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PMP® CANDIDATE
Quick Reference Study Guide
aka Cheat Sheet based upon
PMI® - Process Groups: A Practice Guide
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Foundation Key Concepts						
Project Management Business Value	Application of knowledge, skills, tools, & techniques to project activities to satisfy project requirements The entire value of the business; the total sum of all tangible and intangible elements					
Project Program Portfolio Process Phases Phase/Exit Gate or Kill Point	Temporary endeavor undertaken to create a unique product, service, or result Group of related projects, subprograms, and program activities managed in a coordinated way to obtain benefits not available from managing them individually Projects, programs, sub portfolios and operations managed as a group to achieve strategic objectives Systematic series of activities; total of 49 processes with inputs, tools & techniques, and outputs to create one or more outputs Group of project activities that culminates in the completion of one or more deliverables A review / decision to continue to the next phase, to continue with modification, or to end the project or program					
Product Life Cycle Project Life Cycle Phase Life Cycles Progressive Elaboration Baseline	Series of phases that represent the evolution of a project from concept through delivery, growth, maturity, and to retirement Series of phases that a project passes through from its initiation to closure Predictive = plan-driven Iterative / Incremental = functionality-driven Adaptive / Agile = change-driven Continuously improving and detailing a plan as more detailed info becomes available as the project progresses (Iterative) Approved plan +/- all approved changes (Scope-Schedule-Cost)					
Deliverable Operation Triple Constraint Methodology System PM Skills	Tangible or intangible product or service produced as a result of a project On-going execution of activities (repetitive day-to-day); used to run regular business models; permanent in nature Combination of the three most significant restrictions on any project: scope, schedule and cost; sometimes referred to as the project management triangle or the iron triangle; quality is affected by all three constraints An organizations specific implementation of project processes; a set of steps to manage a project Set of formal management procedures; rules, processes, people, etc.. That support an outcome Leading, Communicating, Negotiating, Problem-solving, Influencing, Delegating and being Proactive					
Historical Info Lessons Learned EEFs OPAs	Docs and data on prior projects including project files, records, correspondence, closed contracts, and closed projects Knowledge gained during a project which shows how project events were addressed or should be addressed in the future with the purpose of improving performance Factors or conditions not under the control of the team , that influence, constrain, or direct the project, program or portfolio; i.e. Gov. regulations Any and all documents (artifacts), plans, processes, policies, procedures, and knowledge bases within the entity					
Project Roles						
Project Manager (PM) Organization Structure (5) Balanced Matrix Projectized Matrix Project Coordinator Project Expeditor Project Sponsor Stakeholder Functional Manager (FM) Project Management Office (PMO) Program Manager Portfolio Manager Management Staff Project Staff Users Influencer Sellers Business Partners	Person assigned to lead the team and is responsible for achieving the project objectives Functional Weak Balanced Strong Projectized; exam assumes balanced matrix unless otherwise stated PM shares responsibility with FM for assigning priorities and for directing the works of persons assigned to project PM authority high to almost total authority ; 100% of assigned resources report to PM Authority... more than expeditor; might assign resources (Weak Matrix) Authority... little to none (Functional Matrix) Person or group who provides resources and support for the project and is accountable for enabling success Individual, group or organization who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome; A sponsor can be a stakeholder but a stakeholder cannot be a sponsor Person who has management authority over an organizational unit; aka line manager Org structure that standardizes the project-related governance processes ; shares resources, methodologies, T/T's Overseeing multiple projects & managing multiple project teams to obtain broader benefits to the organization Oversee projects, programs, sub-portfolios, and operations managed as a group to achieve strategic objectives / business value Perform project management activities Team members who carry out the work of creating the project deliverables Members of the organization who validate and accept the deliverables; advise on the product, set requirements Person or group indirectly related to a project that can have a positive or negative influence on the project Vendors, suppliers, contractors external to to the project External to project and provide specialized expertise or fill a specified role					
Organizational Structure Types & PM Power						
Functional Matrix: Strong-Balanced-Weak Projectized	Team members work for a dept; may be loaned to a project at times; PM authority - little to none Combination with functional managers and project mangers; PM authority - greater in strong matrix, equal in balanced, and less in weak Project Manager is manager of projects and resources; PM authority - high to almost total <table><tr><td>Functional</td><td>Weak Matrix</td><td>Balanced Matrix</td><td>Strong Matrix</td><td>Projectized</td></tr></table> Less Formal Authority ← Power Shared between Project & Functional Managers → More Formal Authority	Functional	Weak Matrix	Balanced Matrix	Strong Matrix	Projectized
Functional	Weak Matrix	Balanced Matrix	Strong Matrix	Projectized		

Other	
Project Governance Total Quality Management ISO DIKW Pyramid PMIS	Defined by and is required to fit in with the larger context of the program and organization sponsoring it Consists of organization-wide efforts to install and make permanent a climate in which an organization continuously improves its ability to deliver high-quality products and services to customers International Organization of Standardization Data - Info - Knowledge - Wisdom <u>Work Performance Data</u> - <u>Work Performance Info</u> - <u>Work Performance Reports</u> Info system consisting of all the T/T’s used to gather, integrate, and disseminate the outputs of the project management processes; Automated Tool Suite
Config. Identification Config. Status Accounting Config. Verification & Audit	Selection and identification of a configuration item Implementation of status of approved changes Configuration verification and configuration audits ensure the composition of a project’s configuration items is correct
Common Inputs Common Tools Common Outputs	PMP, OPAs, EEFs, Project Charter, Agreements, Work Performance Data Expert Judgment, Data Analysis, Meetings, Interpersonal & Team Skills, Data Gathering, Decision Making, PMIS, Data Representation Updates (Project Management Plan-PMP, Project Docs, OPAs), Change Requests, Work Performance Info

Integration Management (7 processes)

Color Coded Process Groups: - Initiating - M&C - Planning - Closing - Executing	
Business Case Project Selection Methods Benefit Measurement Methods	Documented feasibility study; can it be done within estimated costs and will it be profitable; market demand – org / business need - customer request - legal requirement - technological advance - environmental / social need Systematic approach for selecting the project with maximum value to the organization PV, NPV, IRR, BCR, ROI, Scoring Model - Highest is Best ; Lifecycle Cost = Total Cost of Ownership (TCO)
Project Charter Project SOW Expert Judgement Project Management Plan	Document issued by sponsor that formerly authorizes a project; provides PM authority to apply resources Narrative description of products, services, or results to be delivered by the project Set of criteria and/or expertise that has been acquired in a specific knowledge area, or product area, a particular discipline, an industry, etc. PMP; formal document that describes how the project will be executed, monitored and controlled
Change Requests Corrective Action Preventative Action Defect Repair Changes Perform ICC	Formal proposal to modify any document, deliverable, or baseline Intentional activity to realign the performance of a project Intentional activity to ensure the future performance is aligned with PM Intentional activity to modify a non-conforming product or product component Changes to formerly controlled project docs, plans, etc., to reflect modified or additional ideas or content REAR ; Review - Evaluate - Accept - Reject change requests; Change Control Board (CCB or ECCB)
