert help
        - Total price unknown
    - Time and Materials – Price per unit
        - Risk is shared
        - Quick to create/easy to understand
    - Fixed Price – Lump sum or fixed price
        - Most risk to the seller
        - Use if scope is well defined
        - Simplest fixed price contract = Purchase Order

Outputs:
- Procurement Management Plan
- Contract Statement of Work – A clear, concise, and complete document that describes all the work the seller is required to complete
- Make or Buy Decisions

PLAN CONTRACT

Main Goal: Preparing procurement documents that will be sent to prospective sellers.

Key Points:

Inputs:
- Procurement Management Plan
- Contract Statement of Work

Tools:
- Standard Forms / Contracts – Pre-authorized contracts for the purchasing of goods or services
- Special Provisions (special conditions)
- Terms and Conditions – Describes details of the agreement

Outputs:
- Evaluation Criteria – Provide seller understanding of the buyers needs
- Procurement Documents
    - Request for Proposal – Requests price and detailed plan
    - Invitation for Bid – Request one price for the work defined
    - Request for Quotation – Requests a price quote per unit

REQUEST SELLER RESPONSE

Main Goal: Send procurement documents to sellers.

Key Points:

-

Inputs:

- Procurement Management Plan
- Procurement Documents
- Environmental Factors and Organizational Assets

Tools:

- Bidder conferences
    - Make sure all questions are answered
    - Make sure all answers are distributed to all sellers
    - Look for collusion between sellers
- Advertising
- Develop Qualified Sellers List

Outputs:

- Qualified Sellers List
- Procurement Documents Package – Complete package sent to seller
- Proposals or Bids – Sellers response to request for proposals or bids

SELECT SELLERS

Main Goal: Receive and review the proposals and select a seller.

Key Points:

- Obtain a fair and reasonable price
- Develop a good relationship with the seller

Inputs:

- Proposals
- Evaluation Criteria and Metrics

Tools:

- Weighting system – Evaluation the criteria based on in house priorities
- Independent Estimates – Creating an inhouse estimate to compare to sellers
- Screening system – Helps eliminate sellers that do not meet min reqs
- Contract Negotiation – see key points
- Proposal Evaluation Techniques

Outputs:

- Selected Sellers List
- Contracts
    - Agreement between both parties
    - To have a legal contract, you need (CCOLA):
        - Consideration – something of value
        - Capacity- authorized, legal parties
        - Offer
        - Legal purpose – not illegal
        - Acceptance
- Contract Management Plan
- Resource Availability

CONTRACT ADMINISTRATION

Main Goal: Assuring that the performance of both parties to the contract meets contractual agreements.

Key Points:

- How a project is different in a contracted environment:
    - Need to deal with different companies set of procedures
    - Not as easy to "see" problems
    - Greater reliance on reports to determine if problem exists
    - Greater reliance on relationships with sellers project mngr

Inputs:

- Invoices
- Performance reports and work performance information
- Approved changes
- Selected Sellers List
- Contracts
- Contract Management Plan

Tools:

- Contract Change Control System
- Buyer conducted performance review – meeting to determine if seller is meeting performance expectations
- Inspections and audits – buyer inspects seller to see if they are fulfilling their contractual agreements
- Performance reporting – sellers reports to buyer
- Payment system – How will invoices be paid
- Claims administration – Address claims that buyer did something to adversely affect the seller and seller is seeking compensation
- Records Management System – filing all contract files

Outputs:

- Contract Documentation
- Requested Changes and Corrective Actions
- Payments

CONTRACT CLOSURE

Main Goal: Tying up all loose ends of the contract.

Key Points:

- Contract closure occurs FIRST, then administrative closure.
- Contract closure is done when:
    - A contract ends
    - Contract is terminated before the work is completed
- Contract vs Administrative closure:
    - Contract closure – Closed first. A contract can only be closed once. Contract must be closed before project is closed. Uses procurement audit.
    - Administrative closure – Can be done at the end of a phase or end of a project. Uses lessons learned.

Inputs:

- Contract Documentation
- Requested Changes and Corrective Actions
- Payments
- Selected Sellers List
- Contracts
- Contract Management Plan

Tools:

- Procurement audit – structured review of the procurement process (like lessons learned for contracts)
- Records Management System

Outputs:

- Closed Contracts
    - Formal Acceptance/Signoff
    - Contract Filed

…End of knowledge areas.

Calculations To Memorize (use this side to test yourself)

COMMUNICATIONS

Lines of communications		N(N-1)/2

ESTIMATING

3-Point Methods

Dist Triangle	Mean	(M+O+L)/3
	Std Deviation	(P-0)/3
PERT	Mean	(4M+O+L)/6
	Std Deviation	(P-0)/6

COST

Cost Variance	EV-AC
Schedule Variance	EV-PV
Cost Index	EV/AC
Schedule index	EV/PV
Estimate To Complete	EAC-AC
Estimate At Complete	BAC/CPI
	AC+ETC
	AC+(BAC-EV)
	AC+(BAC-EV)/CPI

RISK

Expected Monetary Value (EMV)	P x I = EMV

SCHEDULING

Float/Slack

Forward Pass	LS – ES
Backward Pass	LF – EF

PROCUREMENT

Make or Buy (uses variable) for a lease

Example D=Day → $120D = $1000 + $10D → Day = $10

- $10D = ~~$10D~~

$100D = $1000

~~$100~~D = /$100

D = $10

Plans and Statements Review

Project Statement Of Work

General Description

- Description of the products or services the project is to create

What is in the Project Statement of Work?

- Business Need
- Product scope description
- Strategic Plan

Project Charter

General Description

- Issued by the sponsor
- Created in the initiating process group
- Broad enough so it does not need to change as the project changes
- Formal recognition of the project
- Gives the project manager authority
- Provides the high-level requirements for the project
- Links the project to the ongoing work of the organization

What is in the Project Charter?

- Project Title
- Project description
- Initial scope
- Initial resources
- Initial assumptions and constraints
- Project manager name and authority level
- Project justification or business case
- Objectives or goals (SMART)
  Specific, Measureable, Agreed, Realistic, Timebound
- Product description
- Possibly a budget estimate
- Signature

Preliminary Scope Statement

General Description:

- Established between the PM and the Customer.
- High-Level view of the project's estimated scope

What is in the Preliminary Scope Statement?
Preliminary information, such as:

- Project and product objectives
- Product acceptance criteria
- Product deliverables
- Constraints and Assumptions
- Initial project organization
- Initial risks
- Milestones
- Initial Work Breakdown Structure
- Order of Magnitude cost estimates

Project Management Plan

General Info:

- Describes how to plan, manage and control scope, time, cost etc for the project.
- Plan must be (B.A.R.F.)
  - **B**ought into
  - **A**pproved
  - **R**ealistic
  - **F**ormal

What is in the Project Management Plan?

- Project Charter
- Baselines for cost, quality, schedule and scope
- Scope statement
- WBS
- Cost estimates, schedule and responsibility for each deliverable
- Performance measurement baselines
- Milestones with target dates
- Staff requirements with cost estimates
- Risk Register
- Management plans for scope, schedule , accost, quality, communications, risk, and procurement
- Issues

Scope Management Plan

General Description:

- Used to guide and measure the project
- Formulated in stages or iterated

What is in the Scope Management Plan?

- Description on how the scope will be planned
- How the scope will be executed and controlled
- How it will be changed

Project Scope Statement

General Description:

- Used to manage and measure project performance

What is in the Project Scope Statement?

- The project goals and objectives
- Product scope description
- The project requirements and boundaries
- The project deliverables
- Project acceptance criteria and assumptions
- Milestones
- Cost estimates
- Project specifications
- Approval requirements
- Initial project organization
- Initially defined risks

Schedule Management Plan

General Description:

- Not listed as part of the Time/Planning process
  Need to imagine it exists for the exam
- Describes how changes to the schedule will be handled
- Can be formal or informal
- Is part of the Project Management Plan

Cost Management Plan

General Description

- Not listed as part of the Cost/Planning process
  Need to imagine it exists for the exam
- Validation of any cost constraints assigned to the project
- Establishment of cost baseline for measuring against
- Identification of performance measures
- Planning for how cost variances will be managed
- Identification of cost change control procedures

Quality Management Plan

General Description:

- Plan for managing and controlling quality.

What is in the Quality Management Plan?

- Standards
- Who manages quality
- Meetings
- Reports
- Metrics
- Deliverables to be measured

Staffing Management Plan

General Description:

- Describes when and how team members will be added to and relieased from the project
- Plans for the development of team members

What is in the Staffing Management Plan?

- How staff will be managed
- The timetable for adding staff using a resource histogram
- When and how resources will be released from the project

Communications Management Plan

General Description:

- Documents how you will manage and control communications.

What is in the Communications Management Plan?

- Stakeholder communications requirements
- Distribution plan of who will get the information and in what form
- Description of the information to be communicated
- Schedule outlining when each type of communication will be created
- Means to access and update previously published information
- Escalation process for issues not resolved at lower levels
- Guidelines for meetings and email

Risk Management Plan

General Description:
Addresses how risks will be managed overall

What is in the Risk Management Plan?

- Methodologies
- Roles and responsibilities
- Budgeting
- Timing
- Risk Categories
- Definitions of risk probability and impact
- Probability and impact matrix
- Revised stakeholder tolerances
- Reporting formats
- Tracking

Risk Register

General Description:

- Document listing most risk information
- Summarizes risks and their management

What is in the Risk Register?

- Identified Risks, including assumptions
- Potential responses
- Root causes, the conditions, events or triggers
- Updated risk categories as new categories become known

Procurement Management Plan

General Description:

- Describes how the procurement process will be planned, managed and executed

What is in the Procurement Management Plan?\

- Contract Types
- Responsibility for creating independent estimates
- Responsibilities of the PM team versus the procurement, contracting or purchasing organization
- Procurement documents to be used
- Procedure for managing multiple vendors
- Integration of procurement with other processes
- Constraints and assumptions
- Incorporating procurement lead times into the schedule
- Process for handling make or buy decisions
- Coordinating contract Dates and deliverables with the project schedule
- Mitigating some project risk through performance bonds or insurance
- Outlining requirements for a contract work breakdown structure
- Determining the format for the contract statement of work
- Identifying list of prequalified sellers
- Establishing metrics to be used to evaluate and mange sellers

Contract Statement of Work

General Description:

- Based on the project scope statement, the contract statement of work describes what work is to be completed under the contract by the seller
- Must be clear, concise and complete as possible

I hope you enjoyed and found this study guide useful. If you update this document, please forward a copy to my email address:
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