Close Project or Phase	Finalizing all the activities across all the Project Management Process Groups to formerly complete the project or phase

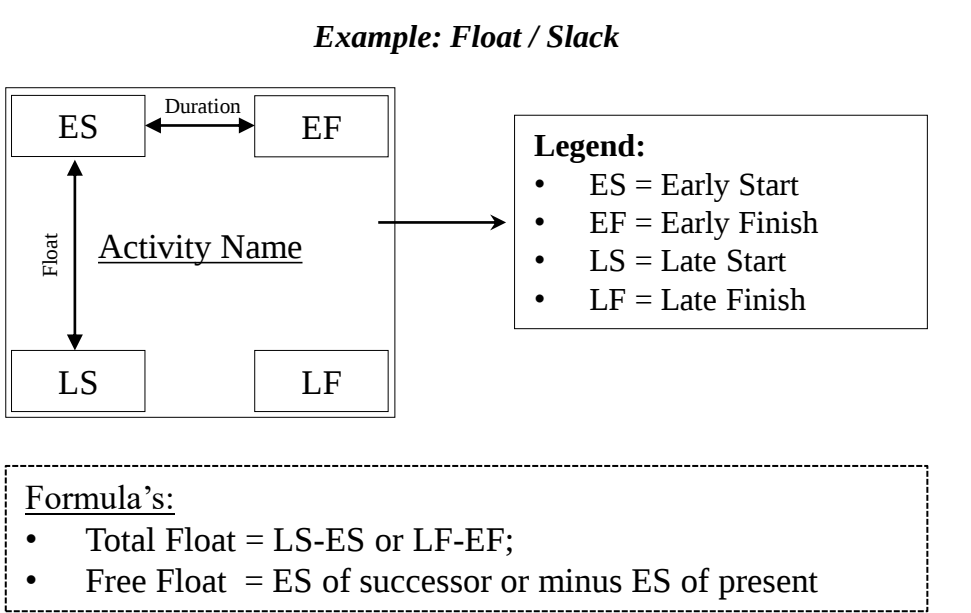
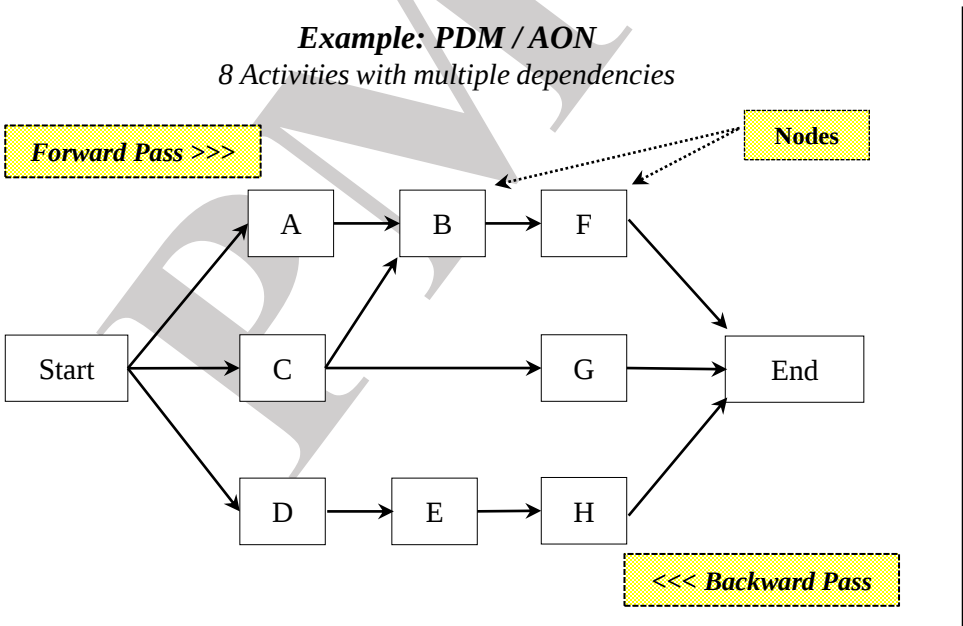
Scope Management (6 processes)

Color Coded Process Groups: - Initiating - M&C - Planning - Closing - Executing	
Facilitated Reqmts. Workshop Joint Application Development Quality Function Deployment Group Creativity Techniques Group Decision-Making Tech. Value Engineering	Focused sessions to bring stakeholders together to define product requirements JAD; users and developers working together QFD; collect customers implied needs w/o spin; QFD = HOQ = VOC (House of Quality/Voice of Customer) Brainstorming Nominal Group Technique (NGT) Idea/Mind Mapping Affinity Diagram Multicriteria Decision Analysis; NGT = Brainstorming + Voting + Ranking Unanimity Majority Plurality Dictatorship Approach used to optimize project life cycle costs, save time, increase profits, improve quality, expand market share, solve problems and/or use resources more efficiently; value does not always mean higher cost
Requirements Traceability Matrix Work Breakdown Structure Decomposition Control Account Planning Package Work Package Validate Scope Scope Baseline Project Scope Statement	Grid that links / traces requirements to business needs, opportunities, goals and objectives WBS ; Hierarchical decomposition of the total scope of work Breakdown of deliverables into smaller, more manageable pieces (Progressive Elaboration) Management control point where scope, schedule, budget, actual costs and schedule are integrated and compared to Earned Value for performance measurement; Highest level of WBS Component below the Control Account without detailed schedule activities; Middle level of WBS Associated with only ONE Control Account; Lowest level of the WBS Formalizing acceptance of the completed project deliverable (signature) Approved scope statement + WBS + WBS Dictionary (output of Create WBS) Description of the project scope, major deliverables, assumptions, and constraints (output of Define Scope)

Schedule Management (6 processes)



Network Diagram (ND) Precedence Diagram Method (PDM) Arrow Diagramming Method (ADM) Duration Burst	Diagram of the schedule activities in the order in which they are performed Activity-On-Node (AON) ; most common; used in critical path; ND where the activities are represented by the nodes and the arrows are dependencies; uses all 4-types of activity dependencies; uses forward & backward pass; does not use dummy activities Activity-On-Arrow (AOA) ; ND where activities are represented by arrows connecting nodes; AOA features ‘dummy’ activities Length of an activity An activity has multiple outputs that are predecessors to more than one activity
Types of Dependencies Logical Relationships Lead Lag	Mandatory (Hard Logic) Discretionary (Soft Logic) External vs. Internal ME - MI - DE - DI Dependencies between two activities where one activity must be started or finished before another activity can be started or finished; 4 Types: FS (push), FF, SS, SF (pull); Finish-to-Start (FS) is 99% most common Starting an activity prior to the finish of a preceding activity Delaying the activity after the finish of a preceding activity
Estimating: Analogous Bottoms-Up Parametric 3 - Point PERT GERT	Top-Down; use historical information from similar projects / activities to estimate effort, duration, or cost Most Accurate ; estimating effort, duration, or costs at lowest levels of the WBS and aggregate to the summary level (Control Account) Estimating effort, duration or costs using past performance information Average of effort, duration or costs; (Optimistic + Realistic + Pessimistic) / 3 Program Evaluation Review Technique (Space Shuttle) Weighted average of effort, duration or costs; Optimistic + 4*(Most likely) + Pessimistic / 6 Graphical Evaluation Review Technique ; Network analysis technique used in project management that allows probabilistic treatment both network logic and estimation of activity duration
Critical Path (CP) Float (Slack) Free Float Negative Float Critical Path Method (CPM) Critical Chain Method (CCM) Schedule Compression Crashing Fast Tracking Resource Smoothing Resource Leveling	Path of highest risk ; path of schedule activities where the delay of any one activity would delay the project finish Amount of time an activity can be delayed without delaying the project finish; LF - EF or LS - ES Amount of time an activity could be delayed without delating the Early Start (ES) of a subsequent activity Situation of a schedule activities Early Finish (EF) being after a subsequent activities Early Start (ES) project finish <u>Longest path in time</u> or <u>minimum time required</u> to complete the project; any delay must be addressed immediately Allows the project team to place buffers on any project schedule path; CCM manages buffers instead of float Shortening the project schedule <u>without reducing project scope</u> ; Crashing (apply more resources) vs. Fast Tracking (perform activities in parallel which increases risk) Putting more resources on the critical path activities Doing activities in parallel that are normally in sequence Adjust resources not to exceed resource levels; Critical Path is not changed Over allocation of resources; always causes the Critical Path to change
Modelling Techniques Milestone List Gantt Chart Hammock Activities Schedule Baseline	What-if scenarios; Monte Carlo simulation; thousands of variables assessed (i.e. hurricane model) High-level significant points for Scope - Schedule - Cost; used by senior management Horizontal bar chart used to display project schedule; used by middle management Schedule planning term for grouping smaller tasks that ‘hang’ between two end dates (summary of activities) Accepted and approved version of the project schedule



Key Benefits of Process ‘XXX’	
Develop Project Charter	- Provides a direct link between the project and the strategic objectives of the organization, creates a formal record of the project, and shows org commitment to the project This process is performed once
Identify Stakeholders	Allows the project manager to identify the appropriate focus for engagement of each stakeholder or group of stakeholders
Plan Stakeholder Management	Provides a clear, actionable plan to interact effectively with stakeholders
Plan Communications Management	Documented approach to effectively and efficiently engage stakeholders by presenting relative info in a timely manner
Plan Scope Management	- Provide guidance and direction on HOW scope will be managed throughout the project This plan helps reduce the risk of project scope creep Scope Creep is defined as the uncontrolled expansion to product or project scope without adjustments to time, cost and resources
Collect Requirements	Provide guidance and direction on HOW scope will be managed throughout the project
Define Scope	- Describes the product, service or result boundaries and acceptance criteria - Critical to project success
Create WBS	Provides a framework of what is to be delivered
Plan Schedule Management	- Provide guidance and direction on HOW the project schedule will be managed throughout the project - Defines HOW schedule contingencies will be reported and assessed
Define Activities	Decomposes (Breakdown) work packages into schedule activities that provide a basis for estimating, monitoring, and controlling the work
Sequence Activities	Defines the logical sequence of work to obtain the greatest efficiency given all project constraints
Estimate Activity Durations	Provides the amount of time each activity will take to complete
Develop Schedule	By entering schedule activities / durations / resources / resource availabilities / and logical relationships into the scheduling tool, it generates a schedule model with planned dates for completing project activities
Plan Resource Management	Establishes the approach and level of management effort needed to manage resources based upon the type and complexity of the project
Estimate Activity Resources	Outlines and guides the selection of resources and assigns them to respective activities
Plan Cost Management	Provides guidance and direction on HOW the project costs will be managed throughout the project
Estimate Costs	- Determines the monetary resources required for the project work Cost Estimates... Prediction at a given point in time
Determine Budget	Determines the cost baseline against which project performance can be monitored & controlled Project Budget includes all the funds to execute the project, excluding management reserve
Plan Quality Management	Provide guidance and direction on how quality will be managed and verified throughout the project
Plan Procurement Management	Determine whether to acquire goods & services from outside the project (what to acquire, how to acquire it, how much is needed, and when to acquire it)
Plan Risk Management	Ensures that the degree, type, and visibility of risk management are proportionate (commensurate) to both risks and the importance of the project to the organization and other stakeholders
Identify Risks	Documentation of existing individual project risks and the sources of overall project risk
Perform Qualitative Risk Analysis	- Focus efforts on high-priority risks. Enables project managers to reduce the level of uncertainty. - Assesses the priority of identified risks using their relative probability or likelihood of occurrence - Rapid and cost-effective means of establishing priorities - Performed regularly throughout the project life cycle

Key Benefits of Process ‘ XXX’	
Perform Quantitative Risk Analysis:	- Quantifies overall project risk exposure, and provides additional quantitative risk info to support risk response planning - Performed on risks that have been prioritized by the Perform Qualitative Risk Analysis process as potentially and substantially impacting the projects competing demand. - Used to evaluate the aggregate effect of all the risks affecting the project. - Repeated as needed
Plan Risk Responses	- Identify appropriate ways to address overall project risk and individual risks - Includes the identification and assignment of ONE person (an owner of the risk response) - Each risk is agreed-to & funded risk response - Risk response should be appropriate / realistic for the significance of the risk PM assigns risk owner
Develop Project Management Plan	Production of a comprehensive document that defines the basis of all project work and how the work will be performed (Formal document that defines the basis for all project work) - Defines how the project is executed, monitored & controlled - Progressively elaborated - All changes go through ICC (Integrated Change Control or Contract Change Control) - Handling the make-or-buy decisions
Manage Stakeholder Engagement	- Allows the PM to increase support and minimize resistance from stakeholders Active management of stakeholder involvement decreases risk of project failing - Obtain, confirm, or maintain stakeholders continued commitment to project success - Manage expectations through negotiations and communication - Address any risks potential concerns that have not become issues yet - Anticipate future problems - Clarify & resolve issues that have been identified
Manage Communications	- Enables an efficient and effective and effective information flow between the project team and stakeholders Goes beyond distribution of information - Seeks to ensure the info being communicated to stakeholders has been appropriately generated/formatted, and received by the intended audience. (UNDERSTOOD by client) - Provides opportunities for stakeholders to make requests for further info, clarification & discussion
Acquire Resources	Outlines and guides the selection of resources and assigns them to their respective activities - The PM may or may not have direct control over resource selection due to collective bargaining agreements, use of subcontractor personnel, a matrix environment, internal or external reporting relationships - If not executed effectively, staff and other resources could be improperly assigned and the schedule being incorrect, result in work that is inadequate and untimely
Develop Team	Results in improved teamwork, enhanced interpersonal skills and competencies, motivated employees, reduced attrition (turnover rates), and improved overall project performance
Manage Team	Influences team behavior, manages conflict, resolves issues
Manage Quality	- Sometimes referred to or called Quality Assurance - Facilitate the improvement of quality processes; validates the quality process, NOT the product
Implement Risk Responses	Ensures agreed-upon risk responses are executed as planned in order to address overall project risk exposure, minimize individual project threats, and maximize individual project opportunities
Conduct Procurements	- Selects a qualified seller and implements the legal agreement for delivery; - The end results of this process are the established agreements including formal contracts; - Performed periodically throughout the project as needed
Manage Project Knowledge	Prior org knowledge is leveraged to produce and improve the project outcomes, and knowledge created by the projects available to support org operations and future projects and phases
Direct and Manage Project Work	Provides overall management of project work and deliverables

Key Benefits of ‘XXX’ Process	
Perform ICC	Allows for documented changes within the project to be considered in a integrated manner while REDUCING PROJECT RISK
Monitor Stakeholder Engagement	Maintain / Increase efficiency and effectiveness of stakeholder engagement activities - Continuously controlled - Ensures active participation throughout the project - Failure to effectively perform MSE process may result in failure to distribute WPI and requested changes to the appropriate stakeholders.
Monitor Communications	Ensures OPTIMAL information flow among all communication participants - Stakeholders must know the status of the project in the appropriate detail and in a timely manner to make reasonable decisions
Control Scope	- The scope baseline is maintained throughout the project. This process is performed throughout the project. Ensures ALL (requested / corrective & preventative actions) changes are processed through Perform ICC
Control Schedule	- The schedule baseline is maintained throughout the project. This process is performed throughout the project. Ensures ALL (requested / corrective & preventative actions) changes are processed through Perform ICC
Control Costs	- Provides the means to recognize variance from the plan in order to take corrective action and minimize RISK - The key to effective cost control is the management of the approved COST BASELINE and the changes to that baseline Ensures ALL (requested / corrective & preventative actions) changes are processed through Perform ICC Monitor the expenditure of funds to ensure VALUE OF WORK (consumption vs. physical work accomplished)
Control Quality	- Verifying that product deliverables and work meet the requirements specified by key stakeholders for final acceptance - The CQ process determines if the project outputs do what they were intended to do - Outputs need to comply with all applicable standards, requirements, regulations, and specifications Ensures ALL (requested / corrective / preventative actions) changes are processed through Perform ICC
Control Resources	- Ensure that the assigned resources are available to the project at the right time, right place, right amount and are released when no longer needed - Concerned with physical resources such as equipment, materials, facilities and infrastructure
Validate Scope	- Brings objectivity to the acceptance process and increases the probability of final product, service, or result acceptance by validating each deliverable Deliverables that meet the acceptance criteria are formally signed off and approved by the customer or sponsor - FORMAL DOCUMENTATION received acknowledging formal stakeholder acceptance of the project deliverables - This document is forwarded to CLOSE PROJECT / PHASE.
Monitor Risks	Enables project decisions to be based on current info about overall project risk exposure and individual project risks - Determine... - Project assumptions are still valid - Analysis shows an assessed risk has changed or can be retired - Risk management policies and procedures are being followed - Contingency reserves for cost or schedule should be modified
Control Procurements	Ensures both the sellers and buyers performance meet the projects requirements according to the terms of the legal agreement - Determine... - Project assumptions are still valid - Analysis shows an assessed risk has changed or can be retired - Risk management policies and procedures are being followed - Contingency reserves for cost or schedule should be modified
Monitor and Control Project Work	- Allows stakeholders to understand the current state of the project, to recognize the actions taken to address any performance issues, and to have visibility into the future project status with cost and schedule forecasts Continuous monitoring gives the PM team insight into the health of the project - Concerned with... - Actual project performance vs. PMP - Determine corrective/preventative actions required - Keep project data current & timely - Forecast project progress Track status of approved changes as implemented
Close Project or Phase:	- Project or phase info is achieved - The planned work is completed - Org team resources are released to pursue new endeavors

